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IT is our aim, our ambition, our aspiration even, to build our Journal worthily and well, not for the hour only, but for future years; for the few men in the forefront of an enduring and a laborious Art; for the disciplined ranks of a distinguished Profession; for the young men—Architects to be—and for all who love a clustered column or a flying buttress, a traceried window or a Greek frieze, for the man, too, who honestly plumbs a jamb.

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An Architectural Causerie.

Cruciform Churches.

THERE has lately been a great deal of talk about the desirability of placing buildings hallowed by Time in charge of a State-appointed Director of Works to whom all proposals for restoration shall be submitted, and whose business will be to be sure that not a stone is displaced unless its removal has been proved to be necessary; the expense of maintaining the office to be borne by generations-to-come of irreverent tourists who, because they pay rates, will maintain their right to be heard. The argument is that we are more than sufficiently burdened already by having the expense of the Church as Established in England to bear, and that as often as Dean and Chapter come begging they should be directed to address their appeals to the said Minister. The change will come by-and-bye. Meanwhile, we hear every day that some beautiful building, either the whole or a part, is in imminent danger of falling, and that funds to avert the impending disaster are urgently needed. The people, thanks to the Press, are being taught by degrees to appreciate the value of what they possess, and we venture to hope that a little information, if it helps them to see where the danger lies, will not be considered superfluous. The cruciform church, with its great central tower, if not peculiar to England, is at least more common here than elsewhere. It is at any rate certain that the collapse of so many towers is due to the fact that the churches were built on these lines. The vulnerable points in every such building are in the piers which carry the lantern. To support the assertion there are more than sufficient facts. The central towers of all these churches have fallen, and we have no doubt that a much larger list could be made:—

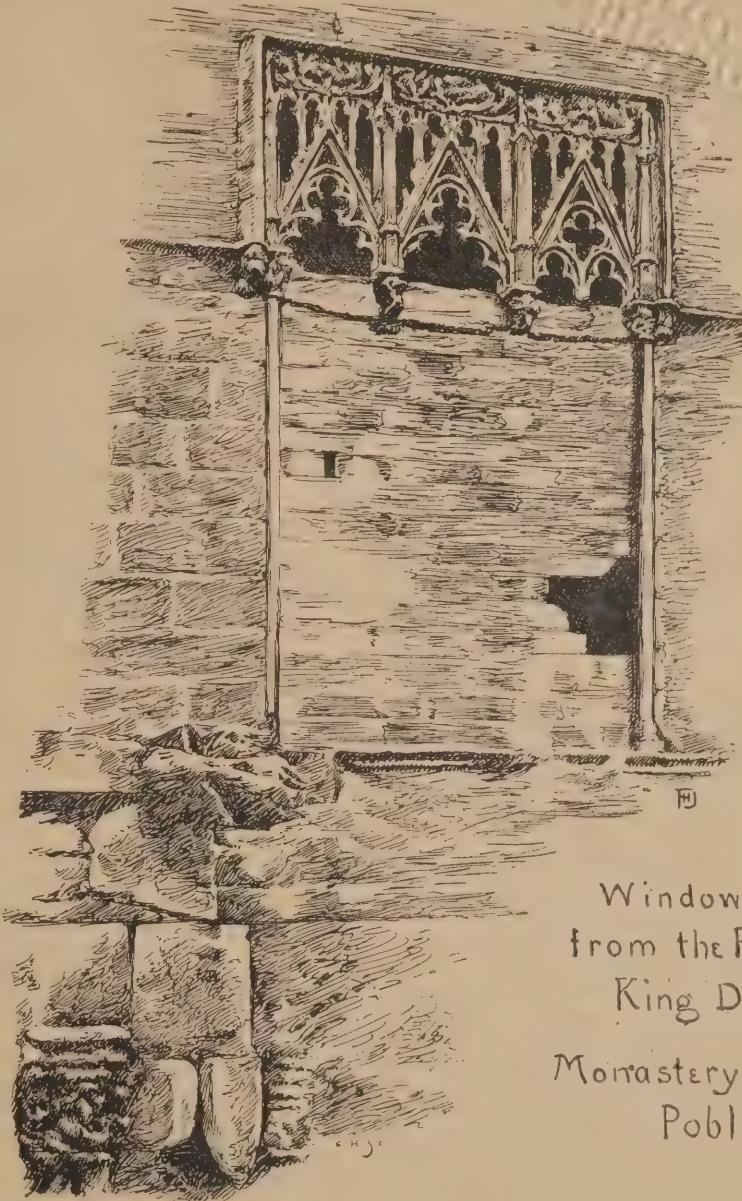
Worcester, 1107, and again 1221
Winchester, 1175.
Bury St. Edmunds, 1210, and again 1420.
Evesham, 1207.

St. David's, 1220.
Ely, 1321.
Ripon, rebuilt 1459.
Selby, 1690.
Chichester, 1861.
And Hereford even more recently.

Those of Peterborough, Gloucester, and St. Albans were taken down simply to prevent them from falling, while others, as at Salisbury and Wells, have been saved from ruin by extraordinary precautionary measures. There is a popular book about churches whose author, the Rev. H. H. Bishop, says: "Excepting Beverley, I know of no instance in which the builders of the thirteenth century made any special provision to meet the thrust of the aisle arcades," and, further, that "the Gothic builders almost universally adopted a scheme of plan and section which, although of unequalled beauty, was inconsistent with the fundamental principle of Gothic design. That principle I take to be this—that no pressure shall be left unbalanced." A casual glance towards the centre of almost any

cruciform church will convince the reader that this is a fair account of the matter, and his conclusion will probably be that such awfully bad builders as the Normans undoubtedly were should never have built on these lines. Granted perfectly sure foundations; granted even stupendous weight in the tower, and that the downward pressures permit no deflection from the vertical line, then no amount of force applied laterally would dislocate pier or tower, and to the mind of the modern builder the problem would present no insurmountable difficulty. If he were to work in as reckless a way as the Normans, then would his biography, when it came to be written, be

weakness. But those of Westminster and Salisbury bend like reeds. At Westminster they are held up by iron ties." (As a string to a bow is a "tie" to an arch; it has the effect of converting outward into downward pressure, and the arch, if treated in this way, becomes in effect a "beam.") The case of Peterborough Cathedral supplies a flagrant example of unprincipled building. The central tower was pulled down only to keep it from falling, as that of Ely had done just before. The piers that remained carried only a lantern (or *fleche*) until 1883, when the late Mr. Pearson set up his tower in the style of the Norman original. The piers, to be fit for the weight they were originally



Window
from the Palace of
King D. Martin
Monastery of
Poblet

A SKETCH BY F. HAMILTON JACKSON, R.B.A.

enlivened throughout with the details of actions for manslaughter. So will it be seen that what we have said applies not to the church of to-day. "The grand old Norman work," says the writer just quoted, "was not altogether good building . . . the central tower in most cases either fell down or had to be rebuilt or buttressed up in order to avoid the ruin which their fall would otherwise have caused . . . the huge piers (which command so much admiration) are mere cases of wrought stone filled up with rubbish." "Very massive piers like those of Lincoln, and those of Durham and Winchester earlier, held down by the weight of the great tower above, show no signs of

intended to bear, had to be rebuilt altogether. His report on the building was that the whole church, in so far as it was Norman, stood upon no proper foundations at all—upon rubble, in fact. The bed rock upon which it should have been founded was only 3ft. below. The massive piers that we boast of are rotten at the core, like our own earth according to Tennyson, and are merely cased with wrought stone—

The arch never sleeps.

Whosoever has this in his mind will come by the shortest way to a well-nigh complete understanding of the loveliest of architectural styles.

E. R.

TALKS WITH BURNE-JONES.

"POPULARITY" & GREATNESS IN ART.

MR. WILLIAM SHARP contributes to the Fortnightly Review, an interesting article on the late Sir Edward Burne-Jones. Mr. Sharp saw Burne-Jones for the last time in May, and found him in a mood of depression. He had but a short time left him, the painter said, in which to work. "Do you remember," he said, "what Rossetti used to say about the fatal month of May?" Mr. Sharp replied that after all Rossetti died in April. Burne-Jones rejoined, "A few days one way or another means little." On June 17th he died.

AN UNPAINTED "AVE MARIA."

Mr. Sharp had met the master in Trafalgar Square, and found him murmuring to himself: "I was thinking," he said, "of a large picture I have long had in my mind to paint—an 'Ave Maria!' I have pondered this in a hundred ways for years past; but ever since dear Morris died I have thought of it much more, for we had talked about it not long before his death. Still I have not been able to get at it. Something brought it into my mind to-day, and what I was recalling to myself, when we met, was a strange little poem that 'Topsy' (a favourite nickname of William Morris among his intimate friends) wrote when we were both undergraduates at Oxford, more than forty years ago. You will find it in a lovely little tale that has never been reprinted since it was published in the Oxford and Cambridge, called 'The Hollow Land.' This is how it goes:—

Queen Mary's crown was gold,
King Joseph's crown was red,
But Jesus' crown was diamond,
That lit up all the bed.

Mariae Virginis.

Ships sail through the Heaven,
With red banners dress'd,
Carrying the planets seven
To see the white breast.

Mariae Virginis."

"Then, abruptly, and with a petulance foreign to his singularly sweet and courteous disposition, he exclaimed, 'But there, you don't expect a spent horse to win a race. Let us say no more about my work. I have done what I could. As for what I have told you, well, we all love to live among our dreams.'"

NEWMAN AND PATER.

In discussing further "the singular raptness in vision" which was characteristic of Burne-Jones, Mr. Sharp says that one of his favourite passages in modern literature was that fine saying of Newman's: "Every breath of air and ray of light and heat, every beautiful prospect is, as it were, the skirts of their garments, the waving of the robes of those whose faces see God in heaven." Another modern author for whom Burne-Jones had great admiration was Walter Pater. "I recognise so much of myself in this book," he once said, "of 'Marius the Epicurean,' that at times it is almost too personal to me to read without disquietude." Another mention of Pater will occur presently.

BURNE-JONES ON MILLAIS.

On one occasion a somewhat Philistine connoisseur was rallying Burne-Jones on his uncompromising devotion to his ideals. "Look at Millais," he said, "no one has achieved so big a success as he has. Yet if he had stuck to his early principles like you and Rossetti, and Hunt, and Morris, and the rest, do you think for a moment he would have become the successful man he is?" "Perhaps not," replied Burne-Jones, slowly, "but he might have become a greater artist." When the connoisseur left, Burne-Jones took up his parable and said to Mr. Sharpe:

"As for what I said about Millais, I feel that deeply, though I could not say more than I did before our friend who has just left, who would repeat my words to all and sundry, and probably to Millais himself. But at nearly all his later work I look with bewildered pain. He might have been so great; but just when his noble powers had reached maturity, the artist died in him, and left only the splendid

craftsman. And this was because he listened to that fatal siren-song of the ignorant and spiritually vulgar multitude, who love to look at pictures, but who are distrustful of—when they are not actually resentful against—Art, unless it be as old (and foreign) as Rembrandt, or as old (and foreign) as Titian and Rafael. As a younger man Millais set himself to interpret noble things nobly, beautiful things beautifully. Are not his 'Autumn Leaves' and his 'Vale of Rest' worth leagues of works such as he has been doing of late? And I for one do not hesitate to aver that Rossetti, in his splendid failure in Art, was far greater both in achievement and influence than Millais is in his brilliant success—as man is to be measured by his soul's reach as well as by that of his hands. What is a man's outlook is as important in Art as it is in life. Many an artist is redeemed from failure by the power of the spirit within him."

"POPULARITY" AND GREATNESS.

Enlarging on this theme, Burne-Jones spoke with swift and eager emphasis:

"If the greatest artist is the man who achieves the greatest success—if the greatest because of this—that author is the greatest whose books have the largest sale. Take this book here ('Marius the Epicurean'). I don't suppose its sale will exceed a couple of thousand copies. But Mr. So-and-So's romance of the impossible in Africa, or Miss So-and-So's romance of the intolerable nearer home, runs to tens of thousands. Therefore, according to you, the shallow and necessarily ephemeral work of a person with inventive mind and a certain literary faculty is greater than a book like this, the deeply considered and exquisitely wrought work of a true literary artist, any single page of which is literature. But the matter is really not worth arguing. There are too few who care for beauty in any Art. The very name of a great writer like Pater is unknown to the vast Mudie world. Yet what writer, truly moved and actuated by the quest of beauty, but would rather be Walter Pater than (leaving aside Meredith and Hardy) all the popular novelists of the day concentrated in one gigantic 'success,' as you would call him? What poet would not rather be Keats, and read by a few hundred, than be Tupper read by a million—or even so good and true a writer in verse as Longfellow?"

THE PAINTER AS SIR GALAHAD.

In another very interesting passage Burne-Jones defined his ideal of the painter's art:

"To be a painter is to be an impassioned votary of truth, whether that truth be a spiritual idea, or an historical circumstance, or an external fact; and to be so wrought by the need of recreating what has moved him that whatever else he has to do in life must be subservient to this end; and to see this new persuading aspect of actual or symbolical truth in the atmosphere of colour, with the contours and horizons of line, to see it to the point of adequate and convincing reproduction within the boundaries of line and the just and beautiful relation of colour. But to be a great painter, a man must also have a great spirit. He must be a dreamer, and not be ashamed of his dreams; must, indeed, account them of permanent worth; he must be prepared for both indifference and hostility; he must be so continent of his faith that he will not barter the least portion of it in order to win a worthless approval; he must be so proud that he will disdain to prostitute his genius to a public use; he must be so single-hearted that, like Sir Galahad, there can be for him only one Sanc Grael, beauty, and only one quest, the lifelong, insistent effort to discern and to interpret in beauty that loveliness, that beauty, which is at once his inspiration, his dream, his despair, and his eternal hope."

THE Metropolitan Tabernacle, London, it is expected, will be ready for reopening in about twelve months. A lecture hall, with accommodation for 1400, is being pushed forward for use in the meantime. The total cost is estimated at £32,000, which is £10,000 over the amount for which the building was insured at the time of the fire.

In the Heights of St. Paul's.

A PILGRIMAGE TO THE GREAT BALL.

A PILGRIMAGE to the top of St. Paul's is a trip to be undertaken once, in one's youth, and once only. At least this is the conclusion come to by a Daily Mail pilgrim. The commencement of the ascent, it is true, is simple enough; the broad, shallow steps being apparently designed for the express object of luring the unwary one upward and onward. After the Whispering Gallery is passed the passages grow narrower and more tortuous; and the way wended becomes darker and dustier. It is not until the Golden Gallery is reached, however, 300ft. above the floor of the dome, that the real difficulties begin. From here the ascent is by a series of iron and wooden ladders; some set at a slight angle, others quite perpendicular. Up, up, up,

AMID A MAZE OF STAYS,

joists, and brackets! Higher yet, to where huge iron girders—hand-worked, and made of charcoal-smelted iron from the Sussex iron-fields—bind the mighty ball and its superincumbent cross to the main fabric of the building. In some places it is hard to squeeze one's body between these self-same girders, of such monstrous thickness are they. And they need be thick, and tense and flawless into the bargain, for they support a weight of more than 600 tons, poised nearly 400ft. in air. Again higher, creeping cautiously up iron ladders set inside a gigantic, up-ended drain-pipe. And then—a species of apotheosised gridiron! That is all. Sixty-five feet below the iron-barred aperture leading to the ball, in a little circular chamber situated immediately over the centre of the dome, but 300ft. above it, is an old man whose time is devoted to extracting shillings from visitors for the very doubtful privilege of climbing as high as the grating aforesaid. Unless the climber on his way down proceeds to ask inconvenient questions, nothing is said concerning this

CLOSING OF THE BALL,

and, doubtless, many people go away under the impression that the stove-pipe arrangement into which they have succeeded in projecting themselves is the veritable interior of the ball itself. But to those who insist upon an explanation a curious story is told. It appears that in the autumn of 1884, the year rendered memorable by the series of criminal explosions which shocked and terrified London, an anonymous letter was delivered to the cathedral authorities. Therein it was stated that dynamite was to be surreptitiously conveyed into the ball, and therein exploded, the object being to hurl the cross from its place, and send it crashing downwards through the triple dome on to the heads of the hapless worshippers below. This may have been a canard; and, on the other hand, it may not have been. The Dean and Chapter inclined to the opinion that it was not. So did Scotland Yard. Result—the gridiron, aforesaid. It was, perhaps, a wise precaution then. But it certainly does seem a pity that now, when the dynamite campaign is as dead as the proverbial door-nail, it should not be abrogated. One thing that must strike every pilgrim to the top of St. Paul's is the number of people who have not been deterred by the sacredness of the place from inscribing their names upon the walls of the galleries and staircases. Thousands of signatures have been cut deep into the solid stone itself; but these, it will be noticed, mostly bear dates ranging from 1700 up to 1760. During that period free access was allowed to this

UPPER PORTION OF THE CATHEDRAL,

and no supervision whatever was exercised over visitors. Later on attendants were stationed at various coigns of vantage, with the object of stopping the desecration. They were successful, so far as the stone-carving was concerned. To carve even one's initials in Portland stone is a work of time. But they could not stop the scribbling in pencil, and thousands of individuals have recorded, in this comparatively innocuous manner, their presence among this wilderness of ladders and joists.

SPAIN:

Its Picturesque Cities and Monasteries.

IV.—THE MONASTERY OF POBLET.*

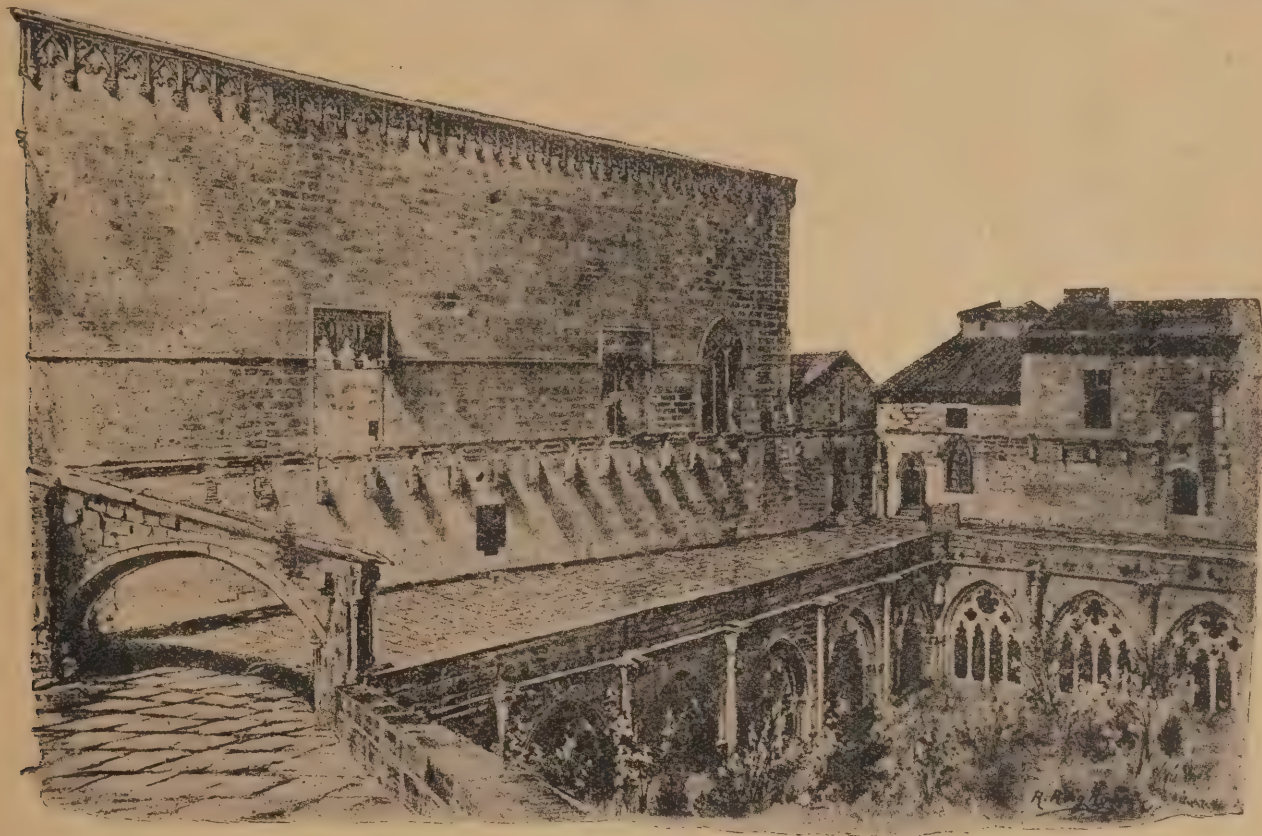
By F. HAMILTON JACKSON.

THE royal dwelling known as the Palace of Don Martin, for the reason that Don Martin el Humano ordered it to be built in 1397, occupies the upper part of the spacious building, which served as a wine-press, just within the Puerta Real, to the right of which a staircase ascends to it. The king died before the works were finished, and political disturbances suspended them. In 1632 they began again, in the reign of Philip IV., but were soon discontinued, and have never been carried far enough to make the palace habitable. The door at the bottom of the staircase is delicately

ribs, and have been cited as examples of excellent construction in various treatises on the subject. It is thought that the one was originally intended for Royal stables, and that the other may have been a dining-hall for the lay brethren, lying as it does in a similar position to the refectory on the other side of the kitchen offices.

Beyond the library are the internal cloisters, of which there are two, both very ancient; that of St. Estéban, so called because it is close to the chapel dedicated to that saint, also known as that of the infirmary because sick monks were nursed back to health in the rooms on the first floor; and that of the parlour, through which one passes to reach the former, so called because it was the only place in the monastery where the monks were allowed to speak above a whisper and to discuss all sorts of questions. The cloister of St. Stephen was reconstructed in 1415, but the arcade is Romanesque. It is rather more than 18ft. long by 55ft. wide. The Chapel of St. Stephen is the second of the three buildings which Ramón Berenguer IV., of Barcelona, ordered to be built at the foundation of the monastery

burial-place of many kings and great nobles, but before speaking of the burial-places which formerly existed, and of which such small remains have been left by the insensate fury of the revolutionists of 1836, it will be well to give some account of the foundation of this monastery, in which are mingled facts which are historical, and legends. The story is as follows: In the first half of the twelfth century Ciurana and the surrounding country were ruled over by the Moorish under-king, Emir, Almira-Almominiz. In one of his hunting excursions he encountered a hermit called Poblet, in a humble hut in the place called Lardeta, situated in the plain called "La Conca de Barberá," from the shell-like shape of its plan, near to Esplugas de Francoli. The king seized him and put him in prison, but angels having broken his chains three times, he was convinced that he was a person of great virtues, and that Providence protected him. Wherefore he made him a grant of the site of Lardeta, and the document then executed was kept in the archives of the monastery as a precious relic, and a translation was made into Castilian. After the destruction of the



THE MONASTERY OF POBLET. PALACE OF DON MARTIN. CLOISTER FAÇADE.

moulded and carved, and above it are the arms of Aragon. The plan of the building is a rectangle of about 80ft. by 16ft., which was apparently intended for State apartments, the staircase to which was only commenced—that now existing was to lead to the sleeping apartments, which were to have been over the galilee of the church, beneath the rose window in the western wall of which is an aperture communicating with this portion of the building, by means of which the Royal family would have been easily able to assist at the divine offices. The design is of the richest later Gothic, the windows delicately carved, with crockets and moulded arches, the heads filled with graceful tracery between geometric and flamboyant, of which some are square headed and some pointed. As has been said, the basement of this palace consists of a building used as a wine-press, and there are channels which pass to the cellar on the other side of the passage, so that the grape juice might pass straight to the vats without any labour being necessary. Both of these edifices, wine-press and cellar, are vaulted with square

in memory of the three mysterious lights which appeared here, and to which reference will be made a little further on. Close to these cloisters, in front of the chapel, is a courtyard, 125ft. long by 25ft. broad, prepared for the national game of "pelota"—a sort of magnified "fives." It is thought at one time to have served as refectory, but there are no traces of vaulting, nor is it covered in any way.

On the east front beyond this court is a suite of rooms known as the Royal apartments, which have a splendid view towards the south, but are not remarkable, though they date from the fourteenth century. Following the northern wall, we come to the dwellings of the prior and of the apothecary, with their gardens and laboratories, and in the corner, close to the angle tower, is the bakehouse, with its ovens and the houses in which the journey-men lived. In the whole circumference of the wall there are twelve towers, which are known by such names as that of the prison, that of the host, that of St. Stephen, of the infirmary, of the Vicar-General, of the gardener, and so on, and are placed at suitable distances for defensive purposes.

The Monastery of Poblet was the chosen

monastery in 1836 it was removed with other documents to the Academy of History at Tarragona, and an Orientalist was commissioned to make another translation. The first represents the Arabic as a deed of gift, the second only as a permission from the King of Lérida to the shepherds of the monks to pasture their flocks in his kingdom without hindrance or damage. It is to be supposed, therefore, that the first document has perished or been lost, especially as the date given in the document is 614 of the Hegira, which corresponds to 1217 of our era, at which time there was no Moorish under-king in Catalonia, and a hundred years after the date of Poblet. It is certain that the Moorish under-kings left Poblet in undisturbed possession of Lardeta, which was called "Poblet's Garden" from that time. The hermit, with two or three companions, built a little chapel there with a small house in which to lodge.

Ramón Berenguer, the fourth Count of Barcelona, conquered Catalonia in 1148, and desiring to establish the Cistercian order in his dominions, thought that he might very well erect a monastery in the conquered territory. Having heard of the virtues and great

* Continued from page 444, Vol. vii.



THE MONASTERY OF POBLET. THE NOVICES' DORMITORY.

deeds of Poblet and his companions, he asked the Abbot of Fuen Fria to send him the requisite number of monks to form the community of the monastery which he proposed to erect in the domain of Poblet, already sweet with the odour of sanctity, accompanying his request with the donation of the territory. This gift was ratified in 1150, with a detailed account of the rights and dues which he gave up, and these documents still exist. At the same time he ordered the construction of the buildings.

The legend of the mysterious lights is this. The hermit Poblet and his companions observed while at their devotions on each Saturday various rays or streams of light, which hung suspended perpendicularly in the air, and which were so bright as to illuminate the whole space now enclosed within the walls of the monastery. Three spots of light were specially noticeable among the others, which, one may remark, were seen by the country folk as well as by the hermits. One, consisting of but one ray of light, shone in the east; another, more to the west, was composed of

two rays; and the brightest, composed of three rays, shone betwixt the two. Count Ramón Berenguer, having heard of these appearances, determined to plant his monastery in the garden of Poblet, and interpreted the apparition of the lights on Saturday, the day dedicated to the Virgin, as a sign that God pointed out that place for the desired foundation. In memory of the three wonderful lights he ordered three churches to be built, as well as the dwellings necessary for the new community. One of them, dedicated to the proto-martyr, St. Stephen, was built on the spot where the light fell, which consisted of but one ray; another, on the place where the two-rayed light fell, was dedicated to St. Catherine; and the third was the great church, the high altar of which is said to be placed on the spot where the three-rayed light fell. At the singing of the "Salve Regina" it was always the custom in the monastery to light three lights on the high altar in remembrance of the tradition of the three marvellous lights, and in sign of thankfulness for benefits received from God.

The monastery was perhaps the most celebrated and powerful in Spain, possessing, as it did, very large domains, and exercising seigniorial rights over seven baronies, while the treasures of precious objects—church plate, embroidered vestments, jewelled reliquaries, processional crosses, images of saints, candelabra, &c.—reached an enormous value. The relics catalogued numbered 285, and the catalogue ends with the words, "and many other relics without number." It received many gifts from the Kings of Aragon and from the great nobles while living, and contained their ashes after death: the royal sepulchres having been among the finest and most elaborate works of the kind in Spain. Suchet ravaged the church and robbed it of much, but the great destruction was wrought in 1836 by the Spanish revolutionists, since which time the monastery has lain in ruins. The ashes of the kings, which were cast to the winds when the sepulchres were destroyed, were in part piously collected by a local parish priest named Soret, and now rest in the cloister at Tarragona. The body of the great King, Don Jaime I. El Conquistador, is by itself in a tomb which was brought from Poblet and erected, in 1856, against the trascoro of the Cathedral of that city.

The royal sepulchres were situated in the transept between the lateral pillars, carried on arches thrown across so as to allow of passing beneath them. It was Pedro IV. of Aragon who ordered their construction, in the year 1367, with the object of providing a resting-place for the remains of his ancestors and for himself and his successors. The royal personages buried here were: James I. the Conqueror, Pedro IV. and his three wives—Doña Maria of Navarre, Doña Leonor of Portugal, Doña Leonor of Sicily—Ferdinand of Antequera (in whose tomb was also placed, by Ferdinand the Catholic, the remains of twelve Infantes of Aragon, which had previously been contained in wooden coffins). The tomb was prepared by Don Martin El Humano, but his successor appropriated it! These were on the right of the altar. On the left were buried Alfonso II., son of Ramón Berenguer, the founder of the monastery, Juan I. and his two wives, Doña Martha of Armeñach and Doña Violante, niece of Charles V. of France, also their daughter, Doña Juana, Duchess of Foix, Juan II. and his wife, Doña Juana Henriquez, and their daughter, Doña



THE MONASTERY OF POBLET. EXTERIOR OF THE CHAPTER HOUSE.

Marina. There were other royal sepulchres elsewhere in the church. Some of the same date are at the sides of the chapel of St. Benito, in which were buried four sons of Don Pedro IV., and one on the other side containing the body of his daughter Doña Juana. Juan I. also built four sepulchres for his sons above the door to the old sacristy—of all these but small remains are left, sometimes only the brackets upon which the tombs were placed, sometimes not even so much as that. Against the staircase to the dormitory are the mutilated remains of a fine tomb in which was buried the tenth Viscount Cardona, Don Ramón Folch, who defended Gerona against the French in the time of Pedro the Great. It was constructed in 1669 by Juan and Francisco Grau, of Manresa, and cost 4800 pesetas. Against the angle pier are the remains of the tomb of Alfonso V., the Learned, which was made in Naples in the seventeenth century. Opposite to this was the tomb of Enrique de Aragon, Grand Master of Santiago, the son of Ferdinand I. and his wife Leonor—with his two wives Doña Catalina Infanta of Castile and Doña Beatriz de Portugal; and yet another little tomb was here, constructed by Don Martin for his grandson the Infante Don Pedro Fadrique of Sicily, son of Don Martin and Doña Maria, monarchs of Sicily.

The Duke of Cardona, Don Ramón Folch, whose tomb is by the Novices' Staircase, altered the royal sepulchres by building walls from the ground up to the arches, decorated with reliefs of Scripture subjects, trophies of arms and battles, divided by caryatid figures. For this work, much of which still remains, he employed the same sculptors of Manresa, expending nearly 15,000 pesetas upon it. Within the sepulchral chamber thus formed were placed the remains of the following royal personages: On the left—Don Martin El Humano and his wife, Doña Maria; Doña Beatriz of Aragon, Queen of Hungary, daughter of Don Fernando and Doña Maria of Naples; Don Carlos, Prince of Kana, the firstborn son of Don Juan II., who was so dear to the Catalans that one of his arms was venerated as a relic in the sacristy, the Legate in 1542 having granted this concession; Don Pedro, the son of Ferdinand I., and Doña Leonor, and many of the family of the Dukes of Cardona, whose ashes also fill the chamber on the right.

In the Chapel of the Holy Sepulchre are several pavement slabs in high relief, among which is that of an Englishman who died at Poblet in 1731. He is described as the English duke Philip Warthon, Marquis of Malbursi, and Knight of the Garter. Close to the staircase to the lantern there is a large tomb, on the lid of which is a statue of a tall man completely armed. At the right of the Chapel of St. Benedict is the tomb of Don Pedro de Abalate, Bishop of Lérida, and afterwards Archbishop of Tarragona, who died in 1251. His effigy is on the lid wearing his archbishop's robes.

In the cloister, near to the Chapter-house, is a large tomb of the family of Copóns, which dates from 1365, and near to the refectory are five tombs fixed in the wall, better preserved than most. They are supported either by columns or brackets, and are decorated with the arms of the various families to which they belonged. The best of them is well out of the way of damage, above the refectory door, and its brackets are carved with angels, one with a violin and the other with a greyhound (incongruous symbols!), while the tomb itself bears the crest and arms. It dates from the fourteenth century, and there are about a dozen other tombs of similar design in the other ambulatories. In the Chapter-house pavement are eleven slabs carved with figures in high relief, beneath which rest various abbots who died between the years 1338 and 1623.

These tombs give its great historical interest to the monastery, for it forms, with the other great monastery of Santas Creus, a veritable Campo Santo, in which members of all the most distinguished families had their tombs. For the Catalonians and Aragonese they are what Westminster Abbey is to us.

(To be continued.)

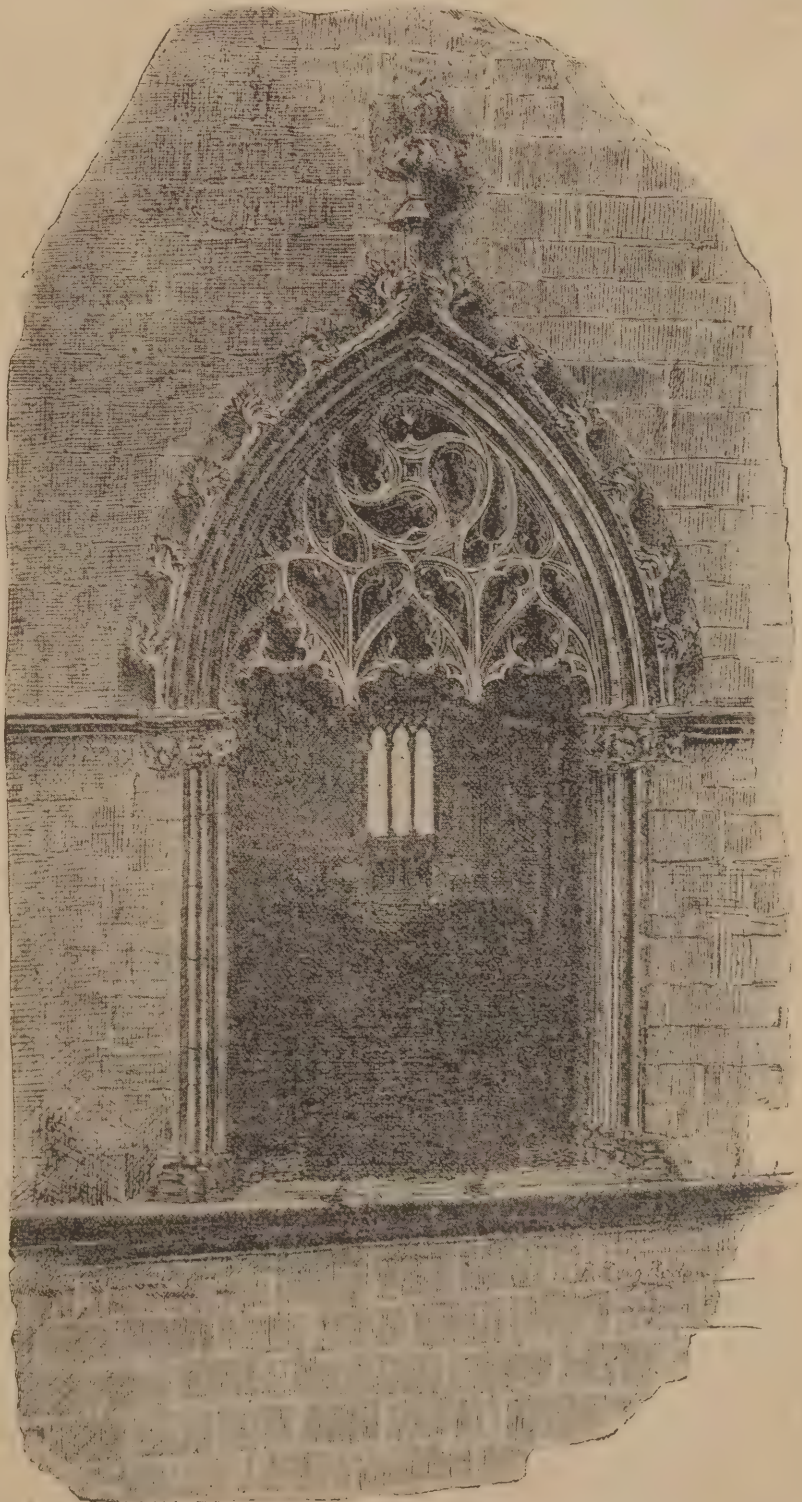
ROMAN LONDON.

IN an interesting article on "London's Birth and Infancy," a writer in the Evening Standard observes that it may with fair probability be conceded that London is as ancient as Rome itself, though cautious historians are slow to admit any such assertion. Then, again, it is quite possible that there are in Britain still older sites of established towns; for example, the city of Worlebury, lying on the hill above Weston-super-Mare, has been given an antiquity of 4000 years, and must have been a pre-Celtic foundation. London, like this well-preserved settlement, was originally, doubtless, merely a cluster of burrows in the earth, which, after long years of slow progress, developed into huts of mud, or of clay-coloured wicker. The town was simply a small cleared space in the centre of

thick woods, visited by degrees by foreign merchants in their coracles. There were already trackways leading from it to other British settlements; we do wrong to imagine that all our old

ROADS ARE OF ROMAN CONSTRUCTION.

There were tracks in Britain long before the Romans came, possibly before the Celts came. Speaking of London, as it most probably appeared to our earliest Roman visitors, Penant says, "It stood in such a situation as the Britons would select according to the rule they established. An immense forest originally extended to the river side, and even as late as the reign of Henry II. covered the northern neighbourhood of the City, and was filled with various species of beasts of chase. It was defended naturally by fosses, one formed by the creek which ran along Fleet Ditch; the other afterwards known by that of Walbrook.



THE MONASTERY OF POBLET. PALACE OF DON MARTIN. WINDOW FACING THE GREAT CLOISTER.

The south side was guarded by the Thames; the north they might think sufficiently protected by the adjacent forest." The Romans, finding this convenient centre for commerce already established, must have lost no time in recognising its importance, and would speedily erect more

SUBSTANTIAL DWELLINGS AND FORTIFICATIONS for their own uses. It is usually supposed that St. Paul's Churchyard is the oldest site of building in London; it has even been asserted that a burial-ground of the Britons was situated where the great Cathedral now stands. When Sir Christopher Wren dug here for the foundations of his erection he discovered ivory and wooden pins, which were explained as having been used to fasten the funeral garments. Digging still deeper, the architect found sand and sea shells, representing that geologic period when the ocean flowed above the present busiest site of modern civilization:

"There where the long street roars, hath been
The stillness of the central sea."

If we can regard Wren as a satisfactory authority, we must get rid of the idea that there had been a temple to Diana on the site of St. Paul's; but, though the eminent builder failed to discover traces, figures of the goddess have been found not far from the site, though not immediately under it. It is interesting to note that in the old rhyme, "London Bridge is broken down," sung by children at their games, there is a trace of the ancient custom of burying persons alive beneath the foundations of bridges as a means of ensuring their strength and permanency. That this cruel superstition was observed in the first London Bridge is not very probable. We may safely assert that the Romans would not have practised any such barbarous rite, though the heathen Saxons might possibly have done so when they came later. The earliest mention of any bridge in London is in the writings of Dion Cassius, in the beginning of the third century; and we may be safe in concluding that the first settlers at this spot were totally unfitted, by civilisation or instruments, to erect anything at all in the nature of a bridge. The extent of the Roman London may be gauged by the

TRACINGS OF THE WALL.

This reached from the Tower to Aldgate and Bishopsgate, along Roman Wall to Fore Street, through Cripplegate, Newgate, and Ludgate. Modern London dates entirely from this Londinium of the Romans. In spite of what is said by the chroniclers about the beautifying of the City by King Lud, who was buried at the gate bearing his name, we cannot believe that any town of real consequence preceded the coming of Caesar. For traces of Celtic Britain we must look elsewhere—to Caerleon-on-Usk and to Caerleon-on-Dee (Chester), to Exeter, Gloucester, Bath. More of romantic tradition, legends of Arthur and the early bardic days, clings to these places. It is in Wales and in the West of England that Celtic Britain has been least Anglicised. Nevertheless, when treading the streets of London city we can feel that we are in the very footsteps of the ancient Britons, whose wicker boats once floated lightly over the Thames, and whose low huts were clustered on its marshy banks. Celt, Roman, Saxon, Dane, Norman, have all done something towards the making of London, as towards the making of the British people; and the patriotic Briton has the satisfaction of knowing that he is the composite production of them all. Our strength is derived from many sources.

THE Guardians of St. Olave's, Borough, have voted £2000 for the erection of a Roman Catholic Church and a Protestant Church in connection with their new workhouse, now in course of building at Ladywell, Lewisham, which is to accommodate 600 inmates.

SOME consternation was evinced in the City last week at the sight of a huge ventilating shaft, as high as the Royal Exchange, erected in front of the Mansion House, as part of the works of the Central London Railway. It is stated, however, that the structure is only temporary.

The R.I.B.A. and the Government.

To the Editor of THE BUILDERS' JOURNAL.

SIR,—The arrangements entered into for the erection of the new Government offices call for some comment.

It is generally understood that the plans for these buildings were prepared in the Office of Works, and that, after this was done, the Government requested the Royal Institute of British Architects to draw up a list of names, from which two might be selected by the Government to provide the elevations. There are two points here that call for special remark. The first is this: The Institute does not—probably never has and never will—include the best men in Architecture, or represent the highest in thought or ideal. This is the plain truth, there is no use disguising it, and no one knows it better than the Institute itself. If, therefore, the selection is to be limited to members of the Institute, the best men are necessarily left out, and the country is deprived of their services just when they are most needed. If the selection is not to be confined to members of the Institute, the Government, by leaving the choice in its hands, places before it a great temptation—the temptation to recommend its own members, to the prejudice of better men. If the Government did limit the selection to the members of the Institute, surely the plain duty of the Institute—incorporated for the "advancement of civil Architecture," not merely for the advancement of the interests of its members—was to advise the Government that the best men would be excluded, and, in the highest interests of Architecture, to insist on their inclusion, or to decline the task. If the Government did not limit the selection, it can only be inferred that the Institute yielded to temptation.

It may be that the Government knew well what it was about, and that in applying to the Institute it felt confident of obtaining not necessarily the best men, but the men it wanted, viz., those willing to accept its peculiar conditions; and this brings us to the second point—the extraordinary conditions under which architects are expected to work. Not, mark you, by a little local vestry of greengrocers, but by the Imperial Government—men of presumed education.

The essence of the architect's work, the broad conception, the scheme of construction, is to be evolved by an official, and then the architect is to be called in, presumably to invest it with artistic merit!

It can only be said that if the Government possesses an official competent to grasp such schemes as these, to mould and group them, and set them out on fine artistic lines; in short, to draw an artistic plan as architects understand the word, he will also be competent, and more than competent, to finish his conception with appropriate and tasteful detail, by far the easiest part of the work, and a thing that could well nigh be done by any clever student of five-and-twenty. So it is not very clear why they employ an architect at all.

It is quite unnecessary to point out the utter impossibility of obtaining the best work by any such means; no artist would do himself justice under such conditions. His only chance would be to consider the plans already prepared simply as a schedule of the accommodation required, and to start afresh with an unbiased mind. Judging from previous experience of the ways of officials, he would not be likely to get this chance.

In these days, individual architects have frequently to accept work under conditions which they resent, or else to starve. Possibly they do right to accept; individual protests do little good, and life is sweet—even to an architect. But what an individual cannot do a society can, or why does it exist? and one would have thought that the obvious duty of the Institute, as representing the interests of its members—not to mention the interests of the sublime art which they all profess to serve—would be to protect its members from being placed in the painful position of having to make a choice between their self-respect and their daily bread.

Although it may be considered that the Institute may safely be left to reckon with its own members, and that if they do not mind no one else has a right to complain; yet, for all that, the proceedings of a professional society do reflect on the prestige of a profession generally, whether such society be representative or not. And though the Institute may be willing—may even be proud—that its most distinguished members should be employed as chief draughtsmen to Government officials, yet this is hardly the ideal of the rest of the Profession.

For these reasons every architect who respects his vocation must deplore the fact that the Institute did not rise to the occasion, and for once really represent the whole Profession and voice the common sentiment, by entering a vigorous and public protest against conditions which it must feel to be unworthy and damaging to the truest interests of Architecture.—Yours, etc., A. R. JEMMETT.

[We are not with Mr. Jemmett in laying these charges at the door of the R.I.B.A. The fact that the name of one of the selected architects—Mr. Young—was not included in the list submitted to the Government by the Institute would seem to show that the Government reserved, free from obstruction, an "open door" to a wider field of selection. The Institute was appealed to for practical advice; it responded with a list of eight names of candidates, and we think it is uncharitable, not to say unfair, to presume that the names were not honestly chosen. Whether the Government's selection be generally approved or not, the Royal Institute of British Architects can only be held responsible for one appointment—Mr. Brydon's—and in nailing down this responsibility it must be remembered that the Government had, as stated, the free option of going entirely outside the Institute list. This fact, of course, would not justify dishonest advice on the part of the Institute; but then Mr. Jemmett does not adduce a tittle of proof in substantiation of his suppositions.—Ed. B. J.]

THE Bishop of St. Andrew's consecrated the new chapel at Mar Lodge on Sunday week. The chapel, which is of Norman Architecture, is situated at the back of the mansion.

PLANS for the reconstruction of the interior of South Queensferry Parish Church, Linlithgowshire, prepared by Mr. Chalmers, architect, have been approved of by the Kirk Session and Presbytery. The cost will be £400.

IN carrying out the programme of Her Majesty's Government, additional buildings are required at Lancaster and Bury. These are to be erected immediately, and the contracts have been given to Mr. Samuel Warburton, of Miles Platting.

HAMPSTEAD is threatened again. Plans for developing a fine site in the rear of the Hampstead Vestry Hall for high-class property having been thrown out by the London County Council, a scheme is now on foot for covering it with a colony of artisans' dwellings.

A FREEHOLD site in Nightingale Lane, Clapham Common, has been secured for the new premises of the Jews' Deaf and Dumb Home, whose building in Walmer Road, Notting Hill, has been condemned by the inspector of the Education Department as inadequate.

MESSRS. McDONALD AND ABERNETHY, the engineers for Heysham Harbour, report that good progress has been made with this work during the past half-year. The outer sea embankments have been formed for rather more than half their total length, for which purpose about 200,000 cubic yards of material has been excavated from the adjoining cliffs.

IN February the Town Council of Canterbury decided to buy two houses in Guildford Street and also two in High Street, immediately adjoining the present Guildhall, for the purpose of obtaining an enlarged site for the erection of a new Guildhall and municipal building. Since then an adjoining property in the High Street has been offered for £3000, and at a special meeting last week the Town Council decided to purchase the property.

ARCHÆOLOGISTS AFIELD.

II.—IN LANCASTER AND DISTRICT.

THE annual meeting of the Royal Archaeological Institute was concluded at Lancaster a fortnight ago. The series of visits included one to the magnificent and historic church of Cartmel. The history and architectural features of the church were explained by Mr. W. St. John Hope, M.A., who pointed out that it was founded in 1178 by William Mareschal, Earl of Pembroke, and was a priory of Austin Friars. The difference between it and Furness was that whereas at Furness the whole church and the whole Abbey were entirely restricted to the Cistercians, when the Friars came to Cartmel they found a parish church existing upon the site. They took possession, apparently, of the eastern portion of the parish church, and began to build, on a very much larger scale, a church for themselves, consisting of a central tower, the north and south transepts, and a presbytery with its aisles. After leaving the church the party were shown, in the centre of the village, a remarkably fine gateway, said to be the entrance to the original priory, and in driving to Cark Station, Cark Hall, a mansion of architecture somewhat later than Elizabethan, was pointed out to them as the residence of the antiquary Rawlinson.

HALTON.

At Halton, to which a visit was also paid, the pre-Norman carved stones in the church and churchyard were described, and the ancient road by way of Redwell was taken to Melling, where the venerable vicar, and typical antiquary, described the objects of historical interest. He said there was no church in the Valley of the Lune where there were not evidences of Saxon work, and the objects to which he drew attention (all carefully preserved in the interior of the church) were a portion of the churchyard crucifix (pre-Norman), a pre-Norman monumental stone, found below the belfry floor in 1869, a memorial slab (fourteenth century), the key-stone of a Norman arch, &c. The chantry in south aisle was formerly the property of Lord Morley, of Wennington. The oldest window was in the south aisle, 1260. The tower was of a character peculiar to several in the Valley of the Lune, evidently about the same date, 1450 A.D. The bells of that church rang out their peal to give a cheery welcome to Sir Edward Stanley on his return from Flodden Field, and the peal of six, to which they were afterwards increased, were as sweet as any peal in North Lancashire. In these days of endless societies he would, after all, rejoice in the founding of one more, for the preservation of ancient bells which have marked the occasions of joy and sorrow to successive generations, instead of their being put into the melting-pot, as had the bells of a place not sixteen miles distant. He hoped no such doom awaited the bell at St. Chad's, Clough-ton (1296), the oldest in Lancashire. Many objects of antiquarian interest were shown in the Rectory, including old bells, old china, old prints and portraits, and a drum, bullet-pierced, left at Melling by a straggler of Prince Charles's army (1745).

HORNBY.

At St. Margaret's Church, Hornby, the Rev. J. C. Cox, LL.D., F.S.A., corrected the impression that that church occupied the site of the old priory. The priory stood on the right of Priory Farm. The erection of that church was due to the first Lord Mounteagle, Sir Ed. Stanley. There was hardly anything left standing of the old priory, save a few pre-Norman stones and several slabs of a later date. The tower of St. Margaret's was of a character they did not often meet with. It was octagonal, and the upper part was set diagonally to the base. The arms of Sir Edward Stanley figured upon the church tower, encircled with the order of the Garter, of which he was such a distinguished member. He congratulated the church on possessing a monolith of early Saxon date of unique character. He thought most probably it came

from the priory. He also directed attention to a Renaissance altar cloth of the seventeenth century, which was carefully preserved in the west end of the church. One of the bells was dated 1751, and the rest 1761. Dr. Lingard, the distinguished historian, lived in that village; at his death, not only was a memorial brass erected in his own Catholic church, but one was placed in the church of St. Margaret's—showing how he was esteemed. At Hornby Castle the party were received by Colonel Foster, M.P. Mr. W. O. Roper, F.S.A., took his audience over the historic ground—Hornby, the site of a Roman station at the junction of two Roman roads, one from Lancashire and the other from Yorkshire. Thence to Domesday Book is a blank. Edward Stanley came to reside at Hornby Castle towards the end of the fifteenth century. Mr. Roper described the siege and capture of the castle by the Roundheads, also the Morley connection, and its abandonment by them on account of the fines levied on Roman Catholics. The connection of the notorious Charteris was treated, and the famous will case, which brought up the present prosperous days of the Castle.

MYTTON.

Whalley and Mytton were visited on the concluding day. The Rev. J. C. Cox, LL.D., F.S.A., described Mytton Church, and said the evidence was not conclusive that the old screen of the chancel came from Cockersand Abbey, although the inscription recorded. It was made in the time of William Staynford, who was Abbot of Cockersand 1505-9. The advowson of the church had been presented to Cockersand Abbey, but the inscription on the screen was interrupted. The idea that the small doors before a window in the chancel indicated these were leper windows was a myth. Lepers would not have been allowed to approach a church, as there were English leper houses with their Father Damiens, and the most probable explanation was that these doors were there so that the servant could ring the Sanctum bell for early mass without standing outside the church. He thought the shaft of the churchyard cross was in the angle of the chancel outside. It was not Saxon, but contemporaneous with the present church.

WHALLEY.

Mr. J. T. Nicklethwaite, V.P.S.A., described the many curious features of Whalley Church, and expressed the hope that very careful notes would be taken by archaeologists, because a future generation would not believe such curious features in the pew arrangements, &c., ever existed. With reference to the pews called cages, he pointed out that on the Nowell's pew, or cage, were two inscriptions and two dates, 1534 and 1610, the latter being a parody on the former. He thought 1610 marked the end of the quarrel as to the pews. The smaller pews in the body of the church were of the time of Charles I. Nobody could kneel in them, and he thought they must have therefore been used by the men, as the women only in bygone times used to kneel in church. The constable's pew near the church door (1714) was undoubtedly placed there so that the constable could see who came to church, as there were a great many recusants about there, and people who did not come to church were fined. The abbey remains were described by Mr. St. John Hope, M.A., and he refuted the fables often expressed in print that the monks of Whalley were fat old feasters. They lived plain and godly lives, and were vegetarians.

THE foundation stone has been laid of new day schools that are to be built in connection with St. Joseph's Catholic Church, Sale, at a cost of £2000.

THE Local Government Board has held an inquiry at Cardiff, respecting an application by the Cardiff Corporation for the sanction of the Board for borrowing the sum of £14,500 for the purpose of establishing a fish market on the eastern side of Working Street, £6220 for the alteration of Roath Market, and £2985 for streets improvements in Llandaff Road and Leckwith Road.

NATIONAL ART.

EXHIBITION AT SOUTH KENSINGTON.

THE exhibition, in the annexe to the South Kensington Museum, situated on the southern side of the Exhibition Road, of the works in various branches of pure and applied Art by students who have been successful in the competitions of the present summer is now open to the public, and will remain on view until August 31st. Though it contains, as it always does, certain elements of interest, the average reached is decidedly below that of the last two or three years. Considering the vastness of the machinery set in motion, the great complex of schools and branches of which this exhibition is the outcome, it cannot be concealed that there is something mean and disappointing, as a whole, in the display which it affords—something small, cramped, and too little suggestive of initiative or a

PERSONAL CONCEPTION OF ART

on the part of the students. Even in these initial stages of artistic training, in which, no doubt, it is indispensable to obtain in the first place accurate technique and a solid foundation to build upon, more encouragement might surely be given to personal interpretation as distinguished from mere representation or transposition of the thing rendered, whether it be a human form, a group of fruit or flowers, or an arbitrary arrangement of precious objects. It is again in decorative Art proper—both in wall-papers, stencilled hangings, posters, book illustrations, and designs in the higher and the lower relief—that the greatest measure of originality is to be found. Even here, however, the average is not so high as on some recent occasions. Considering the vastness of the field, there is legitimate cause for complaint that better examples are not furnished to the students from which to model, paint, and draw. Among the fine things are many which are less than fine—too many doubtful and commonplace specimens of

LATE GREEK AND GRÆCO-ROMAN ART.

too many insignificant sculptures of the Quattrocento, which can furnish so many of unsurpassable beauty. Here is, once again, our old friend—or enemy—the "Hercules with the Golden Apples," a coarse and conventional bronze statuette of Asiatic Greek origin, which has little to recommend it but a certain accuracy of proportion. Better and more authentic Donatello could be found as models than the popular, but by no means convincing, "Santa Cecilia," in the collection of Lord Wemyss, or the "Giovanni" of the Louvre. And why need the masterpieces of Gothic sculpture, as we see them at Amiens, Chartres, Rheims, Paris, Strasburg, and Bamberg be wholly excluded? The bust of Voltaire by the eighteenth-century master, Houdon, is most welcome; and we should like to see the students at work on examples of the seventeenth and eighteenth centuries, among which, though the teachers apparently shrink from them in doubt, there are not a few masterpieces of the first order. It is clear that little or no latitude is given to the student in drawing, painting, and modelling from the nude figure. There are not

A FEW GOOD AND CAREFUL PERFORMANCES

in this branch, but hardly anything through which the personality of the nascent artist can be guessed at, even should it exist. A capital and very searching piece of modelling is the "Nude male figure," exhibited by Mr. John C. Blatchford, of Bristol, which has obtained one of the gold medals; but it savours too much of the studio model placing himself obediently in a prescribed position, too little of Nature generalised, accentuated, interpreted so as to become Art. Though less completeness and less skill are displayed in Mr. Frank A. Wright's "Model of figure from the nude," it has an infinitely finer motive, and far more suggests the statue, the work of Art, far less the mere modelled invitation of an individual human form. Mr. Charles Palmer's "Model of male figure from the nude" has good qualities, but too nearly recalls in its attitude

one of the famous "Slaves" of Michel Angelo in the Louvre. The numerous "still-life" groups show rather more cohesion and significance than last year. There is, nevertheless, much to be done yet in this direction. Let the students consider the great Netherlands of the seventeenth century, but above all Chardin, and, among the painters of to-day, M. Fantin-Latour. The flower drawing is, in many instances, of great delicacy and beauty, and accurate enough withal to serve the purposes of science as well as of Art. Mr. Robert Bertram has obtained with a "Design for a wall hanging" of small proportions, but of large style, a gold medal, which, on the whole, he deserves. He should certainly be allowed

TO CARRY OUT HIS DECORATIVE SCHEME

on the large scale which it calls for. Miss Jennie Delahunt's "Modelled design for the side of a room" (silver medal) has a certain monumental character, and would also gain by enlargement. Miss Marian Pearson's "Modelled design for a frieze" has both fancy and charm, and deserving of equal commendation is Mr. James Begg's "Modelled design for a door-knocker." Among the wall-papers and stencilled hangings are several in which genuine invention and a good sense of balance in design are exhibited. Colour frank and rich in its harmony is curiously rare in this branch of decoration. It is as if the effort to get away from the exquisite but, if anything, too subtle harmonies obtained by Morris from Oriental sources had resulted in combinations either acrid and displeasing or else too dull and timid for wall decoration on a large scale. A striking exception is furnished by the "Design for a stencilled hanging" by Miss Esther Tatlow, of Wolverhampton, which in design and arrangement is, perhaps,

THE BEST THING IN THE EXHIBITION.

The combinations, both daring and harmonious, of gradations in red and pink, deep, strong green and blue, evidence the fruitful study of both Oriental and Gothic examples. Mr. H. Ernest Simpson's "Stencil designs for wall-filling, frieze, &c.,"—which, by the way, carries off a gold medal, while Miss Tatlow's work only obtains a silver one—has a delightfully well-balanced and a fairly novel design, but a scheme of colour dull in its undecided light tints, and, on a large scale, ineffective. Very noticeable is again the success of the provincial Art schools in their competition with the headquarters at South Kensington. Judging by results, some few of them, notably Glasgow, would appear to allow more elbow-room, more discretion, more space for self-development to the students than they obtain at the main establishment in London. There is, nevertheless, great room for reform and improvement in this particular, both at South Kensington and in the provincial centres.

THE foundation stone of a new Baptist chapel at Broughton has been laid.

ONE of the difficulties encountered in purchasing the Golder's Hill Estate for the purpose of adding it to Hampstead Heath was the necessity of dealing with the house. No doubt it could be let at a good rent, and it is understood some offers have been made; but Hampstead Vestry made the grant of £10,000 on condition that the whole of the property should be purchased, and this condition stands in the way. The plan which now meets with most favour is that the ground floor of the house should be used for the sale of light refreshments, and the upper floors should be utilised as a natural history museum. It would certainly be regrettable if the mansion recently occupied by the late Sir Spencer Wells were lost even temporarily to the public. From nearly all the windows there are beautiful views of the distant country. On the ground floor is a very fine dining hall, and all the reception rooms are spacious and well planned. The house is old, but was refaced by Sir Spencer Wells in 1875. On the first floor is a delightful little room, where Sir Spencer Wells both slept and did much of his writing. By the staircase is a pretty coloured window, put up by the Wells family, in memory of Lady Wells, who died some years ago.

A FAMOUS LONDON PRISON.

THE MARSHALSEA.

THE London County Council some weeks ago sanctioned a "Metropolitan improvement," the prospect of which has caused some perturbation in the minds of lovers of Dickens Land. It was proposed to expend something over £200,000 on the widening of Long Lane and an extension of Tabard Street (formerly Kent Street) through St. George's Churchyard into the High Street, Borough. Forthwith the report got abroad that this operation would involve the destruction of what yet remained of the later Marshalsea Prison, immortalised by Dickens in "Little Dorrit." The contemplated Metropolitan improvement will not, however, improve the Marshalsea of Dickens off the face of the earth. After undergoing various changes since 1842, when, happily, it ceased to exist as a prison, the buildings of the gaol passed into the hands of Messrs. Harding, who have not destroyed more than the eastern or felons' portion of the prison. The whole of the debtors' portion remains, and that is the portion which is associated with "Little Dorrit," and with Dickens himself. The County Council improvement will pass it by. It is to be hoped, therefore, that for many years to come the actual houses and the actual walls (lower than they were, and without the fringe of spikes which once crowned them) will remain as a monument of one of the most famous works in English literature.

THE TWO MARSHALSEAS.

It must always be borne in mind that this Marshalsea—Dickens's Marshalsea—was not the original prison so known, but was the old "White Lion" Prison, originally the "White Lion" Inn, which was converted for the purposes of a gaol in about 1558. A hundred and fifty years later its unwholesome condition became too scandalous even for that age of barbarity in the treatment of prisoners, and the inmates were temporarily incarcerated in the old Marshalsea Prison. A few years later a new county gaol was built partly on the site of the old White Lion Prison, and this in turn gave way in 1811 to the later Marshalsea, another new county gaol having in the meantime been erected in Horsemonger Lane. The later Marshalsea was practically a new building, but it seems probable that the massive brick enclosing walls of the old county gaol were retained; indeed, some of the brickwork still to be seen there may even be a relic of the White Lion Prison itself. Dickens's Marshalsea was thus, to a great extent, a new prison at the time when Dickens's father was there in 1824, and when the Marshalsea scenes of "Little Dorrit" were laid within it. This is a point upon which there has been some confusion, but careful reference to contemporary maps and documents makes it abundantly clear.

THE SITE OF THE OLD MARSHALSEA.

The original Marshalsea, the foundation of which dates far back into mediæval times, lay a little distance to the north of the "White Lion" site, as may be ascertained by anyone who will examine the locality by the aid of Horwood's great map of London, of which this particular section is dated 1799. Crossing London Bridge, and entering the Borough High Street, the wayfarer bent upon Marshalsea topography will come on his left to Newcomen Street, formerly King Street, and before that "Axe and Bottle Yard." If he will go down King Street he will see over the door of the King's Arms Inn one of the finest and largest inn signs yet remaining in London, the Royal Arms, carved in stone, with the date 1760, and the words "King Street" in large letters beneath. Returning now to the High Street, the next turning on the same side as Newcomen Street is, and always was, "Mermaid Court." Between these two lay the original Marshalsea Prison, the second in importance of all the London prisons throughout the Middle Ages and the Tudor and Stuart periods. Nothing of it remains on the site, but views of it have been preserved, and its sad history is full and complete. As it is not possible to speak of the later Marshalsea without refer-

ence to this, the original prison, which stood so near it, and which was, in fact, transferred to it in 1811, it has been thought well to deal with the earlier gaol in a preliminary article, and to leave the description of the later, and to most people more interesting, Marshalsea to a second article. In Wilkinson's "Londina Illustrata," a treasure-house of old London views, will be found a plate representing the old Marshalsea as it existed in 1811, a plan of its site, and a brief history of the Marshalsea Court and its jurisdiction. The existence of the ancient Marshalsea is indicated in an order from Edward III. in 1374, empowering "the good men of Southwark to rebuild in our Royal Street which extends from the Church of the Blessed Margaret towards the south a certain House for the safe custody of the prisoners of the Marshalsea."

OLD VIEWS OF THE PRISON.

These are a few only of the facts connected with the old Marshalsea Prison, the second of the five great prisons existing in the reign of Queen Elizabeth and earlier. The first was the tower; the second the Marshalsea, attached to the King's House; the third the Fleet, for Westminster Hall; the fourth the Compter, for the City of London; and the fifth the Gatehouse, for the City of Westminster. Views of the Old Marshalsea are preserved in the Guildhall Library. The first view is of the western portion of that range of buildings; at the end is the transverse wall, against which the prisoners played fives and racquets. This view was made in 1803. The other one, made in 1809, shows the eastern portion of the same range of buildings. The central portion, the house supported upon columns, is the Court Room, the interior of which was very handsomely decorated "with panels on the walls, a coved ceiling ornamented with flowers, shields, and the Royal badge of the portcullis, with crowns and sceptres, the whole said to have been the work of Inigo Jones. At the upper end of the room was the judge's seat, surmounted by a finely-carved pediment and a large decayed painting in a frame behind it." The building on the extreme right of our second view, adjoining the Court House, was known as "The Oaks," and was allotted exclusively to women, but the yard was common to both sexes. There were in all upwards of sixty rooms, and each room held three prisoners. Such are some of the memories of the ancient Marshalsea—


Old, unhappy, far-off things

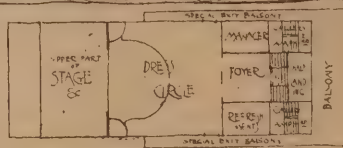
which haunt every historic corner of the metropolis, and cluster thickly around the prosaic block of buildings between Newcomen Street and St. George's Church.

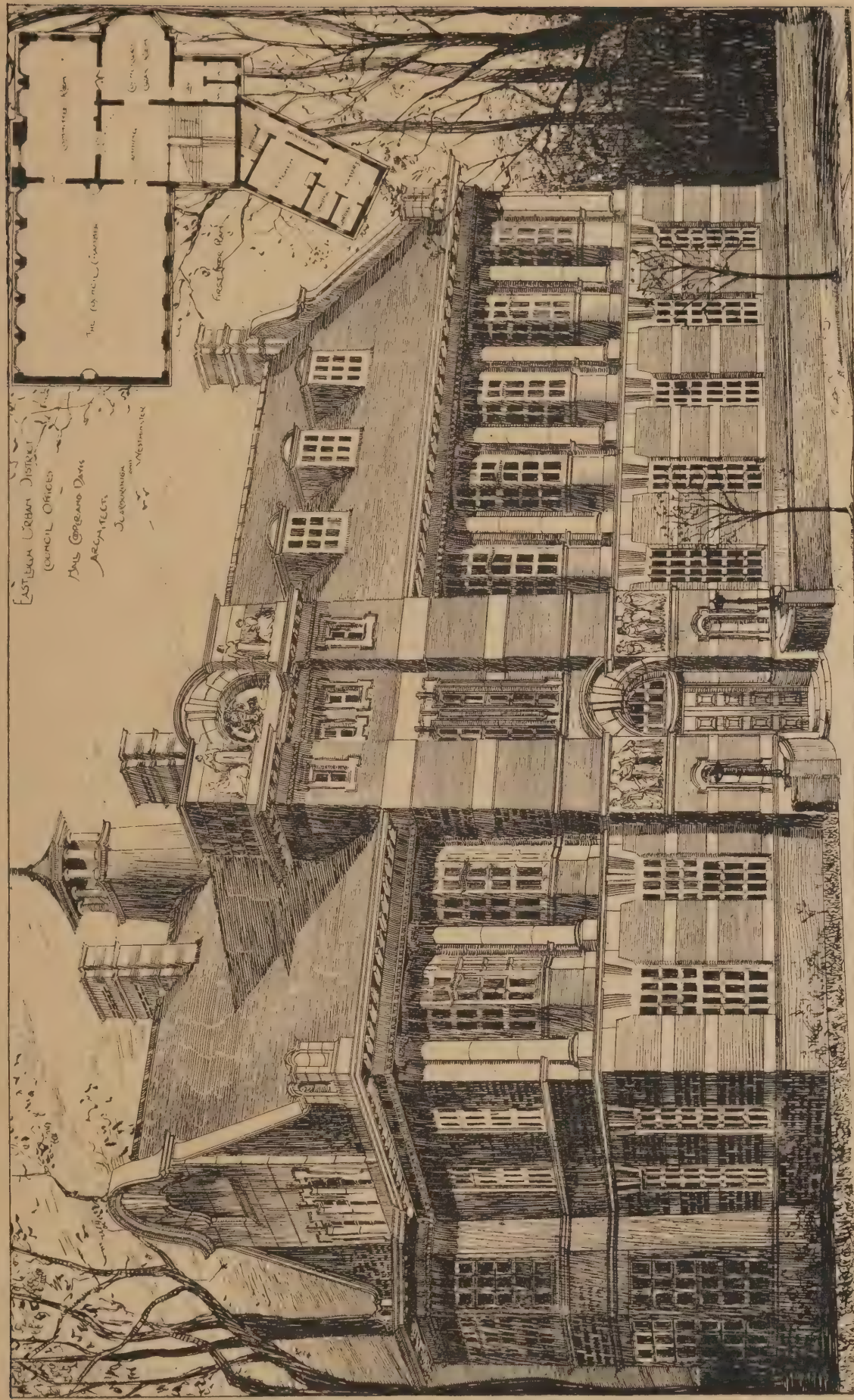
It will be remembered that at the time of the summary dismissal of Mr. Weale, the Art Librarian of South Kensington, immediately after giving evidence before the Committee of Inquiry into South Kensington Museum, the Department of Science and Art was strongly criticised for what was thought by many to be the punishment of a servant of the department for frankly testifying to the state of affairs in South Kensington Museum and the intimidation of future witnesses. This view, which was dismissed by the more moderate of the department's critics as being far too severe, is actually that adopted by the Committee themselves. We learn that one of the paragraphs in the forthcoming report contains the following strong expression:—"Your committee desire to record their opinion that the termination of the engagement of Mr. Weale, late keeper of the Art Library, immediately after the rising of the House in 1897, and subsequent to the giving of evidence by Mr. Weale, in which errors and abuses of administration in the museum were freely exposed, very much resembles a breach of privilege and an infringement of the immunity usually enjoyed by witnesses before committees of the House of Commons." In all probability, therefore, we have not heard the last of this manoeuvre. What experts have thought of the action of the department in getting rid of one of their most efficient officials is shown by the British Museum having at once snapped him up for work in that department.

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Concerning Casements.

IN issuing his latest catalogue, Mr. George Wragge, of Wardry Metal Works, Salford, modestly hopes that it "may have a value beyond that of the ordinary commercial type." We think the Profession will readily concede that Mr. Wragge's hope is materialised, thanks to the charming illustrations supplied by Mr. Edgar Wood—of which we republish three examples—and to the exhaustive manner in which Mr. Wragge has treated his subject, which, be it understood, is not confined to metal casements solely, but embraces metal work in almost every known variety. Apart altogether from the artistic touch Mr. Wragge has imparted into every page of his catalogue, the contents are, in point of utility, considerably enhanced by the addition of full-sized drawings of sections of casements and details of rebates, which the architect will find very helpful in specifying for windows. Side-hung and top-hung casements for the highest class of work, and those of simpler form also, are shown in the first section, and casement fittings in the second. These fittings can be made to suit any details for wood casements, and as they are made at the firm's own works, the carrying out of special designs is obviously facilitated. The coinage or bronze metal used, is of a special mixture, and, with age, takes a beautiful tone; a like effect, however, may be at once attained by a special process, which is both permanent and pleasing. Sashes in wrought steel, iron, and gun-metal, which are now used almost exclusively in place of cast, receive adequate illustration, after which the big subject of metal work generally is treated at some length. Gates and grills, chancel screens, altar rails and standards, dog grates, fenders and irons, railings and balustrades, gas and electric light fittings—all these and sundry others are subjects receiving ingenious and artistic treatment. The manufacture of leaded lights and stained glass is also embraced in the executive energies of Mr. Wragge's staff. Mr. Wragge recognises the affinity between this branch of art work and the casement staple of his industry; he recognises that matters are often simplified and expedited when the maker of a casement also supplies the leaded lights, when required, and executes the glazing, and hence the combination. In our left-hand illustration are seen several examples of hanging signs which are made in wood or metal; name plates, stallboard signs, &c., are made in bronze, aluminium, &c., both cast, wrought, engraved, or repoussé. On the right are illustrated casements and frames of steel, hung at cill to fall inwards. Over-page we illustrate the opening-outwards, hung-double-folding, without-centre meeting-rail variety. We congratulate Mr. Wragge on having produced such an excellent catalogue.



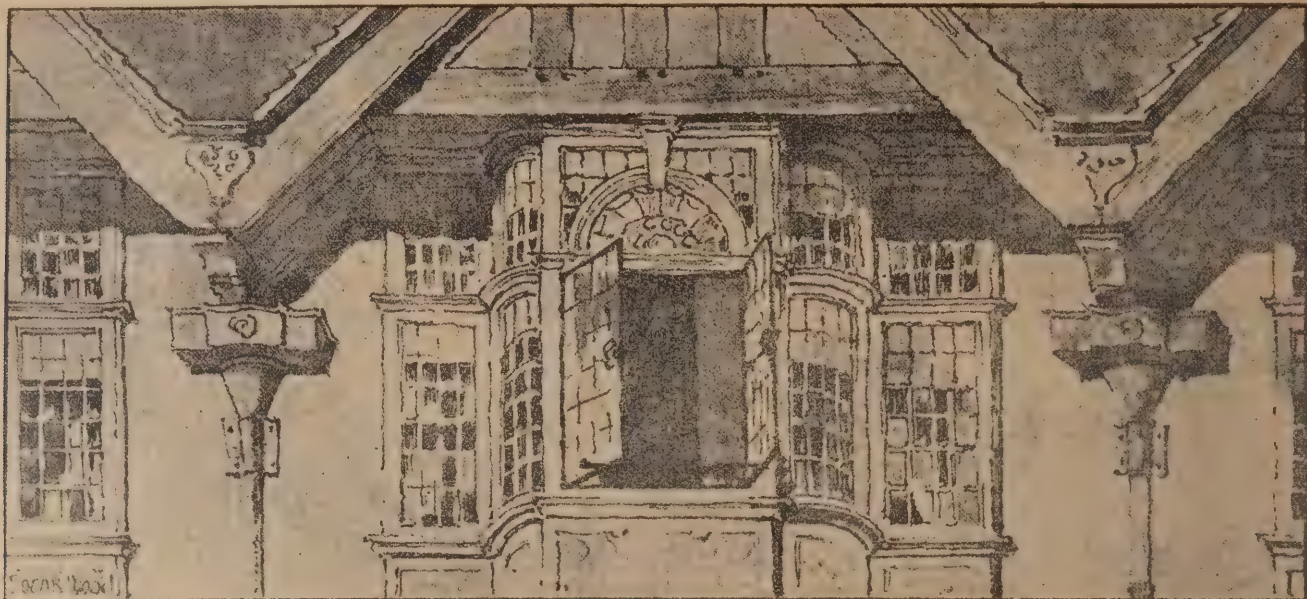
HANGING SIGNS.

MANUFACTURED BY GEORGE WRAGGE.



STEEL CASEMENTS.

MANUFACTURED BY GEORGE WRAGGE.



STEEL CASEMENTS. MANUFACTURED BY GEORGE WRAGGE.

Bricks and Mortar.

EFFINGHAM HOUSE, ARUNDEL STREET,

August 10th, 1898.

"I know what it is to live in a cottage with a deal floor and roof, and a hearth of mica slats; and I know it to be in many respects healthier and happier than living between a Turkey carpet and a gilded ceiling, beside a steel grate and a polished fender. I do not say that such things have not their place and propriety; but I say this, emphatically, that the tenth part of the expense which is sacrificed in domestic vanities, if not absolutely and meaninglessly lost in domestic discomforts and incumbrances, would, if collectively offered and wisely employed, build a marble church for every town in England; such a church as it should be a joy and a blessing ever to pass near in our daily ways and walks, as it would bring the light into the eyes to see from afar, lifting its fair height above the purple crowd of humble roofs."—JOHN RUSKIN.

MONMOUTHSHIRE COUNTY-COUNCIL has appointed a Committee for the purpose of acquiring the historic ruins of Tintern Abbey and Raglan Castle for the county. The Marquis of Worcester, who is disposing of his Monmouthshire estates, is anxious that the famous ruins should pass into the custody of some public body. The Committee will, it is stated, offer to purchase the ruins, and, if successful, a Bill will be promoted in Parliament asking for powers for the payment of the purchase price by the County Council.

THE Royal Academy will probably close its doors before the public realises that one room in the present Exhibition is arranged on a system different to any that has obtained before. Many critics have noticed, says the *St. James's Gazette*, that the architectural drawings seemed to be far more interesting than usual, but none observed that Mr. T. G. Jackson had hung the walls this year with original designs, instead of merely academic drawings or views of ancient buildings that would be more appropriate to the Black and White Room. One result is that the average of work exhibited is distinctly higher than in many recent years, and the care taken in colouring or drawing a plan and elevation is now infinitely superior to any work of the kind sent in some twenty years ago. From the restraint and originality of many of the

designs it may well be argued that English Architecture is on its way to form a distinctive national school such as few other countries at present possess. We shall soon have a few capital opportunities for seeing whether this is true.

It is by no means unusual to hear that "everything ended in smoke," but such an expression is generally applied to a rumour or scandal. It becomes much more surprising when it is made manifest that such may be the fate reserved for such august and solemn structures as Lambeth Palace. Yet Earl Stanhope, in a letter to the Lambeth Vestry, predicts this as a possible end to the home of our Archbishops. It appears that the Palace is gradually falling away before the onslaught of the smoke-fumes of the neighbouring pottery works. For some years the work of destruction has been going on, and the stone of which the Palace is constructed is peeling off and has already considerably decayed. Lord Stanhope, as one of the Ecclesiastical Commissioners, has watched the gradual decay of the walls for some years, and had many conversations on the subject with the late Archbishop of Canterbury. The London County Council has informed his lordship that the duty of dealing with smoke-fumes and their incidental damage does not rest with them, except in default of the local sanitary authority. Almost all the trees planted on the Embankment have been destroyed by these fumes; but the only grounds on which the sanitary authorities can proceed are those of public health, and it has not been shown that the smoke nuisance is injurious to the public health of Lambeth.

BEFORE the Great Fire in 1666 it was within the reach of man to make London the most beautiful city the world has ever seen. Then Christopher Wren's genius might have created out of its ashes one of the most superb cities in Europe. A contemporary sketch shows what the approaches to St. Paul's Cathedral would have been if Sir Christopher Wren had been given a free hand. From Temple Bar to Aldgate he intended to lay out one spacious street, having in the middle a large square, which was to contain the new building of St. Paul's. He further proposed to build all the parish churches in such a manner as to be seen at the end of every vista of houses. By the water-side, from London Bridge to the Temple, he had planned a long and commodious wharf and jetty, where he designed to have placed all the halls of the various City companies. The principal streets were to have been 90ft., the second-rate streets 60ft., and the lesser streets or alleys not less than 30ft. wide. A canal was to have been cut to Bridewell 120ft. wide. Finally, the Royal

Exchange was to be in the centre of the City, in the middle of a piazza, whence the streets, and so many rays from that centre, were to proceed to all the principal parts of the City.

A MOVEMENT is on foot in Twickenham and other places having for its object the erection of a new bridge across the Thames opposite that town. At present Twickenham is practically deprived of any enjoyment to be derived from walking alongside the Thames, as nearly all the river frontages are in private hands and the Surrey shore opposite can only be reached by means of a ferry. It was proposed at first that a footbridge should be erected similar to the one at Teddington, the cost of which is estimated at about £2500. It was proposed to carry this bridge over Eel Pie Island, where a large hotel is about to be built. Others, however, deemed this a bad measure, holding that what was wanted was a stone bridge for horses and carriages, which would bring Kingston, the only market town in the neighbourhood, a mile and a half nearer to Twickenham than it is at the present time. The movement has now assumed definite shape, as the Twickenham District Council has taken the matter in hand, and has appointed a committee to approach the Middlesex County Council, the Surrey County Council, the Earl of Dysart, and any other authorities or persons concerned, with a view to constructing a carriage-way bridge over the Thames at the point mentioned. Such a bridge, it is believed, would cost about £50,000.

MR. BAZALGETTE, the engineer of the London County Council bridges, who has charge of the work at Millbank, thinks that about a fortnight should now be sufficient to complete the temporary bridge, and to permit of its being opened for traffic. The roadway is now being laid with wooden blocks; there is a good deal of painting to be done; a part of one of the footways is unfinished, and there are various pipes that have yet to be laid along one side of the bridge. But the end of the work is not clearly in sight, and the opening may be expected in about the time mentioned. The other bridge will be at once closed, and the contractors will have instructions to begin its demolition immediately.

At last, after many rumours and mutation the famous Hope collection of Dutch and Flemish pictures from Deepdene—eighty-three canvases—are to change hands. Lord Francis Hope applied to the Court of Chancery for sanction the sale of these famous heirloom in which, under the will of his grandmother, he possesses a life interest. Recently the permission was accorded by Mr. Justice Romer on condition that the sum obtained was not less than £111,000. Tenders for the collection

were received from various art collectors at home and abroad, and it was the other day intimated to his Lordship that Mr. Wertheimer had made an offer of £121,550, which the trustees were willing to accept. Mr. Justice Romer sanctioned the sale.

THIS collection of pictures were, it may be remembered, on exhibition at the South Kensington Museum from 1891 for some time onwards. Among the most celebrated may be mentioned the Rembrandt of "Christ with His Disciples in the storm on the Sea of Galilee," a beautiful Gerard Dou of a girl with poultry at a window, holding up a rabbit; a very fine specimen of that rare master Van Der Neer, which represents "A lady and gentleman in the foreground, and a lady and gentleman at table, waited on by a page." There are also two fine Metsus, one of "A lady reading a letter at a window," and the other, not perhaps so distinguished, of "A gentleman in a black dress writing at an open window." There is a very fine specimen of Wouverman, entitled "Village Merry-Making;" two of Terburg, one of "Soldiers drinking and smoking," and the other of "An officer writing orders;" a beautiful Paul Potter of the usual character; a Jan Steen of a christening, which is interesting as containing a portrait of the painter; and a fine Adrian Van Ostade of "A Cottage Yard."

AN instructive lesson in the artistic tendency of County Council government may be learned by any one who has occasion to pass over Waterloo Bridge. Hitherto, Londoners have been content to accept the manifold discomforts of that narrow and wind-swept thoroughfare, because the bridge as a specimen of architectural engineering is held to be a credit to the metropolis. This opinion, says the *Globe*, has been taken largely upon trust: because those who use the bridge are compelled in dry weather to keep their eyes shut to escape the whirling dust, and when it is wet have to devote their first and best thoughts to dodging the mud thrown up by whirling hansom wheels. But these discomforts have been accepted, because the bridge is understood to represent a high-water mark of British Art, with the artistic severity of its solid granite proportions well maintained in the classic outlines of the iron standards which supported its not-too-frequent lamps.

THE London County Council has, however, decreed that the bridge shall henceforth be lighted with electricity, and to this end has caused to be erected a number of iron posts which are not only out of keeping with the architecture of the bridge, but are so positively mean in appearance that an enterprising publican would hardly erect such things around its premises. In order to put them up, moreover, niches have been cut in the solid granite of the bridge, with the result of permanent disfigurement of the structure. Such vandalism is unworthy of the greatest city in the world; and we have called attention to it in the hope that when next the London County Council meddles with London's Architecture it may see that its ironmongery has some semblance of appropriateness to its site.

It is important to note the results year by year of the National Competition between the Art schools of the Science and Art Department at South Kensington. The exhibition of the works selected for this year has just been opened at South Kensington, and it shows somewhat conclusively (says the *Globe*) the one-sidedness of the Departmental training. The comments of the examiners are instructive. They lament for the most part deficiencies in just those classes of work where real soundness of system will give the best results. The paintings of the head from life are "very disappointing," designs for pottery, mosaics, stained glass, and tiles are "uninteresting," modelling of foliage from Nature shows little improvement, and so on. Against this can only be set off an advance in work where knowledge of conventions is at least as important as power of observation; in

wall-paper designing, in pattern making for laces and embroidery, in metal work, and studies of anatomy.

THE meaning of all this is simply that under the present system students are led less to develop true originality than to study and imitate accepted authorities. They are being taught to depend upon tradition, and are given no encouragement to use their inventive capacities. The whole principle is a wrong one, and is based upon the delusion that a man may be made an efficient designer without having learned to be an artist. It defeats its own end, and makes the building up of a great and active national school almost impossible, for what it is busy in producing is not an array of Art leaders, but a collection of more or less efficient journeymen only fit to work under orders.

AN interesting correspondence has taken place between Mr. Richard Lees, the hon. secretary of the Sir Walter Scott Memorial in Westminster, and the United States Ambassador. On May 7th last, at a meeting of the memorial association, Sir Theodore Martin proposed, and Mr. Murray seconded, a resolution, which was unanimously carried, that "If the surplus funds suffice to obtain a replica of the bust of Sir Walter Scott, which is proposed to be placed in Westminster Abbey, Mr. Hutchinson be requested to make such copy, and that it be presented to the Boston Public Library as some recognition of the ready and cordial help which the citizens of the United States have rendered to the committee." Mr. Lees was requested to communicate the offer to the American Ambassador, with a view to its reaching the proper quarter. Mr. Hay has recently received the following reply from Mr. Josiah Quincy, the Mayor of Boston, dated July 6th:—"Dear Sir,—Pardon my delay in acknowledging your letter of May 16th enclosing a letter from Mr. Richard Lees, hon. secretary of the Sir Walter Scott Memorial Association. Owing to the absence during the summer of some of the Public Library trustees I cannot at this moment have a meeting of the Board to act formally upon the offer of the association, but I feel entirely warranted in saying that the proposed gift will be gratefully accepted by the City of Boston to be placed in the public library. I desire to express, on behalf of the City, my appreciation of this gift, and of the friendly spirit which inspires it, and my gratification that our public library should have been selected as the repository of this bust of Sir Walter Scott."

A CURIOUS clause, taking one right back to the middle ages, appears in the title-deeds of a house which is now to be sold in the village of Offham, in Kent. Scheduled as part of the "messuages, lands, hereditaments, and premises," is the village quintain, which still swings on its stout oaken post before the house, and the purchaser must covenant to keep the relic of a bygone pastime in good repair. One end of the swinging crossbar of this quintain (said to be the only surviving specimen in England) is shaped like a square target, pierced with a number of holes, into which the point of the player's lance would enter. When struck it would swing round, and unless the player were nimble, the sand-bag hung on the other end of the crossbar would swing round and unseat him. Here is a chance seldom met with in these modern days of getting back into mediævalism.

SOMEBODY, says The Outlook, has stolen General Wolfe, and it isn't the first time either. There was a quaint old wooden statue of the General on a house at the corner of Palace and St. John Streets, Quebec, and this statue has for the second time disappeared. Nobody, it is true, missed it till some United States tourists, failing to find an object they had journeyed many miles to see, made inquiries. Meanwhile Quebec is one Wolfe statue the less. Seventy odd years ago the same statue was carried off by a number of British middies out for a lark. They took it

away with them to the West Indies, and it was only when a United States tourist came to Quebec and made inquiries that the statue was returned.

THE unveiling of the statue of Alain Chartier at Bayeux has taken place within the last few days. Chartier was a famous writer in the fifteenth century, and his "*Livre des Quatre Dames*," written shortly after Agincourt, is a French classic. He was a patriot and a democrat, but his "eternal glory," as M. Geruzez says, was "to have announced the mission of Jeanne d'Arc." The monument is the work of M. Tony-Noël and A. J. Le Duc. It has been placed at the corner of the Rue du Général de Bois, in a small open place, where it finds itself in a congenial framework of deliciously antique houses. The poet is represented in an attitude of patriotic inspiration. He is reading some eloquent harangue, and the whole effect produced by the work is undeniably stimulating.

THERE was never any doubt that if the new system of deep-level railways, worked by electric power, proved successful, it was destined to be very largely developed. That prospect is now in process of being rapidly fulfilled. The City and South London line, which was the first to be opened, has been followed by the line from Waterloo to the City under the Thames, and the longest line hitherto projected—from the Bank to Shepherd's Bush—is approaching completion. We now hear of another scheme—a line from Waterloo to Baker Street, for which the preliminary surveys are being made. This is to pass under the river to Charing Cross, where it will connect with the District Railway, and be continued by way of Regent Street, with stations at Piccadilly Circus and Oxford Circus, finally joining the Metropolitan line at Baker Street.

THE Lord Dean of Guild has issued an interlocutor in connection with the application of the trustees of James Kirkland for a warrant to erect an eight-story building on the south side of Waterloo Street, Glasgow. Some time ago, when the plans came before the Court, the Lord Dean of Guild referred to the great height of the building—over 100ft.—and to the risk to the public and to the co-terminus properties should fire occur therein, particularly as the Master of Works pointed out that water would not rise to such a height. Latterly the neighbouring proprietors on the east and west, who hold their properties from the same superior, lodged written objections, on the ground that the titles provided that the houses or buildings to be erected on the said ground should not exceed in height four square stories above the streets, and that the walls of the house so far fronting Waterloo Street should not be more than 52ft. in height. They contended that the buildings proposed to be erected, being in violation of these restrictions, and being prejudicial to their properties, the lining should be refused. The Dean of Guild Court find that the objectors have no title to enforce the restrictions as to the height of the buildings to be erected, and therefore repels the objections, and grants warrant as craved.

THE sixty-seventh anniversary of the opening of London Bridge by King William IV., in 1831, occurred a few days ago. Of the hundred thousand pedestrians who pass over it every day, how many are aware that the lamp-posts were cast from the metal of French cannon captured in the Peninsular War? Such, however, is the fact; it therefore, like Waterloo Bridge, commemorates the victories of Wellington and his troops. It may be worth while, perhaps, to mention that the old London Bridge, which stood a little east of the new structure, and in a line with Fish Street Hill, was not pulled down until 1832, having served its purpose for over six hundred years. It had in that time undergone many alterations. The houses which originally stood on it were burnt down in the Great Fire. Some of them only were subsequently rebuilt, and these were demolished to afford convenience to the traffic.

NATIONAL ASSOCIATION OF MASTER BUILDERS.

A MEETING IN LEICESTER.

THE National Association of Master Builders of Great Britain has held its half-yearly meeting at Leicester within the past few days, under the chairmanship of the president of the association, Mr. T. Stephenson Jones, of Liverpool. The council meeting was held previously, when routine and special business was transacted. About eighty delegates were present at the general meeting, when the scheme for the federation of districts was discussed and adopted. It was decided to hold the next half-yearly meeting at Bradford. In the evening a complimentary banquet to the association was held. Mr. George Hardington, the president of the Leicester Master Builders' Association, filled the chair, and the company present included the president of the association (Mr. Stephenson Jones), the Mayor of Leicester (Ald. Wakerley), Sir Israel Hart, Sir Thomas Wright, Ald. the Right Hon. J. M. Meade, P.C. (Dublin), Ald. Sawday (president of the Leicester Society of Architects), Mr. E. G. Mawbey (borough surveyor). The gathering numbering

ABOUT 130 MASTER BUILDERS

from all parts of the United Kingdom. The loyal toasts having been duly honoured, Councillor Henry Green (Northampton) gave the toast of the "Municipality and Town and Trade of Leicester."—The Mayor, Sir Israel Hart, responded.—Mr. G. Hewitt gave the "Architects, Engineers, and Surveyors," saying the object of the borough was to ensure sound and honourable friendship between tradesmen and the profession.—Ald. Sawday and Mr. E. G. Mawbey responded to the toast, and spoke of the friendly relations existing in the town between architects and builders.—Sir Thomas Wright proposed the toast of the evening—viz., "The National Association of Master Builders of Great Britain." He spoke of the necessity of the association obtaining Parliamentary assistance in connection with matters relating to the building trade when necessary, and remarked upon the importance of their dealing with the labour question in general. He trusted that the association would go on and prosper.—The President, in reply, alluded to the fact that

THE BUILDING INDUSTRY WAS THE LARGEST in the country, and paid something like sixty millions a year in wages. One in every seven of the working population of the country belonged to the trade. He thought that employers in this vast industry were indebted to the National Association for the work it had done on their behalf during the past twenty years in labour questions and matters affecting the trade. He commented upon the advantages of federation, whereby local and county trade disputes might be made national.—The toast of the local association was proposed by Mr. T. F. Ryder, F.R.G.S. (London), and responded to by Mr. Hardington, who said eight years ago it was found necessary to reform the Leicester Association. The object of their association was not to take up an aggressive attitude, but to maintain the right of those who had the responsibilities of building in Leicester.

The North Riding County Council has authorised its Standing Joint Committee to obtain plans and estimates for obtaining the necessary offices adjacent to the present court-house.

FLEET STREET improvements are likely to sweep away another old landmark, in the shape of the establishment of Messrs. Butterworth and Co., law book publishers, hard by Middle Temple Lane.

BUILDING is now progressing on the vacant ground in Fetter Lane and West Harding Street. Premises are being built by Mr. Fortescue after the plans and designs of Mr. H. H. Collins. The architect of the block of shops and offices at the opposite corner is Mr. R. M. Roe.

London School Board Buildings.

THE annual report of the Works Committee of the London School Board, which has recently been issued, gives an abstract of the work done during the year ended March 25th, and shows the progress made in the provision of accommodation which has been sanctioned by the Board and the Education Department. The report, after stating what action has been taken with regard to the purchase of twelve sites for new schools and additional land for nineteen existing schools, with regard to which compulsory powers were obtained in 1896-97, sets forth

A LIST OF SITES

for twelve new schools and for enlarging schools or playgrounds or for general improvements. During the past year the Board agreed to purchase various interests in sites at a cost of £84,361, the surveyors' fees amounting to £583, and, including these amounts, the total cost of the sites purchased up to the end of the year under review was £83,300,165, the surveyors' fees, &c., being £446,931. According to a table prepared by the finance department, the cost of the sites for 350 schools, the accounts of which had been completed on September 29th last, was £6 14s. 6d. per child, and the average cost per head for school buildings was £13 14s. 1d., and for furniture and fittings 10s. 7d. Up to Lady Day, 1897, the total

NUMBER OF PERMANENT SCHOOLS

which had been erected and opened was 418, and during the year under review twelve new schools and eight enlargements were opened. The twelve new schools opened were—one in Chelsea, one in Finsbury, one in Greenwich, three in Hackney, one in East Lambeth, four in West Lambeth, and one in Tower Hamlets. The total accommodation thus provided was for 12,948 children, and the cost of the sites, buildings, and furniture was £352,484 16s. 7d., or an average cost per head of £27 4s. 5d. The enlargements were carried out in Finsbury, Greenwich, West Lambeth, Southwark, and Tower Hamlets, and provided additional accommodation for 2910 children, at a cost (exclusive of site) of £83,146, or an average cost per head of £28 11s. 5d. Loans were authorized by the Education Department in respect of the twelve new schools amounting to £364,668, and on account of the eight enlargements and sites amounting to £138,278.

ADDITIONAL SCHOOL PROVISION

has been made to the following extent:—Tenders have been accepted during the year for erecting nine new schools to provide accommodation for 7719, and for carrying out thirteen enlargements of schools to provide accommodation for 3863 children. The new schools will be erected—two in Greenwich, one in Hackney, two in East Lambeth, two in West Lambeth, and two in the Tower Hamlets—at a total cost of £173,305, or £22 9s. per head. The enlargements will be made—two in Finsbury, four in Greenwich, one in Hackney, one in West Lambeth, three in Southwark, and two in the Tower Hamlets—at a total cost of £91,702, or £23 14s. 9d. per head. The tenders include the provision of halls which are not counted in the accommodation of the schools, the provision of centres, and in all cases a drawing class room. In four cases a playground is being provided on the roof. Three of the schools are being erected under the special arrangements made with the view of reducing the cost. With regard to the enlargements, the variations in cost arise mainly from the fact that the opportunity is taken to improve the existing schools by providing halls, &c., so as to make them thoroughly efficient. Tenders have also been accepted for erecting or providing, among various other works, fourteen cookery centres, seventeen laundry centres, sixteen manual training centres, seven schools for special instruction, rooms for the teaching of the upper standards at nine schools, a blind centre, two housewifery centres, draining and other works at nineteen schools, an infirmary and isolation ward in connection with the Shaftesbury Training

Ship, at a cost of £3400. Sanitary works have also to be carried out at twenty-one schools, and the total amount of the tenders accepted in respect of seventeen of these schools is £23,115. The system of carrying out

REPAIRS TO SCHOOL BUILDINGS

by workmen employed direct by the Board is being continued in nine of the eighteen districts of the Clerks of Works for repairs. At Lady Day last the following work was in hand:—Fifteen schools were in course of erection, providing accommodation for 13,789 children, and fourteen enlargements, giving accommodation for 4467; thirty-two additional sites for new schools had been or were being purchased, the schools to be erected on twenty-five of which would provide for 23,157 children; twelve sites for new schools had been scheduled, the schools to be erected on four of which would provide for 3494 children; eighteen enlargements of schools had been sanctioned by the Education Department, providing for 5840 children; and the Education Department had sanctioned the provision of sites in seven districts, which would be scheduled next session, the schools to be erected on four of which would provide for 2820 children.

ROMAN REMAINS AT CIRENCESTER.

THE last excursion of the Birmingham Archaeological Society for the present season took place at Cirencester. The church is one of the most interesting in Gloucestershire. Here are important remains of Norman and Early English architecture, and the base of one pillar is distinctly Roman, having, doubtless, been taken from one of the noble edifices with which Corinium was adorned. The bulk of the church is, however, a fine example of the Decorated style, the body, which is lofty and almost square, conveying a marked impression of space, light, and dignity. What restoration has been effected has been careful and reverent, and while the ancient stained glass is admirable, the more modern windows do not compare with it unfavourably. The ancient brasses are great in number and in interest, and the pulpit is a remarkable example of light and elegant stonework. The most singular and beautiful feature of the church is the two-storied porch or parvis, the original subject of which is doubtful, but which has certainly been for some four centuries the pride of Cirencester. The visitors were permitted to inspect the extremely fine museum of Roman remains collected by Mr. Wilfred Cripps. Outside the museum is the fine capital of one of the columns of the Basilica, a building proved by the recent excavations of Mr. Cripps to have been not less than 300ft. in length and of great dignity. The mosaic pavement preserved *in situ* on the outskirts of Oakley Park was next visited, and after a short glimpse of Earl Bathurst's park, the museum built by a former Earl Bathurst for the public preservation of Roman remains was reached. Here are two Roman mosaic pavements, one of them well known as amongst the best and most perfect of its kind in England. There are also valuable Roman tombstones and relics of every kind. Of the Abbey almost nothing now exists except a Norman gateway, which was seen, possessing on the inner side a window through which doles were distributed, and still retaining its glazing of horn instead of glass.

THE success of the small edition of Mr. Ruskin's chief works has been so great that Mr. George Allen is preparing a cheap edition of "Preterita."

MR. SMALL'S monograph on "Scottish Woodwork of the Sixteenth and Seventeenth Centuries" is to be reissued; but, unfortunately, the full-size plates will be reduced one-half in the new edition.

AT Alderman's Green, near Coventry, foundation stones have been laid of a new Free Methodist chapel, to supersede a building erected about forty years ago. It will be of red brick, relieved by Bath stone dressings, and will accommodate some 320 persons.

Professional Items.

BIRMINGHAM.—Considerable improvements have been made at the Birmingham Theatre Royal. Mr. Frank J. Bill, of London, is the architect, and the work of carrying out his designs has been entrusted to Mr. John Taylor. The seating has been re-upholstered in the circles and stalls. The old papering of the circles, which had grown somewhat dingy with the lapse of time, has been replaced with a pleasing turquoise blue. The painting of the lining has been revived and cleaned; the building of the circle fronts has been picked out with gold, and the old papering at the back of the pit has given place to a rich and softly vermilion.

CLEETHORPE.—The Warwick's Revolving Towers Company has completed arrangements with the Great Central Railway Company for the erection of an observation tower on the promenade, to the west of the railway station Cleethorpe. The tower is to be 155ft. high, and will have a car revolving around it adapted for seating 200 passengers. A pavilion is to be built at the base. The work will be commenced in October, and completed by the following Easter.

DEVONPORT.—St. Aubyn Church, Devonport, has just undergone restoration. The west gable of the church has been removed, and the side galleries continued to the west end. The church has been re-roofed with a concrete and wood-block floor, and the outside of the church has been trenched and drained. The seats have been removed, and chairs substituted. Two new heating stoves have been provided. The church has been relighted with gas chandeliers and brackets, and recoloured and decorated throughout.

GLASGOW.—Highly satisfactory progress continues to be made with the reconstruction of Glasgow Bridge. The first five arches from Jamacia Street end are completed, and the sixth is expected to be finished ten days hence. There will then only be one more arch to build, and as a week or so will see all the iron work of the piers above high-water complete, an immediate start will be made on the final heavy part of the undertaking. Present the workmen are chiefly engaged in laying iron troughs beneath what will be pavement. Upon these arched troughs will be laid heavy gas and water cast-iron pipes. The advantages of this plan are many. In case of a gas leakage or burst water main, the pipes will be very easily got at, and without the slightest detention of vehicular traffic. The pipes lying on these troughs will also be easily preserved. A very substantial job is being made of the filling in of the spandrels, the very best cement being used in the concrete. All the material for the seventh arch is ready for placing, and nearly all the granite for the finishing of the bridge is at hand near by. If nothing unforeseen occurs, the structure is expected to be out of the contractor's hands just about the estimated time—early in spring.

HANDSWORTH.—A memorial window to the late Mrs. H. S. Richards, in the chancel of the Holy Trinity Memorial Church, Handsworth, was dedicated on Sunday week. The subject of the effigiation occupies the three centre lights, the figure of Jesus as the Good Shepherd in the True Vine the outermost lights, under the influence of sixteenth century treatment, to harmonise with the stonework. The window was designed and executed by Mr. T. W. W. of the Studio, Smethwick. The chancel is being decorated from Mr. Camm's designs.

INVERNESS.—The Building Committee of the Parish Council of Inverness recently decided of the plans prepared by Mr. James Reid, architect, High Street, for the conversion of an old building in Bank Street into offices for the purposes of the Council. The following have been the contractors:—

Mason, Alexander Fraser; carpenter, Robert Munro; slater, Adam Taylor; plumbers, Noble and Burgess; plasterer, Alexander Fraser; painter, James Cameron—all of Inverness.

KEIGHLEY.—The contracts for the extension of the Keighley and District Hospital have been let as follows:—Masonry, Mr. M. Booth, Clayton; joinery, Messrs. Foster and Fortune, Ingrow; plumbing, Mr. Jos. Harrison, Keighley; plastering, Mr. Jos. King, Keighley; painting, Mr. F. Petty, Keighley. These contracts represent a total of a little over £14,000, and it is expected that heating will represent £2000 more.

KENTON.—The parish church of Kenton, near Exeter, has been enriched by the decoration of the chancel and east walls. The decoration on the latter consists of kneeling groups of angels in the attitude of adoration beneath the Paschal Lamb, whilst on the north and south walls of the chancel are the figures of the Four Evangelists and SS. Peter and Paul, in life size, beneath conventional canopies, and standing upon bases illuminated with their emblems and texts applicable to each figure. The remainder of the work consists of highly-ornamental conventional details, among which a continually recurring series of heraldic badges of the Courtenay family is prominent. The work was executed by Messrs. F. Drake and Sons, Exeter, from designs by Mr. Bligh Bond, of Bristol.

LOW FELL.—New buildings have been erected at Low Fell by the Provincial Laundries Limited. In the main front of the building is the public entrance, giving access to the clerks' offices, adjoining which is the private office of the manageress. On the right-hand side of the offices is the sorting-room, where all the goods to be dealt with are received and classified. Immediately behind this is the van-dock and the large hall, where customers' baskets can be stored. Beyond this is the washhouse, fitted with all the latest appliances in the way of washing machinery. Beyond the washhouse are the engine-room and drying-room, the latter being fitted with two powerful fans. Parallel with the washhouse is the large ironing-room, and coming back towards the office is the packing-room. The various departments are so grouped round the offices that the maximum amount of supervision can be obtained. On the first floor, over the front block, there are a mess-room for the people employed, and a large store-room and a large spare-room for the extension of any of the branches of work taken by the laundry. Outside the main block are the boiler-house, carpet-beating room, stabling for six horses, harness-room and hay-loft, a large-covered van-shed, and two commodious cottages for the engineer and vanman. The buildings have been carried out with Birtley bricks with pressed brick mouldings and arches, the upper part of the walls being rough-cast. The contractor for the building was Mr. J. C. Hope, and Mr. Mackay acted as inspector, and the whole of the works have been carried out from the designs and under the superintendence of Messrs. Oliver and Leeson, architects, of Newcastle-on-Tyne.

MARGATE.—The new Grand Theatre at Margate was opened on Monday week. The building is situated in Cecil Square and Cecil Street, the principal entrance being in the latter. The imposing looking building, which has undergone many external and internal alterations, was, till recently, the Royal Assembly Rooms, and occupies part of the site of the old historic rooms which were so popular for concerts and dancing for a century or more. Sitting accommodation has been provided for 1800 persons, and on Monday night all seats were occupied. The decorations are in gold and light blue, and the mosaic ceiling is similarly ornamented. From all parts an uninterrupted view of the stage, which is 60ft. wide by 40ft. deep, can be obtained. The decoration and seating are by Mr. Dean (Birmingham). Mr. Hope was the architect, and Mr. Davidson the contractor.

MORECAMBE.—The erection of a cottage hospital for Morecambe will shortly be proceeded with. At a meeting of the Diamond Jubilee committee several tenders were recommended for acceptance by the building committee, these amounting in all to £1900 14s. To this sum, however, the chairman explained, must be added the cost of the furnishing, which would bring the total cost to £2500.

MORRISTON.—At the Graig, Morriston, eleven stones, to commemorate the erection of a new Welsh Congregational Chapel, have been laid. The new building is to be erected with the best native stone dressings, the front and gable returns being best-class shoddie work, and the sides and back of best hammer-dressed work. There is to be an entrance lobby, an octagonal gallery, and the whole of the interior woodwork is to be of best pitch-pine. The contract has been let to Messrs. Walter and John, Morriston, and Mr. W. W. Williams is the architect.

STAINES.—The Parish Church of St. Mary, Staines, was reopened by the Bishop of London on Sunday week, after extensive internal alterations, consisting mainly of the substitution of an open timber roof for the old plaster ceiling, a new tile floor for stone flags, and open seats for the old-fashioned high pews. A new stained-glass window has also been provided at the east end of the nave above the chancel arch.

THORNHILL.—A new school is about to be erected at Thornhill, about half way between Partick and Whiteinch, on a slope overlooking the Clyde. The proposed buildings will form a square, to be surrounded by four new streets which have not yet been finished. Accommodation will be provided for 1332 scholars, and the estimated cost of the entire buildings is £18,000.

WEST HAM.—The foundation-stone of an asylum for the County Borough of West Ham, population about 260,000, was laid at Chadwell Heath, Essex, on the 3rd inst. The asylum is designed for the reception of 800 patients in various blocks. The administration block is placed centrally, the front portion being occupied on the ground floor by the chief medical officer's, steward's, and clerk's offices, board room, dispensary, library, &c.; the museum and laboratories and assistant medical officer's rooms being on the first floor. At the back are the waiting room, matron's apartments, recreation hall, rooms for male and female attendants, kitchen, bakery, general stores, laundry, boiler, engine house, and workshops, &c. The main buildings will be two stories in height, and will occupy an area of about ten acres, with 90 acres of surrounding land. The foundations have been put in by Messrs. Gregar and Son, of Stratford, at a cost of about £16,000. Messrs. Leslie and Co., of Kensington, have the contract for the superstructure, £210,000. In addition to the main buildings there will be a medical officer's residence, also steward's chief attendants' and married attendants' houses, isolation block, mortuary, lodges, and a chapel to accommodate 550 adults. The total cost when finished will be about £300,000. The architect is Mr. Lewis Angell, F.R.I.B.A., the Borough Engineer of West Ham.

DESIGNS for the new railway station to be erected at Stockholm will be received up to Wednesday, 31st inst., at the offices of the Consulate, 27, Great Winchester Street.

THE execution of the Martyrs' Memorial which is to be erected at Canterbury has been intrusted to Messrs. J. Whitehead and Sons, Limited, Westminster and Aberdeen. This firm is also executing the Martyrs' Memorial which is to be erected at Lewes.

THE following buildings have been reported to the Common Council as dangerous structures: 12, Ropemaker Street; 1 and 2, Blackley Street, and 67, Fann Street (one building); 85, Fenchurch Street; 87, Fetter Lane (south side); and 34 and 35, Monkwell Street (cornices).

The following are a few of the Press Opinions upon

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THE R.I.B.A. EXAMINATIONS AGAIN.

To the Editor of THE BUILDERS' JOURNAL.

DEAR SIR,—In your reply to "Student" in your June 1st issue, you deprecate the use of many books on Practical Plane Solid Geometry. Can you suggest the best means of obtaining a sufficient knowledge of the subject to meet the requirements of the Intermediate Examination? I believe there are cardboard models to aid the illustrations of the text-books, but I have been unable to procure these so far. Your information would greatly oblige—Yours faithfully,

H. E. B.

In our issue of June 1st we referred to Plane Geometry only. However, we are of opinion that the same remarks hold good with reference to Solid and Descriptive Geometry. We think the right way is just to master the elements of the subject, theoretically, as set out in Euclid, Book XI. (for example), or in such treatises as Drew's "Conic Sections." To go to some book on Practical Geometry in order to acquire certain facts, simply for the purpose of passing an examination, is a proceeding we could not recommend to anyone; it is no education. But if this is what you intend to do, perhaps "Practical Geometry," by John Carroll (Burns and Oates), may serve your purpose. With regard to models, their real use is when you make them yourself, as actual demonstrations of the correctness of your work, and as aids to realising what you are doing. If, for instance, you draw out the different faces of a voussoir stone, at the intersection of two barrel vaults, and then cut out each template in thin cardboard, or paper, and stick them together, you soon find out whether you are right.

Correspondence.

ARCHITECTS IN SOUTH AFRICA.

To the Editor of THE BUILDERS' JOURNAL.

SIR,—Your versatile contributor, writing yesterday under the heading of "Bricks and Mortar," takes exception to the very common practice, in the Colonies, of professional men advertising in the daily papers. He quotes one by Mr. F. Upton, of Church Street, Pietermaritzburg, evidently thinking the advertisement an oddity in its way. I have spent the greater part of this year in a holiday scamper through the five great colonies of South Africa, and can assure him and your readers I have never seen a Colonial newspaper in that Continent that did not contain advertisements inserted by architects, physicians, and solicitors. Here, for instance, are some architectural samples taken, haphazard, from the columns of the Matabele Times for Tuesday, 5th July, 1898, just to hand by the incoming mail:—

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Box 175.

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ARCHITECT.

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Department of Marlborough, New Zealand.

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BENZIE & DEEBLE, M.S.A.,

ARCHITECTS & CIVIL ENGINEERS,

12, Exchange Buildings, Bulawayo.

Again, the Bulawayo Chronicle for the same date contains many other examples, and all the architects concerned are more or less really good men, as Colonial architects go.—Yours obediently,

HARRY HEMS.

Fair Park, Exeter, Aug. 4, 1898.

TENDERS.

Information from accredited sources should be sent to "The Editor." No results of tenders can be accepted unless they contain the name of the Architect or Surveyor for the Work.

ABINGDON.—For the erection of three houses, Albert Park, for the Governors of Christ's Hospital. Mr. J. G. T. West, architect, The Knowl, Abingdon:—
Ward and Son .. £1,379 18 8 Grant £1,159 0 0
Bottrell and Son .. 1,239 0 0 Ricketts 1,036 0 0
Buckle .. 1,220 0 0 Randall 890 0 0

ALLOA (N.B.).—For the formation of roadway, &c., Ashley-terrace, Sunnyside, for the Right Hon. the Earl of Mar and Kellie. Mr. A. P. Forrester Paton, and the Alloa Co-operative Society Limited. Mr. G. A. Kerr, engineer and architect, 37, Mill-street, Alloa. Quantities by the engineer:—
R. Gall £995 3 9 G. and R. Cousin,
A. Gall 825 10 10 Alloa* £705 17 5
W. Johnstone .. 484 10 6

* Accepted.

ARMAGH.—For the erection of dispensary buildings, for the Board of Guardians. Mr. H. C. Parkinson, architect, Armagh:—
Bright Bros. £980 0 Patrick McKenna,
James McKee & Sons .. 924 10 Armagh* £695 0
James McKee & Sons .. 750 0 * Accepted.

ARMLEY (Leeds).—Accepted for erecting two houses, for Mrs. Levisiohu. Mr. F. W. Rhodes, architect, Upper Wortley:—
Bricklaying & Masonry.—H. Brook, Armley £306 0
Joinery.—J. Tate, Armley 152 0
Slating.—J. Atkinson and Son, Leeds 26 17
Plastering.—J. Walsh, Armley 48 10
Plumbing.—A. B. Cronack, Armley 42 0
Painting.—C. F. Brown, Armley 10 10

BARTON STACEY (Hants).—For the erection of three cottages, for Mrs. McCreagh Thornhill. Mr. A. Purkess, architect, Andover:—
F. Beale £729 0 C. Grace and Sons .. £657 0
H. Annett and Son .. 725 0 S. Bell, Andover* .. 610 0
C. Simkins .. 1 11 11 * Accepted.

BRIGHTON.—For alterations, &c., to school, Preston-road, for the Brighton and Preston School Board (U.D.). Messrs. T. Simpson and Son, surveyors, 16, Ship-street, Brighton:—
James Barnes £744 W. Brown and Son .. £679
G. R. Lockyer 710 Sattin and Evershed .. 647

BUCKLOW.—For the construction of main sewers and outfall works, Hale, for the Rural District Council. Mr. J. M. D. McKenzie, surveyor, 7, Market-street, Altrincham. Quantities by surveyor:—
James Hamilton and Sons, Altrincham .. £1,565
Eight firms tendered. Lowest accepted.

CHARTHAM.—For painting Kent County Lunatic Asylum externally. Section No. 2. Mr. W. J. Jennings, architect, Canterbury. Quantities supplied:—
W. F. Hadlow £1,080 A. H. Inns, Watford* .. £995
Emery Bros. .. 1,025 * Accepted.

CHELMSFORD.—For erecting a small house on the Baddon-road. Mr. Rd. Mawhood, architect, 2, Market-road, Chelmsford:—
F. Johnson £519 W. Fincham £447
J. Gowers 475 W. Samms (accepted) .. 435
[All of Chelmsford.]

CRUMLIN (Mon.).—For additions to Board schools, for the Mynddylwyn School Board. Messrs. Rosser and Roberts, architects, Abercarn. Quantities by architect:—
Rowland and Lloyd .. £421 Lawson and Co. .. £340
D. Lewis 380 C. F. Morgan, New-
E. Williams 343 bridge, Mon. (accepted) 314

DORCHESTER.—For the erection of almshouses for four married couples, for the Trustees of Chubb's and Whetstone's charities. Mr. A. L. T. Tilley, architect, Dorchester:—
E. Smith £1,185 O. A. Harvey, Char-
W. Fry 1,169 15 minster* .. 1,141 0
C. E. Slade .. 1,150 0 * Accepted.

DUNMOW (Essex).—For additions to schools at the Congregational Church. Mr. C. Pertwee, architect, Bank-chambers, Chelmsford:—
Ernest West £379 0 J. Pepper, Dunmow,
F. Harman 305 10 Essex* £232 0
A. M. Warren .. 250 0 * Accepted.

EXETER.—Accepted for the erection of shop and house, for Mr. Plucknett. Mr. J. A. Lucas, architect, Guildhall-chambers, Exeter:—
General Builders, Ltd., Progress Works, Nott-
ing Hill £517

EXETER.—Accepted for alterations and additions to Church Schools, Heavitree. Mr. E. H. Harbottle, architect, County-chambers, Exeter:—
General Builders, Ltd., Progress Works, Nott-
ing Hill £265

LEIGH (Lancs.).—For the erection of banking premises, Bridge-street. Mr. J. H. Stephens (Banks, Fairclough, and Stephen), architect, Leigh, Lancs. Quantities by architect:—
J. W. Cowburn £2,886 J. H. Wright, Leigh,
Lancs. (accepted) .. £2,690
Architect's estimate, £2,688.

LONDON.—For building new projections, to contain additional lavatory and water-closet accommodation at the Strand Workhouse, Edmonton, for the Guardians of the Strand Union. Messrs. W. S. Cross and Kekwick, architects, 18, Outer Temple, Strand. Quantities by Mr. W. T. Farthing:—
Allan and Stanley .. £5,925 Merredew and Wort .. £5,409
W. Lawrence 5,730 T. G. Sharphington .. 5,368

LONDON.—For additions, &c., to Chapel, St. John's-square, Clerkenwell, for the Rev. J. E. Wakerley, and others. Mr. A. Wakerley, architect, 14, Market-place, Leicester. Quantities by Messrs. Corderoy, Selby, and Corderoy, Westminster:—
Stapleton and Sons .. £10,289 E. Houghton and Son £8,751
Barrett and Power .. 9,734 Harris, Ward, and Co. 8,337
Geo. Munday & Sons 9,480 General Builders, Ltd. 8,000
B. E. Nightingale .. 9,407 Merredew and Wort .. 7,900
J. Cheeseman & Sons 9,320 W. Reason 7,859
Holloway Bros. 9,235

LONDON.—For internal painting, &c., at the Infirmary, Wandsworth, for the Clapham Union Guardians:—
G. W. Street £1,482 W. Johnson and Co. .. £895
H. Roffey 1,070 H. Heather (accepted) .. 768
Arthur H. Inns .. 975 F. W. Harris 765
C. Gurling 946 D. McNeil 690

LONDON.—For building villa, Catford Bridge, for Mr. H. Burrows. Mr. W. Woodward, architect, Bedford-row, W.:—
Balaam Bros. £1,400 Layard £898
Simpson and Cove .. 990 W. Dean 750

OXFORD.—For the erection of a house and stabling on the Banbury-road, Oxford, for J. E. Embling, Esq. Mr. Herbert Quinton, architect and surveyor, 15, Magdalen-street, Oxford:—
Wilkins Bros. £2,368 Organ Bros.* £2,543
Bruckers 2,368 * Accepted.

PORT TALBOT (Wales).—For the erection of caretaker's house, at the intermediate school. Mr. Frank B. Smith, architect, Port Talbot:—
Evan Thomas .. £563 0 0 Matthews and Co. £435 0 0
S. Rees 535 0 0 Morgan Coe 420 0 0
Leverton Bros. .. 494 9 0 John Davies, Aber-
Stephens and Co. 459 15 6 avon (accepted) .. 420 0 0

SALTASH (Cornwall).—Accepted for the erection of a Wesleyan schoolroom, and renovation of chapel, at Forder, for the trustees. Mr. Edgar M. Leest, architect, Devonport and Saltash:—
R. J. Taylor and Co., Mutton £312

WEMBLEY (London).—For the erection of new south aisle, organ chamber and porch, and alterations to St. John's Church. Mr. Hayward Brakspear, architect:—
F. G. Minter £3,965 John Bentley £3,330
Dove Bros. 3,750 Belham and Co. .. 3,191
H. Haynes 3,590

WHITBY.—For the erection of villa residence, Goathland. Mr. E. H. Smales, architect, 5, Flowergate, Whitby:—
John Brough .. £1,105 17 6 Robinson Harland,
A. Palfreman .. 1,082 15 0 Whitby (accepted) £1,066 0
John Hutchinson .. 1,078 0 0 C. Winterburn .. 960 0

WHITEHAVEN.—For additions, &c., to Board schools, Arleedon. Mr. J. S. Moffat, architect, 53, Church-street, Whitehaven:—
Chapple and Son .. £608 10 J. Green, Pardshaw* £606 10
* Accepted.

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(Continued from page xc., Vol. vii.)

COKE BREAKERS.

FOR many purposes coke is required of a small size, and breakers are now extensively used. Formerly the breaking was done by smashing the coke up with a block, or even with the back of a shovel. The smashing of coke in this way involved a serious loss of material. A good form of coke breaker consists of a series of steel circular toothed discs for cutting the coke. The screening is now accomplished by machinery, and where power is not employed, there is generally a rotary hand-screen used, which answers the same purpose on a smaller scale. By this means hand-sieving and riddling are being superseded. The author witnessed, a few years since, this hand-riddling being undertaken by a number of women. Thanks to the progress of civilisation, that is altogether a matter of history. The dusty employment of hand-riddling is most objectionable to plant on the works, so that any apparatus to do this class of work mechanically is a distinct gain.

GAS ENGINES AND TRAMCAR MOTORS.

Gas engines and tramcar motors may be, perhaps, regarded as being outside the range of gas-works machinery, inasmuch as, generally speaking, they are not used in the course of gas manufacture, although there are works where some of them are. It is, however, a distinct branch of gas engineering, and the use of gas for propelling tramcars has received a great impetus by the success of the Blackpool, Lytham, and St. Anne's tramway of about eight miles. Gas engines are now made as large as 200 or 300 horse-power, although the smaller sizes are most generally in use.

FURNACES.

Great advances have been made in economising fuel for retort furnaces, with the use of regenerative settings, largely by the use of hot coke in lieu of cold coke or coal. In some works also tar and oil are being used for fuel purposes, but it is obviously unsuitable in towns where stringent smoke restrictions are in force. In all large works the retorts are heated by a system of regenerative furnaces, so that there is little difficulty in obtaining suitable heats for carbonising the coal. At a gas works visited by the author a few years since, he was informed that all the coke made was required for heating the furnaces, and in addition, a small quantity of coal. It is now customary to reckon from 12 to 15 per cent. of the coal carbonised only as being required for fuel, or say 23 per cent. of the coke made, the balance being available for sale. But there still remains much to be done in the matter of economy of fuel. The refuse clinker and ashes usually carted away to the tip contain a considerable percentage of combustible matter. The author has seen upon some gas-works open hearths for consuming or reducing the tip refuse, by burning it to as small a bulk as possible. This means a considerable waste of fuel, which will eventually be realised. It is worthy of note that scarcely any advance has been made in gas-fired boilers.

LIFTING AND TRAVELLING APPARATUS FOR PURIFIER COVERS AND PURIFYING MATERIAL.

With regard to purifying apparatus, hydraulic-power machinery is increasingly popular. In some cases the huge purifier lids, weighing 10 tons and upwards, are lifted by means of central rams, having the requisite supply pipe to the cylinder running underneath the bottom of the purifiers. In other cases the pipe is connected through the top of the purifier cover. With this central arrangement, the cover remains elevated over the top of the purifier box, during the operations of emptying and refilling with the purifying material. This, in some cases, is undesirable, especially where the purifying material has to be un-

loaded at the sides of the purifier box. In cases where the material is dropped out through openings in the bottom of the purifier box to a celerage below, the objection is not so great. In other cases the purifier lid is externally lifted, and suspended over the purifier box by chains connected to the corners or sides of the covers, according to the design of the framework, the chain being taken up by means of an overhead hydraulic ram. In this case the purifier cover has usually to be travelled upon a huge carriage and suspended over an adjoining purifier. Some very useful forms of lifting apparatus have been designed, operated by manual labour, but this is a slow and tedious process, and cannot be regarded with entire satisfaction. Messrs. John Abbott and Co., of Gateshead-on-Tyne, have made a speciality of hydraulic lifting apparatus of every design, and have erected several of the finest and most satisfactory installations in the world. They have also applied hydraulic power for crane purposes for elevating the purifying material to different floors to many works. Some of the best forms of hydraulic pumping engines, lifting apparatus, and machinery extant are to be found upon gas-works, for various purposes.

SCRUBBERS, VALVES, &C.

In scrubbers and washers there are shafts, gearing, and machinery, either for working the water-distributing gear, or for revolving plates and discs in connection with the apparatus. Many gas valves are elaborate pieces of mechanism. There are also several gas regulating governors, jet photometers, and meters possessing features of interest, although not coming within the scope of this paper.

WASTE.

Mechanical engineering has a splendid field still in gas-works machinery to prevent waste. One item alone demonstrates this. The large quantity of gas wasted when the retorts are open, both during the charging and discharging of them, although enormously reduced by the substitution of machinery and inclined retorts in lieu of hand stoking, still leaves much to be improved. The quantity of spent lime, which is in many towns a waste product, also demands further inquiry as to its adaptability or suitability for any other purpose or process. There can be little doubt that, with the progress of science, what is now termed refuse material will be turned to profitable account. After calcining the spent oxide at the chemical works for the extraction of the sulphur, the huge heaps of material left certainly ought to be further considered. The broken retort material is now being reground by fire goods manufacturers, and need not be carted away to the tip. Considering the quantity of fine dust produced from coke, consisting of the best fuel material, it is somewhat surprising that greater attention has not been given to the manufacture of briquettes. Experiments have been made from time to time by the addition of varying quantities of pitch (some seven or eight per cent.), and other matter to the dust, but nothing very perfect has as yet been extensively adopted. While coal sludge seems to have made greater strides, and with a large amount of success, especially where the fuel has been used for marine purposes, coke dust is regarded as a source of annoyance instead of profit. It has certainly been utilised for asphalt. The waste water from sulphate of ammonia manufacture deserves consideration. It is now passing away to the extent of millions of tons annually, quite hot. The waste of this hot water should be preventable. Water used for quenching coke is allowed to drain away to waste, containing, as it does, many different elements in solution. An enormous quantity of cyanides in coal gas is also being lost, although efforts are now being made to recover it.

RETORT-HOUSE OPERATIONS.

The retort-house is obviously the foundation and commencement of gas-works operations, and specially designed machinery for emptying and filling the retorts first claims consideration. Formerly the larger coal required to be broken was dealt with solely by hand. In

works now, where hand stoking continues, the stoker is provided with a sledge hammer to smash up the large lumps of coal. Where a large quantity of cannel coal was used, it was necessary to employ a gang of men for the purpose, and as it was desirable the percentage of cannel should be continuous, this gang took their turns as regularly as the stokers themselves. Coal breakers are generally and most desirably placed, where circumstances permit, in the coal stores, in brick pits covered by suitable iron framing and floor plates. The breaker is driven by a steam or other engine combined with it, or a separate gas engine may be used for driving the breaker where available. There are several sizes and types of coal and cannel breakers to suit all classes of large and small cannel, as well as the numerous varieties of common coals. The coal may be brought into the coal stores by railway wagons on an overhead railway, or by carts or conveyors.

COAL TRUCKS.

In one of the Birmingham Corporation gas-works, of which the author had the superintendence for several years, specially designed steel hopper wagons (Hunt and Shackelford's patent), with sloping ends and two sliding doors underneath, were placed directly over the top of a hopper supplying the coal breaker, and the contents of a 10-ton truck were emptied directly into the hoppers and coal breakers below. These wagons were first adopted by Mr. Charles Hunt, M.Inst.C.E., at the Windsor Street Works, Birmingham.

COAL ELEVATORS AND CONVEYORS.

When the cannel or coal has been reduced to a suitable size by crushing through the breakers, it falls, together with the smaller pieces which do not require breaking, and the dust, into the bottom of the pit in which the elevator runs. It is then carried up to a large overhead hopper placed in the upper portion of the retort house, on girders spanning between the coal store and the retort bench. These elevators consist of malleable iron buckets fitted to a strong detachable link chain provided with lugs for fastening the bucket bolts and sliding pieces to. The chain and buckets are guided by a strong latticed iron and steel framing, complete with standards and other attachments for fixing to the coal breaker floor, and also to the overhead fixed hoppers. The elevators are driven by belting and chain gear, with intermediate counter-shaft from the coal-breaker engines. In cases where the coal stores are only on one side of a retort house containing through retorts, the coal is conveyed to the hoppers by horizontal conveyors fixed over the retort bench. Horizontal and slightly inclined conveyors are also extensively used for conveying coal in this way as well as from the stores, when situated at some distance from the retort-house.

STOKING MACHINERY.

At the present time there are hundreds of gas-works with stoking machinery installations in operation, the perfection of which leaves scarcely any room for economy by the more recent invention, or re-introduction of inclined retorts. With machinery, a retort may be discharged and recharged in a few seconds with comparative ease. Manual drawing and charging machines are applicable for small works having an annual consumption of about 2000 tons of coal, but the more comprehensive systems driven by compressed air, or by hydraulic power, are suitable for medium sized and large works. The present method of carbonising coal is in small quantities, of from 6cwt. to 8cwt., perhaps, as a maximum per 20ft. retort. The three systems of charging the retorts at present in existence, are hand stoking, manual or power machine stoking, and the inclined system. The system of inclined retorts necessarily requiring little more than elevators and conveyors, does not reasonably come within the scope of this paper, and tempting as the subject is, must be left out of consideration.

(To be continued.)

A PAROCHIAL hall, in St. Stephen's Parish, Norwich, is in course of erection.

* A paper read before the Society of Engineers, on June 6th, 1898.

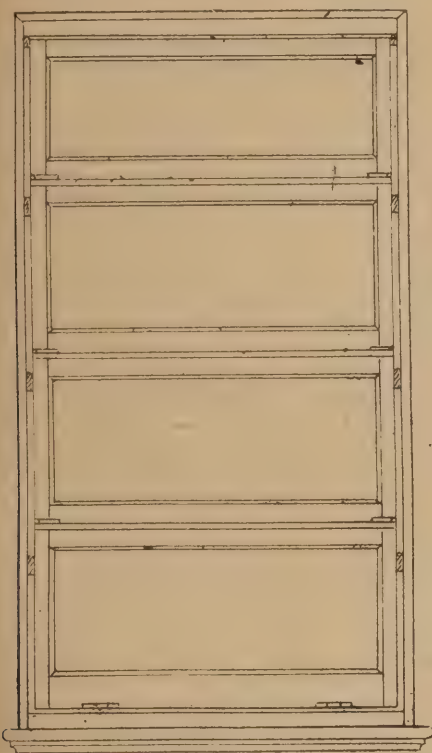
PRACTICAL CARPENTRY AND JOINERY.*

BY GEORGE ELLIS.

IX.—WINDOWS.

(Continued from page xci, Vol. vii.)

HOSPITAL LIGHTS are so called because they are much used in these institutions and similar buildings, where plenty of ventilation without down draught is a primary, and appearance a secondary, consideration. They consist of a number of small sashes rebated together at their top and bottom edges, and fitted into a solid rebated frame. The lowest one is hung with butts to the cill, the others being pivoted at their lower inside corners, one above the other, to the jambs of the frame; lin. by 3/4 in. fillets are screwed to the jamb linings at each side, at an angle of about 60°, and against these the sashes lie, when open. They are usually fitted with geared quadrant casement fasteners, so that they can be all opened or closed at once. Fig. 149 is a sectional elevation; Fig. 147, inside elevation; Fig. 148, plan; Fig. 150, enlarged details of the junction of two lights in a hospital frame.



147.—INSIDE ELEVATION.

A variation of these in which one pane of glass opens into a triangular metal frame, glazed at the sides, is called a hopper frame.

(To be continued.)

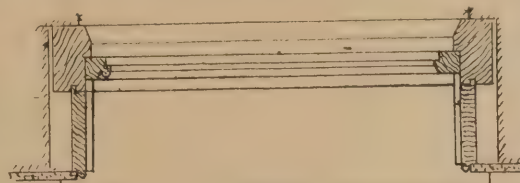
* All rights of reproduction reserved.

THE Mountain Ash Urban District Council is seeking permission to borrow £20,700 for the purpose of carrying out a sewerage scheme for the Abercynon portion of the district.

ANOTHER large landslip of the Lighthouse Hills Cliffs at Cromer has occurred near the same spot as the one which took place about two months ago. This time a piece of the cliff, 30yds. wide by 120yds. long, has been hurled on to the beach, where no small portion of the first slip yet remains, despite the action of the sea. The last and what was the most inland of Lloyd's posts, marking that signal site, is but 19yds. from the edge of the cliff, the two other posts having been carried away with this latest fall and the thousands of tons of earth that went with it.

Surveying and Sanitary Notes.

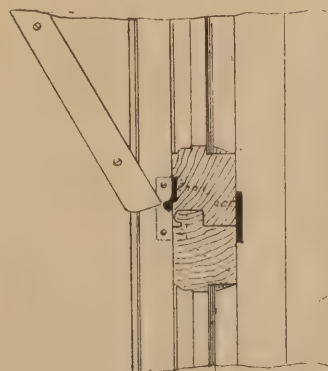
FEW visitors to Paris, when walking along some of the chief streets of the city, are aware that underneath them there runs a waterway,



148.—PLAN.

or canal, which they may inspect by obtaining permission. The waterway, says the Golden Penny, is nothing more or less than a sewer, but a very different kind of thing to what one usually associates the name with. The Parisians are, in fact, very proud of their sewers, and include them in their principal sights. Some time ago the writer had the opportunity of inspecting the sewers, or, rather, of taking a trip beneath the city. First of all it should be stated that the sewers are spacious, well built, and splendidly kept, and they are reserved for surface water and the waste scraps swept into them from the streets. The journey can be commenced at the Place du Chatelet, where, after descending a spiral staircase for about 50ft., there is a large chamber brilliantly lighted with electric lamps. From here the journey is commenced in carriages built in brake form, with cushioned seats, and drawn by a small electric engine. The passage is lighted with lamps, while the roof is covered with coils of telephone and telegraph wires, and tubes and pipes of all sizes line the sides.

AFTER riding down, or, rather, beneath, the Rue de Rivoli, along the ledge of the sewer, as far as the Place de la Concorde, a change is made into a boat which completes the journey. The Place de la Concorde is the meeting place of the channels which bring the waters from the other side of the river and from the Champs Elysees, and thence they are carried forward along the Rue Royale to join the stream running from the Madeleine to Asnieres, where they are deposited in the Seine. The boat which takes the visitor along the broad channel to the Madeleine is drawn by a magnetic system of towing. This boat consists of an ingenious contrivance with a slide fixed in front of it for the purpose of scraping the sewers clean, but so neatly is it constructed that it is impossible to imagine that it is other than a pleasure boat. The entire route is well lighted, the boat runs smoothly, and the occu-



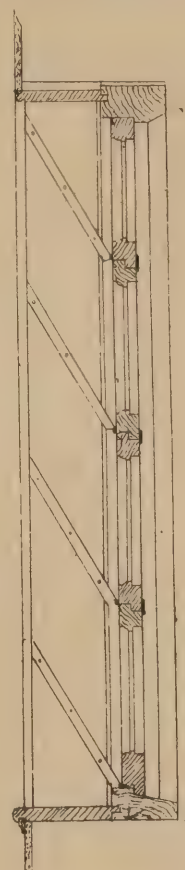
150.—DETAIL OF HANGING HOSPITAL LIGHT.

pants have plenty of indications as to where they are going, as every street passed is marked by an enamelled plate with the name and number at which it enters the Rue de Rivoli. Altogether this trip is well worth making by all who go to Paris.

Trade and Craft.

AN ASBESTOS EXPERIMENT.

At the exhibition held in Berlin last month, in connection with the Fifteenth German Firemen's Day, the City Fire Brigade authorities arranged a trial, the result of which deserves to be well noticed in the circle of architects and of fire brigades. A small wooden cottage was erected at the expense of the Calmon Asbestos and Rubber Works, London, Hamburg, and Berlin; it consisted of a wooden structure, lined inside with Asbestos millboard, and roofed with Asbestos slate, a new material introduced by the Calmon Asbestos and Rubber Works, and which, no doubt, is destined to play an important part in future buildings for roofing, lining fireproof doors, iron parts, &c. A large fire was lighted inside the house, and kept burning fiercely for over an hour, with the result that the flames in no way damaged the cottage. It was thus satisfactorily proved that

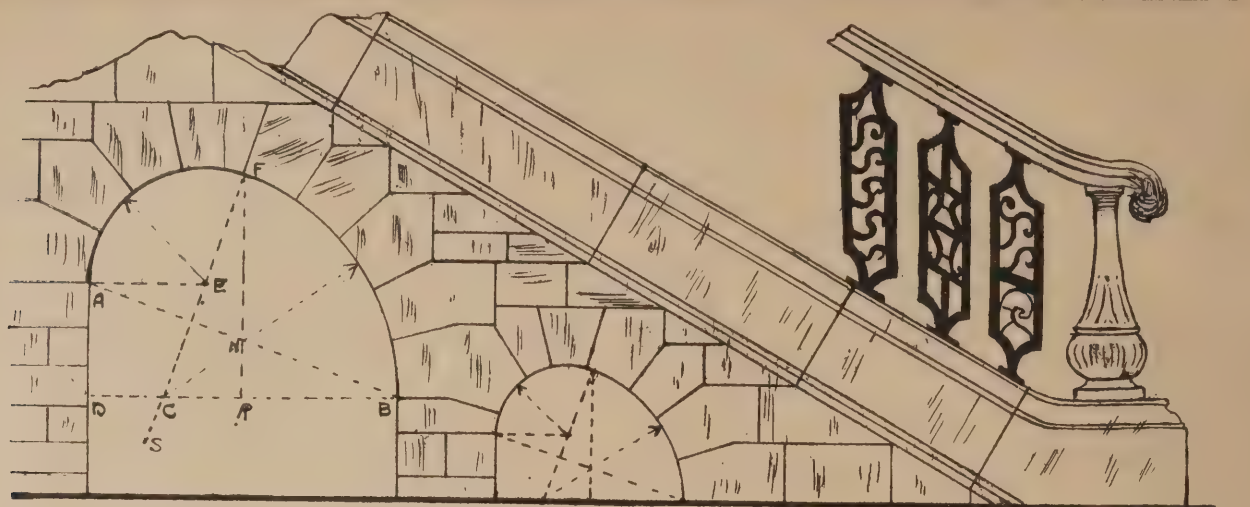


149.—SECTIONAL ELEVATION.

it is possible to protect wooden structures from destruction by fire by the use of proper insulating material. Far too little attention has hitherto been given to precautions of this kind, and among fireproof materials Asbestos millboard deserves to be well known. It is an efficacious insulator against heat, and is easily applied by simply being nailed on. Asbestos cloths, for use in theatres, &c., are also made of the material.

LEICESTER Town Council has decided to promote a Parliamentary Bill to empower it to obtain water supply from Upper Derwent, a distance of 66 miles. The cost of the scheme is roughly estimated at three millions. About fourteen million gallons daily will be obtained.

THE Richmond Rural District Council, Yorkshire, has engaged Mr. Harry W. Taylor, A.M.I.C.E., of St. Nicholas Chambers, Newcastle and Birmingham, to report upon the best means of supplying the village of Middleton Tyas with water. In consequence of the prolonged drought, most of the wells and springs are dry.



The Rampant Arch.

MASONRY.

BY JAMES WILDING.

VI.

IT is impossible to bestow too much care on the setting out of the various forms of arches. Not only should the mould making be carefully performed, but the selection of stone and fixing in position should also be well done.

The bed joints should be as nearly as possible parallel to the natural bed. One of the tests to be applied to good workmanship is to stand underneath the soffit after the centres have been removed, and observe how the lines "carry" round. In a poor arch the lines of the mould will be wavy and irregular; on the other hand, a well worked, well set arch is regular and pleasing in line. In order to ensure accuracy, a trammel should be used on the face of the arch, so arranged as to work along one of the main continuous lines. In a richly moulded arch the bedding material should be kept back from the delicate points; the thickness of the mortar bed should be regular all round the arch. Much has been written and said about the vertical joint at the head of the pointed arch. Those who have had to put arches together nearly always prefer having a full keystone, so that the arch is properly keyed, and not merely resting together on a vertical or plumb joint; if the appearance of a joint is desired, it is an easy matter to stab a joint line on. Although this may be objected to as giving a false impression of its construction, it is not so bad as a "feather-edged" stone; indeed, anything approaching a feather-edge in stone work should be avoided.

THE LANCET OR ACUTE ARCH.—This is a term applied to arches in which the striking point or centre is outside the opening. The example shows a very common combination. The fixing of the striking points or centres, used to describe the arcs forming the arches, is not arbitrary, so long as they are outside the line of opening, or sight, the arch form will be acute. The greatest possible care should be exercised in finding the proper centres; nothing tries the patience of an architect more than to have any difference made in the form of the arch he desires to use. Any centre can be found by using the simple geometrical method shown in the opening at the left-hand side of the figure. The method is as follows: Connect S T, bisect S T, and produce Y Z to intersect the level line A D in B, then B is the required centre. Take the distance L B and make A S to equal it, then A and B are the centres to be used for describing the arch. A little examination of the illustration will make the construction clear. The centres A B are constant, the compasses being opened out to draw the curves 1 2 and the curves of the label mould. All joint lines are directed from the centre, from which the arcs containing the said joints are struck. In making face mould for the arch, $\frac{3}{4}$ in. should be allowed for each bed in small arches; in those which have to bear much weight this allowance should be increased to $\frac{1}{2}$ in. For convenience the centres B and C are used to describe the centre arch.

THE EQUILATERAL ARCH.—With centre A and radius A B, describe the curve B E. With B as centre and B A as radius, describe the arc A E. The outside curves are parallel to the inner ones. The joints are directed from A and B. This arch gets its name from its being founded on the equilateral triangle—a

line drawn from A to E equals one drawn from A to B—B E is also equal to A E.

THE OBTUSE ARCH.—In this form of arch the centre is inside the opening—the opening may be divided into three equal parts, or any two points may be taken inside the opening, so long as they are equal distance from the jamb.

With centre A, radius A K, describe the arc K F.

With centre B, and radius B M, describe the arc M F. The outer curves are directed from the same centres. The joints are drawn from A and B respectively.

THE FOUR-CENTERED ARCH.—Bisect V W, erect R O B.

Divide O B into three equal divisions, viz., O D, D C, C B.

On the left hand jamb erect V A, perpendicular to V W. Make V A equal to O C, that is, two-thirds of O B. Connect A B. From B, at right angles to A B, draw B G.

With V as centre, and V A as radius, mark off V E on V W.

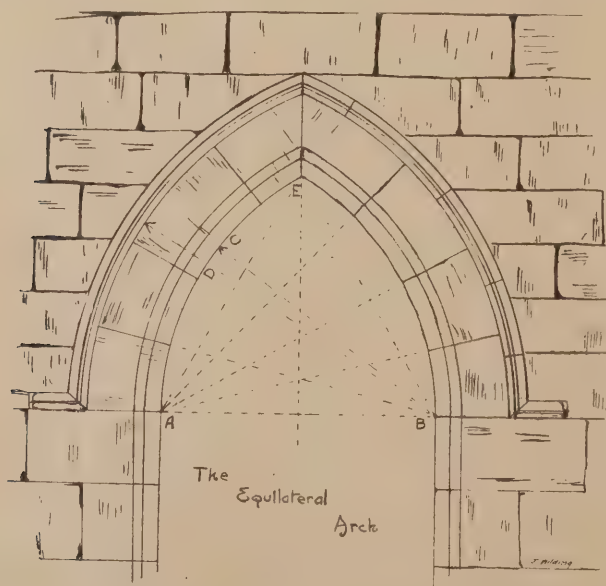
With B as centre, and B O as radius, mark off B H on B G.

Connect E H; bisect E H, and produce bisection to cut B G at S; from S, through E, draw F E indefinite in length.

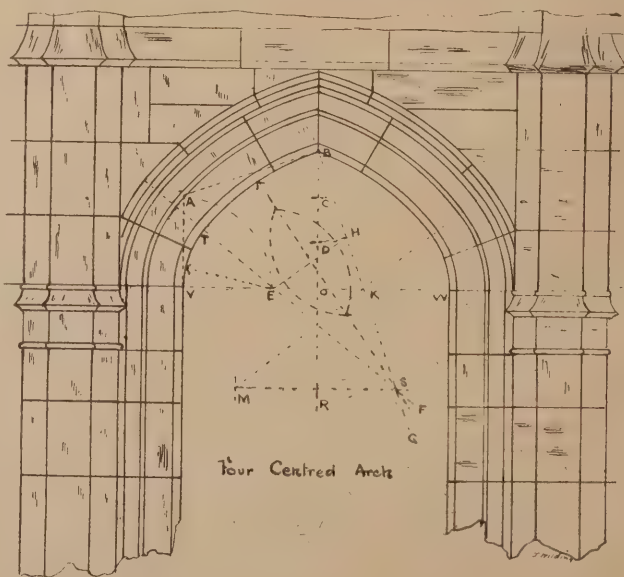
With E as centre, and E V as radius, describe arc V T.

With S as centre and S B as radius, draw arc T B; the joints below T are directed from E—above T, from S. The joint should be kept clear of the intersection of the two curves. A little attention to illustration will show that the points K and M for striking the other side of the arch are simply measured off, as O K equals O E, and R M equals R S.

The use of the four centres gives the name to the arch. Sometimes it is called a Tudor or Elizabethan arch.



The Equilateral Arch



Four Centred Arch

THE RAMPANT ARCH.—The illustration of this arch is arranged so as to show its use. Two examples are given: the one at the left being the largest, it is chosen as the one to be explained.

The jamb A is higher than B. Connect A B; draw the level line B D; bisect B D in F R; make N F equal to N B in length.

From F, but at right angles to A B, draw F S, cutting B D in C. From A draw level line to cut F C in E. With E as centre, and E F as radius, describe F A. With C as centre, and C F as radius, draw F B. The joints from F to B are directed from C; those from F to A are drawn from E. The height of A above B is not a fixed one; any reasonable height may be taken, and the before described working followed.

(To be continued.)

In the Court of Appeal last week, Lords Justices A. L. Smith, Rigby, and Vaughan Williams gave judgment in the case of *Reg. v. Vestry of St. Mary, Islington* (ex parte Williams). In this matter the Divisional Court had made an order that a mandamus should be issued requiring the Vestry of St. Mary, Islington, to prepare a scheme of such sewers or such diversions or alteration of sewers and works as it might be necessary to construct for effectually draining their parish and district, and to submit the scheme to the London County Council. The rule was obtained by Mr. Williams on behalf of the Midland Railway, the Great Eastern Railway, and the Tottenham and Hampstead Joint Railway Companies. From the decision of the Divisional Court the Vestry now appealed, and contended that they had provided for the effectual draining of the district and otherwise performed all their statutory duties. They alleged that the reason why the line of railway used jointly by these railway companies flooded when there was a storm or any unusually heavy rainfall at a part where it passed through a cutting some half a mile long between Hornsey Railway Station and Crouch Hill Station, was partly because the companies had failed to make proper connections, but chiefly because the Hornsey District Council had wrongfully drained into the same main sewer, which, but for that additional sewage, could have been amply sufficient to carry off all surface water. This additional sewage from the Hornsey district entered the main sewer at a place below where the railway surface-water drained in, and the sewer being thus full the surface-water was backed up, and so caused the area to flood. The railway companies contended, therefore, that the Vestry had not complied with the Act, and that the mandamus had rightly gone.—At the conclusion of the arguments their Lordships delivered judgment, allowing the appeal of the Vestry with costs.

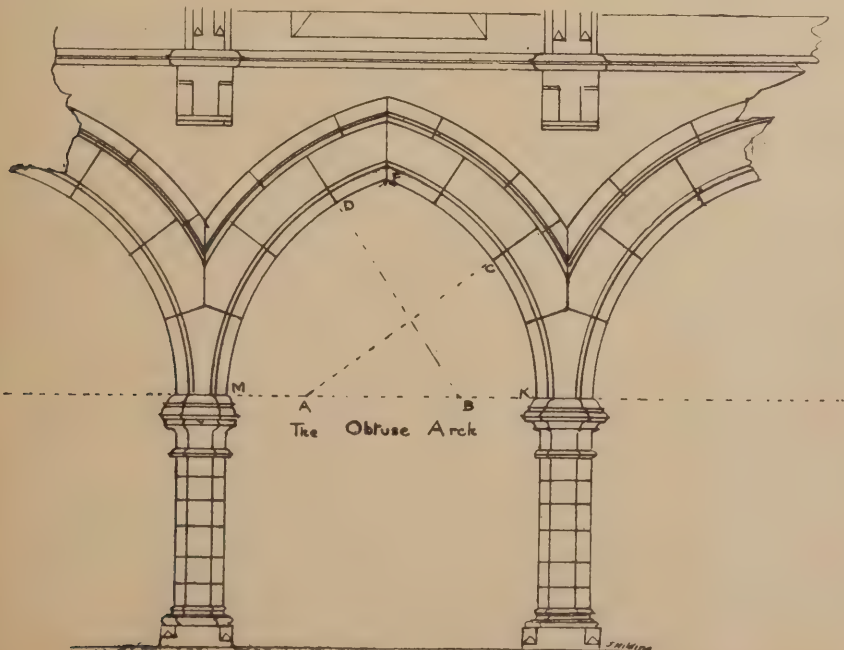


The Acute Arch

Builders' Notes.

THE lowest tender for the projected tunnel under the river at Greenwich was £119,732, while the engineer's revised estimate was £83,175. Sir Alexander Binnie, the engineer, having stated that he would be willing to construct the tunnel at his estimate, provided the amount were made up to £100,000, to allow of the purchase of plant, the Bridges Committee recommended, at the last meeting of the County Council, that he should be authorised to do so.—Dr. Collins thought that the large job just given to the Works Department must be almost enough to satiate the appetite of "direct labour." There would be inconvenience in having two large Works Departments running at once, and he suggested that this report might stand over.—After a short discussion, the chairman of the committee, Mr. Ward, agreed to take the report back.

THE fifty-first annual meeting of the Builders' Benevolent Institution was held recently, Mr. C. Wall (president) occupying the chair. The annual report expressed the thanks of the committee to the subscribers for their continued support to the charity. Last year, to commemorate the Queen's Jubilee and the jubilee year of the Institution, every eligible candidate was rejoiced by receiving the benefits of the charity. That was very satisfactory, and it was hoped that the increased liability of expense would be cheerfully met by subscribers. New subscribers were urgently needed, or the work might eventually have to be curtailed. Mr. B. J. Greenwood was elected the president for the ensuing year.



The Obtuse Arch

THE ATMOSPHERE OF TUNNELS

THERE are no fewer than thirty-five tunnels over 1000yds. in length on English lines, and those of notable extent are the Severn Tunnel on the Great Western 7664, the Totley Tunnel on the Midland 6226, the Stanedge on the North-Western 5342, Woodhead on the Great Central 5297, and Bramhope on the North-Eastern 3745yds. long. The difficulties encountered in the making of these tunnels were enormous; but they were overcome, though the men in some instances were often in peril through subterranean flood, and were obliged to work in waterproof garb, like divers at the bottom of the sea. But it is singular that, after spending wealth far greater than that of any American millionaire on the construction of necessary underground ways, the railway companies should be, apparently, so

INDIFFERENT TO THEIR ADEQUATE VENTILATION.

Possibly they have endeavoured to encourage inventive genius to discover means of driving the vitiated air out of the longest bores; but, judging from the present stuffy condition of nearly every tunnel, one must come to the conclusion that either the inventive faculty is decadent, or the cost of purification too great. Vast improvement has been made in rail track, speed of travel, and train equipment; but the tunnel itself, though better drained, walled, and arched than of yore, still clings to its vile odour and stifling misery. It is possible, the *Gentleman's Magazine* reminds us, to send pure currents of air through the deepest roads and into the furthest headings of the coal mine; but it seems to be "beyond the wit of man" to ventilate a long tunnel. Woodhead Tunnel, through which the shareholders travelled nearly fifty years ago with buoyant hopes and ringing cheers, is such an evil-smelling place that even Lord Wharcliffe (the Chairman of the Company) puts his handkerchief to his nose in disgust when he goes through it. The old fear of tunnel riding is dead, but there is

SCARCELY A SUBTERRANEAN TRACK

in England that is not ill-ventilated, even if ventilated at all. In various parts of the country attempts have been made to clear the fetid tunnel atmosphere by means of air-shaft, Guibal fan, and other apparatus, but the results are far from gratifying. They may satisfy the directors, but the passengers, like "King Gama" in the comic opera, have still something to grumble at. Chemical agency, as well as mechanical appliance, will probably be required to purify the unwholesome air that makes a long tunnel nauseous and stifling. The committee's panacea for the purification of "The Underground" is the adoption of electric traction. Meantime they might suggest that the locomotives at present in use should consume their own smoke, and that the busiest tunnels, wherever they penetrate, should be illuminated by electric light.

THE Bristol Town Council has resolved to promote a Bill for spending £350,000 on dock extension works at Portishead.

COMPLETE LIST OF CONTRACTS OPEN.

DATE OF DELIVERY.	WORK TO BE EXECUTED.	FOR WHOM.	FROM WHOM FORMS OF TENDER MAY BE OBTAINED.
BUILDINGS—			
Aug. 13	Consett—Shop, &c.	A. S. Coates	A. S. Coates, Havelock-street, Consett.
" 13	Sturry—School Repairs	School Board	Mr. Goble, Lerg House, Sturry.
" 13	Wilmington—Board School	Guardians	E. Vinal, Southdown House, Silverdale-road, Eastbourne.
" 13	Burnley—Wards to Workhouse	Guardians	S. Keighley, Nicholas-street, Burnley.
" 13	Ewanrigg—Alterations to Farm Buildings, &c.	D. Haigh	Mr. Holliday, Ewanrigg Hall, near Maryport.
" 15	Sheffield—Fifteen Cottages	Tramway Company	G. A. Wilson, Hartshead-chambers, Sheffield.
" 15	Sheffield—Car Sheds, &c.	Urban District Council	C. F. Wike, Town Hall, Sheffield.
" 15	Bexhill—Boundary Walls, &c.	Urban District Council	G. Ball, Surveyor, Bexhill.
" 15	Ecclesfield—Seven Cottages	Corporation	G. A. Wilson, Hartshead-chambers, Sheffield.
" 15	Gloucester—Hospital	Shoreditch Vestry	Waller and Son, Gloucester.
" 15	London, E.C.—Battery Room, &c.	Pembroke Township Commissioners	Kincaid, Waller, and Manville, 29, George-st., Westminster.
" 16	Balls Bridge—Electric Light Works	Corporation	Commissioners' Office, Town Hall, Balls Bridge.
" 16	Romsey—Concrete Wall	Workhouse Guardians	Borough Surveyor, Town Hall, Romsey.
" 19	Easingwold—Cells, &c.	Corporation	F. J. H. Robinson, Easingwold.
" 20	Winchester—School	Co-operative Bldg. & Investment Soc.	Cancellor and Hill, 12, Jewry-street, Winchester.
" 22	Oxford—Cottage and Farm Buildings	Guardians	W. H. White, Town Hall, Oxford.
" 22	Grangemouth—Houses	Urban District Council	G. D. Page, Old Glebe-chambers, Falkirk.
" 23	Blackburn—Homes	Urban District Council	Stones and Gradwell, Richmond-terrace, Blackburn.
" 23	Ilford—Latrine	Urban District Council	H. Shaw, 7, Cranbrook-road, Ilford.
" 23	Walthamstow—Public Baths	Corporation	Spalding and Cross, 15, Queen-street, Cheapside.
" 25	Aberdeen—Byres, Stables, &c.	Technical Institute Committee	J. Annand, Kildrummy.
" 25	Sunderland—Technical College	School Board	Town Clerk, Sunderland.
" 31	Consett—Institute Buildings	Alston School Board	C. E. Oliver, Consett Iron Co.'s Office, Blackhill, Durham.
" 31	Llanarmon—Alterations to Chapel	A. Shires	N. Lloyd, Bwlchgwyn Quarries, Wrexham.
Sept. 19	Swansea—Board School	G. Ulyatt	G. E. T. Laurence, 181, Queen Victoria-street, E.C.
No date.	Dublin—Superstructure	Epping Rural District Council	Sec., Dublin Tramways Co., 9, Upper Sackville-st., Dublin.
"	Neath—Schools and Houses	Captain J. Willis	T. E. Davidson, 33, Grainger-st. West, Newcastle-on-Tyne.
"	Gateshead—Hotel	W. S. Gray	T. E. Davidson, 33, Grainger-st. West, Newcastle-on-Tyne.
"	Ashington—Church, &c.	A. Thory	C. S. Errington, Grainger-street West, Newcastle-on-Tyne.
"	Hunslet—Fourteen Houses	D. Yardy	W. M. Coghill, Beach Grove, Stourton.
"	Mistley Norman—School	Odd Fellows Society	Baker and May, Colchester.
"	Southwell—House, &c.	Handsworth School Board	W. Cottam, Southwell.
"	Theidon Garnon—Ward	Corporation	E. Egan, Holnadal, Loughton.
"	Whitby—House	H. Walker, West Cliff Estate Office, Whitby.	H. Walker, West Cliff Estate Office, Whitby.
"	Whitby—Three Villas	J. G. Stallebrass, North-street, Peterborough.	J. G. Stallebrass, North-street, Peterborough.
"	Whittlesea—Villa	J. Kemp, 621, George-street, Aberdeen.	J. Kemp, 621, George-street, Aberdeen.
"	Whittlesea—Six Houses	J. C. Traylen, 16, Broad-street, Stamford.	J. C. Traylen, 16, Broad-street, Stamford.
"	Blackburn—Cottage	R. W. Thomas, Bank-terrace, Talgarth.	R. W. Thomas, Bank-terrace, Talgarth.
"	Wansford—Additions to House	G. Saltmarsh, Brewery Office, Northfleet.	G. Saltmarsh, Brewery Office, Northfleet.
"	Talgarth—Villa	J. D. Webster, 19, St. James's-street, Sheffield.	J. D. Webster, 19, St. James's-street, Sheffield.
"	Northfleet—Rebuild Inn	E. M. B. Vaughan, Cardiff.	E. M. B. Vaughan, Cardiff.
"	Woodhouse—School		
"	Llanbraddach—Additions to Schools		
ENGINEERING—			
Aug. 13	Dewsbury—Excavating	Corporation	H. Dearden, Town Hall, Dewsbury.
" 13	Wakefield—Cooking Apparatus	Infirmary Guardians	H. Beaumont, Union Offices, Wakefield.
" 13	Hunslet—Pipe-laying	Rural District Council	W. B. Pindar, Leek-street, Hunslet.
" 14	Culter—Pipe-laying	Baths Committee	Beattie and Macdonald, 21, Bridge-street, Aberdeen.
" 16	Wolverhampton—Iron and Steel Work	Urban District Council	J. W. Bradley, Town Hall, Wolverhampton.
" 17	Hampton-on-Thames—Steam Roller	East Indian Railway Co.	J. Kemp, Council Offices, High-street, Hampton-on-Thames.
" 17	London, E.C.—Cranes, &c.	General Works Committee	East Indian Railway Co., Nicholas-lane, E.C.
" 18	Ikeston—Filter Bed	Transvaalse Koelkamers Beperkt	H. J. Kilford, Borough Surveyor, Ikeston.
" 18	Valetta, Malta—Bogie Tank Engine	Monmouthshire Steel & Tin Plate Co.	Crown Agents for the Colonies, Downing-street, S.W.
Sept. 1	London, E.C.—Refrigerating Plants	Urban District Council	National Bank of South African Republic, 73, Cornhill, E.C.
No date.	Risca—Repairing Weir		Monmouthshire Steel & Tin Plate Co., Pontminster Works.
"	Pemberton—Electric Lighting		P. Partington, Council Offices, Pemberton.
IRON AND STEEL—			
Aug. 13	Thornhill—Flushing Valves, Manhole Covers, &c.	Urban District Council	S. W. Parker, Council Offices, Thornhill.
" 13	Hunslet—Iron Pipes, Hydrants, &c.	Rural District Council	Offices, Hunslet.
" 15	Uganda—Steel and Iron Work	Railway Committee	Crown Agents for the Colonies, Downing-street, S.W.
" 18	London, E.C.—Wagon Ironwork	Bengal Dovers Railway Company Ltd.	Sec., Bengal Dovers Railway Co., Winchester House, E.C.
" 23	Coalgardie, Australia—Steel Pipes	Government of Australia	Agent-General, 15, Victoria-street, Westminster, S.W.
No date.	Culter—Supply and Lay Cast-iron Pipes	Odd Fellows' Society	J. C. Traylen, 16, Broad-street, Stamford.
ROADS—			
Aug. 13	Hastings—Cartage, &c.	Rural District Council	A. R. Inskipp, 11, Wellington-square, Hastings.
" 22	Stevenage—Supply of Granite	Urban District Council	W. C. Times, Council Offices, Stevenage.
" 23	Carshalton—Widening Street	Urban District Council	W. W. Gale, Carshalton.
" 23	Carshalton—Supply of Granite	Urban District Council	W. W. Gale, Carshalton.
No date.	Burgess Hill		Brown and Barrow, Amberly House, Norfolk-street, W.C.
SANITARY—			
Aug. 13	Ware—Sewerage Works	Rural District Council	Bailey, Denton, and Co., Palace-chambers, Westminster.
" 15	Penistone—Sewers, &c.	Urban District Council	W. Spinks, 20, Park-row, Leeds.
" 17	Shipley—Drainage Works	Urban District Council	M. Paterson, 35, Manor-road, Bradford.
" 19	Manchester—Urinals	Sanitary Committee	City Surveyor, Town Hall, Manchester.
" 22	Oxford—Sewage Farm Extension	Corporation	City Engineer, Town Hall, Oxford.
" 22	Wimslow—Sewers, &c.	Urban District Council	J. Bowden, 14, Ridgefield, Manchester.
" 23	Rotherham—Sewers, &c.	Corporation	E. E. W. Berrington, Bank-buildings, Wolverhampton.
" 24	Shoreditch—Pipe Sewer	Vestry	J. R. Dixon, Town Hall, Old-street, E.C.
PAINTING AND PLUMBING—			
Aug. 15	London, S.E.—Painting	Guardians Lewisham Union	R. Williams, 20, Northbrook-road, Lee, S.E.
" 20	Burnley—Painting Town Hall	Corporation	Borough Surveyor, Burnley.
" 29	Stafford—Painting at Cemetery		W. Blackshaw, Borough Surveyor, Stafford.
No date.	Leeds—Painting Villas		G. Hutton, 72, Albion-street, Leeds.

COMPETITIONS.

DATE DESIGNS TO BE SENT IN.	DESIGNS REQUIRED.	AMOUNT OF PREMIUM.	BY WHOM ADVERTISED.
Aug. 15	Glasgow—Exhibition Buildings	£210, £157 10s., £105	Glasgow International Exhibition.
" 16	Salford—Designs for Chapels, &c., at Cemetery	£50, £30, £20	Corporation.
" 17	Pontywan—County School (£2000 limit)	£5 (merged)	Newton Wade, Clerk, 39, Dock-street, Newport, Mon.
" 25	London, N.W.—Baths	£50	St. Pancras Vestry.
" 31	Glasgow—City Improvements	£100, £50, £25	Glasgow Corporation.
" 31	Glasgow—City Improvements between King-street, City, and the New-Wynd	£100, £50, £25	J. D. Marwick, Town Clerk, City-chambers, Glasgow.
Sept. 31	Stockholm—City Railway Stations and Junctions	£656, £438, £219	Consulate General, 27, Great Winchester-street, E.C.
Sept. 29	Plymouth—Shops, &c.	£250	Plymouth Town Council.
" 29	Wivenhoe—Water Supply and Drainage Schemes	£250	Wivenhoe Urban District Council.
Oct. 3	Liverpool—New Buildings for Royal Institution	£52 10s., £21	Harold Waterhouse, Hon. Sec., 3, Cook-street, Liverpool.
" 3	Godalming—Football Stand (150 seats—£150 limit)	£3 3s.	Secretary, Recreation Club, Godalming.
" 3	Leamington—Free Library and Technical Institute	£105 (merged), £52 10s.	H. Consett Passman, Town Clerk, Leamington.
" 3	Rotherham—Extension Baptist Schoolroom (£600 limit)	£105 (merged), £52 10s.	A. Crowcroft, Clifton-crescent, South Rotherham.
No date.	Plymouth—Tavistock-street Buildings (no Assessor)	£250	J. H. Ellis, Town Clerk, Plymouth.

Property and Land Sales.

Sale Days for the Year 1898.

MESSRS. FAREBROTHER, ELLIS, EGERTON, BREACH, GALSORTHY, and Co. to announce that the undermentioned dates have been fixed for their AUCTIONS of Freehold, Copyhold, Leasehold ESTATES, Reversions, Shares, Life Estates, &c., at the AUCTION MART, Tokenhouse-yard, E.C.

her appointments for intermediate Sales will also be arranged.

Thursday, Sept. 22.	Thursday, Nov. 24.
Thursday, Oct. 13.	Thursday, Dec. 1.
Thursday, Oct. 27.	Thursday, Dec. 15.
Thursday, Nov. 10.	

essrs. Farebrother, Ellis, and Co. publish in the columns of The Times every Saturday a list of their forthcoming Sales by Auction. They also give from time to time schedules of properties to be sold or leased, comprising landed and residential estates, freehold and leasehold houses, City offices and shops, ground-rents, and investments generally. The list will be forwarded free of charge on application.—29, Fleet-street, Temple-bar, and 18, Old Broad-st. E.C.

the Banks of the Thames.—A Valuable Building and Residential Freehold Property, known as Longfield, near Windsor, well situated, close to the river, five miles from Windsor, about 1½ mile from the railway station, and a little farther from Staines, comprising a capital residence in the cottage style, containing 11 bed and dressing rooms, square entrance hall, opening to conservatory and viney, capital dining room, pretty drawing room, study, and excellent domestic offices; ornamental garden room or studio with electric light; stabling for four or five horses and two ponies, 10 rooms for men, coachman's and gardener's cottages, and numerous glasshouses, outhouses, &c.; surrounded by well-timbered grounds, vegetable, and kitchen gardens, orchard, &c. Adjoining are several inclosures of pasture and arable land with model farm buildings, &c. There are a boathouse and landing stage on the river approached by a private road. The whole embraces an area of about 40 acres; it possesses an important frontage of about 3000ft. to the main road between Staines and Wraysbury, and portions could readily be developed as a first-class building Estate, there being a large demand for houses of moderate size in this favourite district.—Messrs.

EBENHAM, TEWSON, FARMER, and BRIDGEWATER will sell, at the Mart, on TUESDAY, AUGUST 16th, TWO, the above-described FREEHOLD PROPERTY.—Particulars of Messrs. BAKER, FOLDER, and ERTON, Solicitors, 14, Lincoln's Inn-fields, W.C.; and of the AUCTIONEERS, 80, Cheapside.

ACKHEATH, in one of the best positions, facing the Heath, about ten minutes' walk from the railway station, and within an easy drive of the City and West End.

A FINE FREEHOLD PROPERTY, comprising a capital Family Residence, with stabling, three cottages, outbuildings, numerous glasshouses, very attractive old grounds, kitchen and vegetable gardens, and grass paddocks, in all about 14 ACRES.

possessing important frontages and being now RIPE FOR DEVELOPMENT as a BUILDING ESTATE.

possession will be given on completion of the purchase. Messrs.

EBENHAM, TEWSON, FARMER, and BRIDGEWATER will sell, at the Mart, on TUESDAY, AUGUST 16th, at TWO, in one lot, KIDDOKE LODGE, Blackheath, a very valuable freehold small part long leasehold property, occupying one of the best positions in this favourite district, and comprising a spacious old residence, containing nineteen bed dressing rooms, bath room and box rooms, five proportioned reception rooms, billiard room, a grand conservatory with marble fountain, ample domestic offices, and extensive cellars. Spacious living, several rooms for men, two modern cottages, 100 glasshouses, and all necessary outbuildings. The grounds are beautiful old grounds quite secluded, planted with fine timber and shrubs, and laid out in lawns, terrace and wilderness walks, lawn tennis court, kitchen and vegetable gardens, and grass paddocks, the whole forming a most enjoyable home, and embracing an area of about 14 acres. The property possesses the important frontages of about 310ft. to the Heath and about 1000ft. to Kidbrooke-grove; it is well circumstanced, and affords exceptional facilities for profitable development as a first-class building estate, and an inexpensive road being required. There are available beds of gravel and sand underlying portions of the estate. Particulars, with plan and conditions of sale, may be obtained of Messrs. MINET, HARVEY, and MAY, Solicitors, 11, William-street, E.C.; and of the AUCTIONEERS, 80, Cheapside.

By order of the Legatees, of a Freehold Shop Site in a splendid position in the Broadway of South Croydon.

BATCHELAR and SON, Ltd. will sell by AUCTION, at the Greyhound Hotel, Croydon, on WEDNESDAY, AUGUST 11th, 1898, at SIX o'clock, a valuable and important FREEHOLD BUILDING ESTATE, comprising Nos. 80, 82, 84, 86, and 88A, South-end, covered by shop and cottage properties, with a total area of 56ft. 6in., by a depth of 176ft., or thereabouts. Possession upon completion. Particulars, plan, and conditions of sale may be obtained of Messrs. ROWLAND and HUTCHINSON, Solicitors, 102, High-street, Croydon; and of the AUCTIONEERS, as above.

AUCTIONS, 1898.

Sales held locally, and at the Mart, E.C., of Freehold and Leasehold Properties, Ground Rents, Reversions, Land, &c.

BATCHELAR and SON, Ltd. (of North-end, Croydon; 4, Birchington-lane, Cornhill; and The Parade, Beckenham), will be pleased to quote inclusive terms and submit dates.

Notice of Sale of the Constitutional Hall, and of the Valuable Shop Property adjoining, situate in the High-street, Guildford.

MESSRS. HEWETT and LEE are favoured with instructions from the directors to SELL by AUCTION, at the WHITE HART HOTEL, Guildford, on SATURDAY, AUGUST 13th, 1898, at Half-past Three o'clock precisely, in one lot, the valuable FREEHOLD PROPERTY known as the Constitutional Hall, with the committee rooms and offices, now let to Messrs. Brett, Reynard, and Co., whose tenancy will expire at Michaelmas next, at a rental of £80 per annum. Also the valuable Freehold Shop Property and Dwelling House adjoining, known as No. 149, High-street, Guildford, let on lease to Mr. Orridge, at a rental of £75 per annum. The property occupies a very commanding business site fronting the High-street at its junction with North-street and Chertsey-street. Possession of the Constitutional Hall will be given on completion of the purchase.

Particulars and conditions of sale may be obtained of Messrs. SMALLPRICE and Co., Solicitors; or of Messrs. HEWETT and LEE, Auctioneers, High-street, Guildford, Surrey.

Auction Sales, 1898.

MR. GEORGE BRINSLEY will hold his Monthly AUCTION SALES, at the MART, Tokenhouse-yard, E.C., for the year 1898 on the following days:—

Wednesday, Aug. 24.	Wednesday, Nov. 16.
Wednesday, Sept. 21.	Wednesday, Dec. 14.
Wednesday, Oct. 19.	

Landed Estates, Town and Suburban Houses, Building Land, Ground Rents, Business Premises, Reversions, Shares, and other Properties for absolute Sale, will be included in these sales on reasonable terms, which can be fixed beforehand if so desired.

Auction and Survey Offices, 30 and 31, New Bridge-street, Ludgate-circus, London, E.C. Established 1852. Telephone Number, 661, Bank. Telegrams, Bridging, London.

Westgate-on-Sea, proverbially one of the healthiest towns on the English coast, 1½ hours' journey from London.—Valuable sites in choice positions, suitable for the erection of marine residences.

MESSRS. ROGERS, CHAPMAN, and THOMAS (in conjunction with Mr. R. Temple) will sell by AUCTION, at the Station Hotel, Westgate-on-Sea, on WEDNESDAY, AUGUST 31st, 1898, at THREE p.m. precisely, in lots, several PLOTS of LAND, commanding sea views, and others suitable for erection of detached and semi-detached residences of good character; also a few shop plots. Favourable opportunities are offered to gentlemen desirous of building to their own tastes in a select seaside resort, with excellent bathing, pure water, good train service, sheltered gardens, and public promenades. Arrangements can be made for payment by instalments.—Plans, particulars, and conditions of sale of Messrs. FARMER and Co., Solicitors, 66, Lincoln's Inn-fields, W.C.; of Mr. R. Temple, Estate Office, Westgate-on-Sea; and of the AUCTIONEERS, 50, Belgrave-road, South Belgravia, and 78, Gloucester-road, South Kensington.

Sales by Auction for the Year 1898.

MESSRS. JONES, LANG, and CO. beg to state that their SALES of ESTATES, Town and Country Residences, Freehold and Leasehold Investments, Building Land, and other Properties, will be held at the AUCTION MART, Tokenhouse-yard, City, in each MONTH of 1898. Particulars of properties intended for disposal should be sent at least three weeks previous to date of sale.

Messrs. Jones, Lang, and Co. also undertake Sales of Household Furniture, Farming Stock, and general Personal Effects, in town or country. Messrs. Jones, Lang, and Co.'s Printed Tabulated List of Warehouses, Offices, and general Business Premises to be Let or Sold, in the City of London and neighbourhood, can be had free on application.

Auction, Survey, and Estate Offices, 3, King-street, Cheapside, London, E.C. Branch Offices, 101, Leadenhall-street, E.C., and 27, Chancery-lane, W.C. Telegraphic address, "Wonderment, London."

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personally or by correspondence, in three, six, nine, or twelve months' courses. Architectural Lending Library. Special three months' finishing courses.—For full particulars apply to Mr. W. CHURCH HOWGATE, A.R.I.B.A., Perchard House, 70, Gower-street, W.C. (close to the British Museum).

ARCHITECTURAL INSTITUTE and CIVIL SERVICE TECHNICAL EXAMINATIONS. Preparation by correspondence, personally or in residence. Fourteen first places.—G. A. T. MIDDLETON, 19, Craven-street, Strand, W.C.

MARBLE.—Victoria or Cork Red, in blocks, from Viscount Middleton's quarries.—For sizes and prices at nearest seaport, apply to J. PENROSE FITZGERALD, Estate Office, Middleton, co. Cork. 1

APPOINTMENTS VACANT.

The charge for Advertisements under this heading is 1s. 6d. per insertion not exceeding four lines, and 6d. per line afterwards, prepaid. Three insertions may be had for the price of two.

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ENWELL, E.C.—WANTED, EVENING INSTRUCTOR in Workshop Drawing for Builders. One evening per week. Salary £15 per session. Latest date for applications August 27th.—Further particulars on written application to the PRINCIPAL. 1

WANTED, capable ASSISTANT well up in theatre and public work, details, and quantities. State age, salary, experience, &c., to "Auros," care of BUILDERS' JOURNAL. 1

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Must be good draughtsman. Surveying, quantity work, and inspection of buildings not required.—Address to EDWARD BOARDMAN and SON, Queen-street, Norwich.

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YOUNG ARCHITECT, having had ten

years' good general experience in a large provincial office, wishes to obtain PARTNERSHIP in well-established practice.—J. A. W., 17, Furnival-road, Sheffield. 1

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TANT and CLERK of WORKS desires ENGAGEMENT. Ten years' London experience. Draughtsman, specifications, quantities, constructional ironwork, surveying.—"G., 10, Springfield-road, St. John's Wood, N.W.

ARCHITECT'S ASSISTANT DISEN-

GAGED shortly. Good draughtsman; specifications, knowledge of quantities, shorthand. Midlands preferred.—Address, "Nottingham," Office of BUILDERS' JOURNAL. 1

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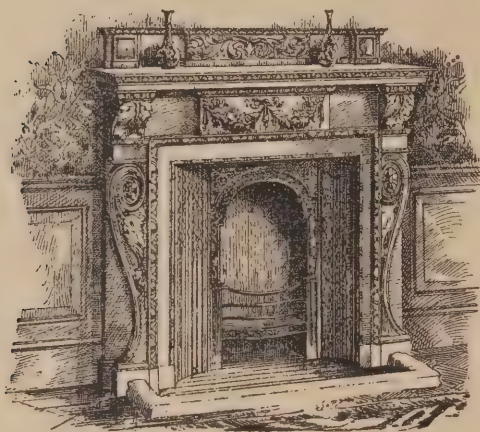
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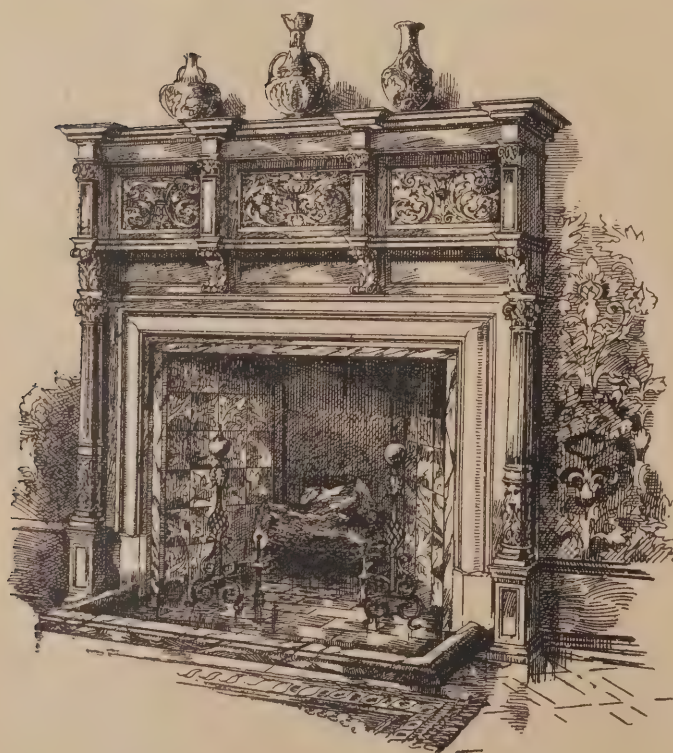
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THE BUILDERS' JOURNAL & ARCHITECTURAL RECORD

WITH SURVEYING AND SANITARY SUPPLEMENTS

An Architectural Causerie.

The death of a Frenchman as M. Charles Garnier.

The death of a Frenchman as M. Charles Garnier. eminent as Garnier is an affair which should make the more thoughtful among us reconsider how large a debt the world in general owes to the French nation in all that concerns Art. As the late Lord

singularly brilliant people." Charles Garnier was born in Paris in 1825, and his career is somewhat remarkable. In 1842 he entered the *Ecole des Beaux Arts*, studying in the *ateliers* Lévêil and Lébais, and in six years carried off the *Prix de Rome* with his "*Conservatoire des Arts et Métiers*." Under the conditions of this prize he elected to study the Temple of Vesta, the Temple of Jupiter Serapis at Pozzuolano, the Forum of Trajan, and the polychromate restoration of the Temple of Jupiter Panhellenius at Egina, which the French Government published in a most imposing manner in 1852. The following year the Duke de Luynes commissioned Garnier to prepare a work on the Angeline tombs and monuments in Calabria, Naples, and Sicily, which we believe still remains unpublished. Routine work now occupied him as municipal architect till the great competition for the Paris Opera House took place in 1861, when his design, out of 170, was unhesitatingly accepted. This gorgeous, ornate, but convenient building engaged his constant attention for at least

modern French dwelling house. Garnier also excelled as a water-colourist, frequently exhibiting at the Salon, and in 1863 winning a *médaille de la première classe*, and in the following year the Cross of the Legion of Honour; in 1875 he became *Commandeur*, and three years ago *Grand Officier*. His honorary and corresponding memberships were as many as seventeen, and the Académie des Beaux Arts elected him a member in the place of the late Victor Baltard in 1874, and in the next year he became architect to the Conservatoire. At the time of his death he was a member of the Institute de France, and President of the *Société Centrale des Architectes Français*. Garnier was also an original and facile writer with a pleasant vein of humour, but in his monumental works his gravity and learning is almost oppressive. At the present time when theatres are architectural mushrooms all over the country, Garnier's *Etude sur la Construction Théâtrale* (1871) may still be consulted with advantage. His literary gifts were probably



ON TOUR WITH THE A.A. LEICESTER'S HOSPITAL, WARWICK.

Leighton so well said, in 1886, when Garnier was the recipient of the Institute gold medal:—"If you consider the inexhaustible profusion, the endless variety, with which the builder's art has adorned the sunny breadth of that favoured land; whether you turn to their civil Architecture or to their ecclesiastical Architecture; whether you consider that phase of Art which, in the south and in the west of France, reveals to us a Latin severity and sobriety linked with Celtic fire; or whether, further in the west, you observe that superb evolution of the French spirit which during three centuries lighted up mediæval Europe; whether you consider the ornate stateliness and elegance of the *châteaux* of the Loire, or the regal splendour of the buildings of the Grand Siècle, you will feel how vast is the fund of wealth which has been poured into the common treasury of this

fifteen years, and the number of drawings is said to have been 30,000, and the cost 35,000,000 francs. Magnificent grandeur was the dominant note of the scheme, which was entirely finished in 1877, though it was opened in January, 1875. Garnier experienced considerable and unexpected difficulty with the foundations, and it was by laying the concrete under the water on the site and then draining off that a satisfactory result was obtained. No less than twenty-one eminent painters and sculptors (six of the latter) were engaged on the decorations of this building, which made its master-artist famous. Garnier's largest works include the Nice Observatory, the Cercle de la Librairie, the Monte Carlo Casino and Theatre, the buildings at the 1889 Paris Exhibition dealing historically with the human habitation from the mere cave to the

developed in the company of Edmond About, who was his companion in Greece and Italy, and in that of Théophile Gautier, with whom he visited Constantinople. In his graceful French speech at the Institute, on the occasion of the medal, it is interesting to note that, in 1855, when he returned from Rome, he was commissioned by the Préfet of Paris to prepare two water-colours of an architectural character for a presentation album to Queen Victoria. The funeral, on August 6th, was at St. Severin's and the Mont-Parnasse Cemetery. At his grave various addresses were read by M. Boisseau for French artists, M. Ronsej for the Architectes Diplômés, M. Frémiet for the Académie des Beaux Arts, M. Normand for the Société Centrale des Architectes, and by M. Larroumet for the Department of Public Instruction and Fine Art. P. A. R.

A ROYAL MONUMENT.

ALTHOUGH the monument to the Duke of Clarence in the Albert Chapel at Windsor is not yet completed in all its details, it is in its place, and the time has arrived to give an account of this, the noblest work of monumental art that has been created in England since Alfred Stevens made the Wellington memorial in St. Paul's. As one stands before this beautiful tomb, so splendid in conception, so rich and yet restrained in execution, one feels how fortunate it was for the Royal parents and for the country that a man of genius was at hand able to carry out their wish in such a way as this—Mr. Alfred Gilbert, R.A. The site of the tomb is of itself extremely interesting, for it is the exact place, says the Times, where Cardinal Wolsey, in the days of his power, was permitted by his Royal master to place the sarcophagus in which he himself intended ultimately to be laid. We believe that no exact record remains of what this Wolsey tomb as a whole was like, but it was

DESIGNED BY THE GREAT TORRIGIANI,

and round the sarcophagus were railings and candelabra of gilt metal. On the spot where it stood for nearly three centuries there now stands the sarcophagus which contains the body of the young Prince Albert Victor, Duke of Clarence and Avondale; a sarcophagus of Mexican onyx, with the recumbent effigy above, and around it the splendid grille which, as soon as it becomes known to the world, is likely to obtain universal celebrity. The cover of the sarcophagus is of bronze, planned with extreme dexterity, so as to afford a natural resting-place for the effigy—in itself the most important part of the monument, though, from the necessity of the case, it is at some distance above the eye, so that not all the details can be fully seen. The young Prince, clothed in his uniform as an officer of the 10th Hussars, over which are the robes of the Garter, is lying asleep; at his feet there will ultimately be (though it is not yet in place) a little angel holding a broken wedding wreath, in allusion to the marriage which was to have been, but which was cruelly prevented by death. At his head is the bowed figure of a larger angel, who holds the crown of eternal glory which the Prince is to receive in exchange for the earthly crown; and this crown is interwoven with a wreath of olive, the emblem of peace. These

ANGELS ARE OF ALUMINIUM,

a metal which Mr. Gilbert is almost the earliest of our sculptors to employ in so important a way; and it is interesting to note that, although they have now been cast for some years, they have not changed colour, as though to show that when under cover and not exposed to the cruelty of the outdoor London atmosphere, this beautiful metal may be employed by sculptors without danger. Mr. Gilbert's fondness for using several different materials in close conjunction finds full scope in the effigy, as it does in the numerous enrichments of the monument. The face and hands, for instance, are of one material; the dress of another; while the robes of the Order of the Garter, outside, are of bronze, and inside of aluminium. Thus the sculptor has contrived, if not a realistic imitation of his actual subject, at least a suggestion of its light and dark elements. Beautiful as is the effigy, with its exquisite modelling and the poetical quality of its whole design, the distinguishing feature of the monument is the high grille, or railing, which surrounds it. We might just imagine another sculptor achieving the effigy, but the wonderful group of saints and supporting angels which protect it, and the bronze columns between, bear in every line the mark of Mr. Gilbert's talent, and of his alone. Measuring, perhaps, 14ft. by 7ft., this grille is raised a little from the ground by a pedestal of marble, the pale colour of which lightens very happily the appearance of the whole structure. The note of the design is given by the twelve figures of

saints, to which all the rest serves as a support. On either side there are four, at each end two, and all have some special appropriateness, either to the chapel or to the Prince. At present, only the St. George is there, having been placed by the Queen herself a few weeks ago in a position which is not to be its permanent one, but which will permit the public to see it as they stream by on days when the chapel is open. Ultimately—and we hope very soon, since all the figures are finished and ready—the places

AT THE FOOT OF THE TOMB

will be occupied by the Virgin and St. George, the chapel having originally been the "Lady Chapel," annexed to St. George. At the head will be St. Edward the Confessor and St. Edmund, King and Martyr—the "name saints" of the Prince; to the south will be St. Elizabeth of Hungary—suggested by the Queen as representing the Hungarian ancestry of the late Prince Consort; St. Michael, "the angel of good counsel, and guardian of the spirits of the dead"; St. Margaret, for Scotland, and St. Patrick for Ireland. Of these, St. Michael and St. Patrick have also a reference to two of the Prince's Orders. To the north will be St. Nicholas, St. Etheldreda (for Cambridge and the eastern counties, whence the title of Clarence was taken), St. Hubert, and St. Barbara, representing Fortitude. It would be impossible to describe the beauty of these small figures, or the delightful ingenuity with which the artist has rendered them, preserving in each case the traditional character of the saint, while allowing his fancy to have free scope in the materials in which the figure is presented. Thus St. George is radiant in his almost white armour, of the new metal which Mr. Gilbert loves; St. Elizabeth, on the other hand, will be of many colours richly enamelled, and ivory has been freely used for the heads and hands. The stand on which each saint is placed is the

CONVENTIONAL RENDERING OF A TOWN;

and this in turn is supported by two angels, lovely figures in flowing draperies of bronze and silver, with wings of whose fanciful pattern is wrought into a number of exquisite and bewildering curves. Between the saints are columns of bronze, so treated as to suggest the Gothic nature of the chapel, while being themselves scarcely Gothic at all. Here Mr. Gilbert has but followed the precedent of many of the great artists of the Renaissance, who often adopted mediæval motives and gave them an entirely new character of their own. But those who have followed Mr. Gilbert's career know that in this he is only carrying out a type of work of which he has often given examples. It is somewhat humiliating to learn that whereas these bronze columns were cast in England under his own eye, the much more elaborate figures of angels which fill up the spaces between them had to be cast in Brussels, it being impossible to find English workmen of sufficient experience and skill. Decorative sculpture is carried so much further in Belgium and in France than it is with us that the finer mechanical processes connected with it are practised there with a degree of perfection that has not yet been approached in this country. It is said that Mr. Gilbert, who, like so many genuine artists, sometimes allows his enthusiasm to outrun his prudence, has found the work far more costly than either he or his Royal patrons intended, and that he doubts whether he can ever undertake anything of the kind again.

The Hancock Museum, at Barras Bridge, Newcastle-on-Tyne, is being repaired. The work has been intrusted to Mr. Nicholas Maughan, builder, Westgate Road, Newcastle, and the cost, as estimated by the architect, Mr. F. W. Rich, will be about £2500.

A MEMORIAL has been placed in Christchurch, Folkestone, to the memory of the late Rev. Claude Bosanquet, M.A. It consists of a portrait medallion in statuary marble set in an elaborately carved architectural framework in alabaster. The work was executed by Mr. J. Nesfield Forsyth, of Finchley Road, the architect having been designed by Mr. W. A. Forsyth, A.R.I.B.A.

An Old Greek Church Doomed.

INTO the corners of old Soho a good deal of light is being poured. Very soon the zeal of those beneficent Vandals, the County Council, will leave hardly a vestige of the ancient and very undesirable neighbourhood which lay around what is now Shaftesbury Avenue and Charing Cross Road. The Church of St. Mary the Virgin presents to the latter thoroughfare a dark brick wall, broken by groined windows at the height of 40ft. or 50ft. from the ground. This is the newer part of the building. In the rear one may see what remains of the Greek-Huguenot Church, forming the nave of the existing church. This is what has come

UNDER THE COUNCIL'S BAN.

A notice is now to be seen on the side door calling upon "the owner or occupier to pull down the remaining walls." Service may yet be held a few times, but to all intents and purposes the building is a thing of the past. It was built in 1677 by Joseph Georgeirenes, Archbishop of the Island of Samos, who had been driven from his see by Turkish tyranny. The event is recorded in a Greek inscription, still to be seen over the west door. It runs: "In the year of Salvation, 1677, this Temple was erected for the Nation of the Greeks, the Most Serene Charles II. being King, and the Royal Prince Lord James being Commander of the Forces, the Right Reverend Lord Henry Compton being Bishop, at the expense of the above and other Bishops and Nobles, and with the concurrence of

OUR HUMILITY OF SAMOS,

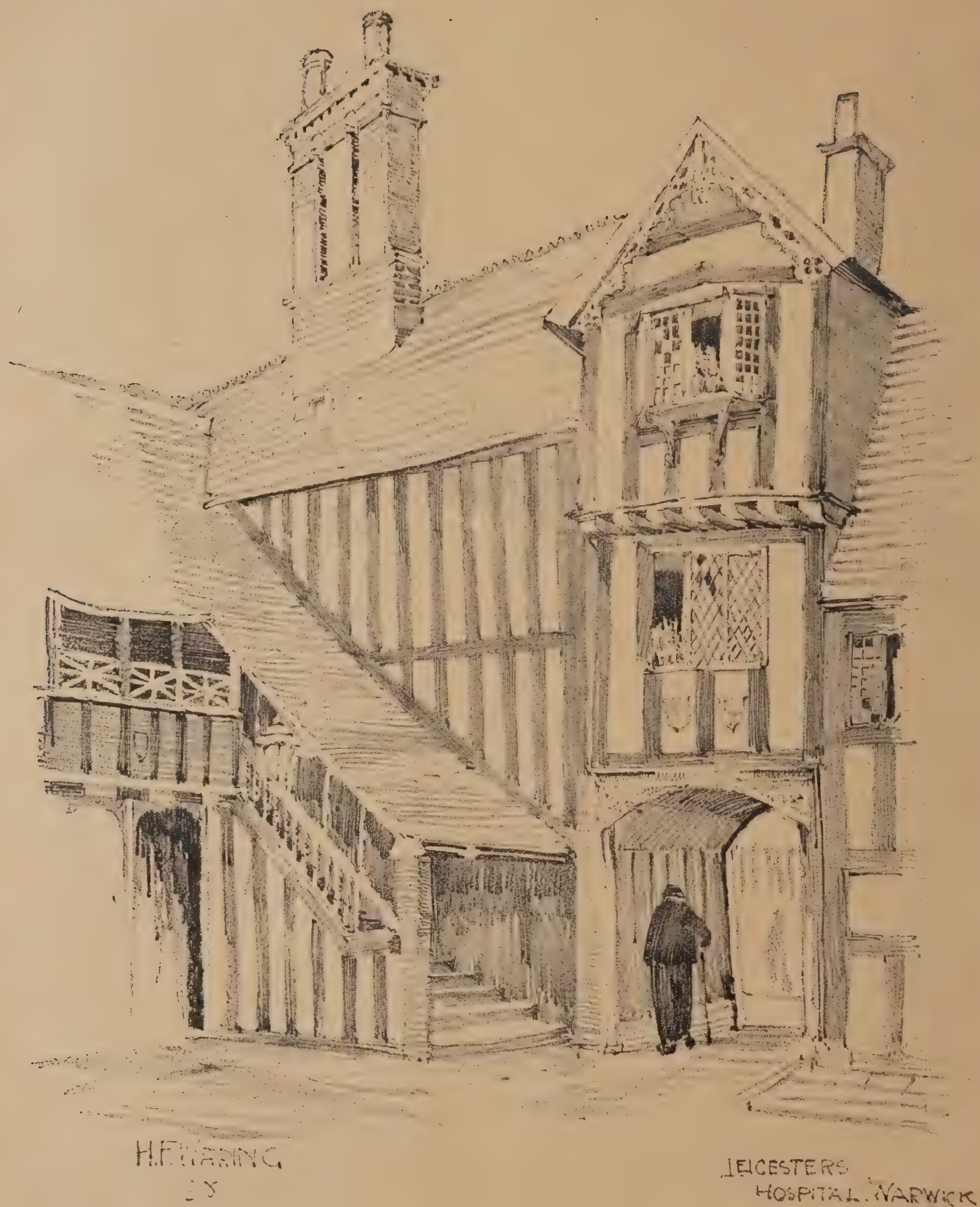
Joseph Georgeirenes, from the Island of Melos." The Archbishop, evidently with a considerate thought for the personal journalism of a later epoch, describes himself as "an indifferent tall man, and slender, with long black hair, having a wart on the right side of his nose, but against his eye, and black whiskers, and very little beard." In the erection of his church for the Greek colony in London he was assisted by a certain Dr. Nicholas Barbone, son of Cromwell's Praise-God Barbone, the leather-seller of Fleet Street. The doctor was a great builder. Newport Square was formerly called Barbone Market after him. Five or six years afterwards the Greeks moved to the City. The Archbishop wanted

TO SELL THE CHURCH

to St. Martin's Vestry, who offered only £200. What became of him afterwards is not known. Until 1822 the church was occupied by the Huguenots, who disposed of the remainder of their lease to a congregation of Calvinist Pædo-Baptists, who remained until 1849. Next it narrowly escaped being turned into a music-hall and dancing saloon. It was saved by the Rev. Nugent Wade, Rector of St. Anne's, Soho. He secured it, and had it consecrated in 1850 by Bishop Blomfield, as a chapel-of-ease to the mother church. During the incumbency of the Rev. J. C. Chambers, 1856-1874, the church was a very energetic agency. School, chancel, north aisle, and clergy-house were built; foundation stones were laid by Canon Liddon and Mrs. Gladstone; the Greek Cross over the west door was given by Lord Selborne. It will interest many readers to know that this is the church introduced by Mr. Hall Caine into "The Christian" as the scene of Father Storm's social work. An influential restoration committee is now appealing for £3000 to rebuild.

MR. HARBOTTLE REED, Hon. Secretary of the Devon and Exeter Architectural Society, writes:—"I was desired by the council of this society, at a meeting held on August 8th, to send you the following, *re* Tavistock Road Competition. 'The attention of the Council of the Devon and Exeter Architectural Society having been called to the published correspondence between the architects of Plymouth and the Corporation upon the above, a resolution was passed approving of the action of the local architects, and expressing regret that the Corporation were unable to accede to their suggestions.'"

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On Tour with the A.A.

IN AND AROUND WARWICK.

(By a Special Correspondent.)

THIS year the committee of the Architectural Association must be congratulated on having chosen a particularly happy neighbourhood for its annual week's tour, and another success must be added to the already long list.

Starting early on Monday morning, the 8th inst., Kingswood Station was reached by train, from whence drives were taken to Baddesley Clinton, Knowle Church, Grimshaw Hall, Temple Balsall and Ram Hall.

The Church of Baddesley Clinton is a small building consisting of nave and chancel, with tower at the west end. The nave was originally built in the thirteenth century, the walls were

This has been removed from its original position, and is now on the east side of the chantry chapel. This chapel was founded by Walter Cook in 1403, and in the west wall was the entrance to the rood-loft, now filled in. In this church some good oak furniture remains, most noteworthy being the Elizabethan altarpiece and two carved chests.

Grimshaw Hall, close by, is a fine specimen of half-timber work of the early part of the seventeenth century. The porch is perhaps the most striking feature externally. This is of two stories, being gabled on three sides; these gables are filled in with shaped braces, and overhang, being supported on boldly-moulded brackets. Below are two balustraded openings, which add greatly to the effect. On either side of the porch are gabled wings, also overhanging. The chimneys, though plain, are effective. Internally, most of the rooms are panelled, and the original doors still remain. The staircase is bold and effective.

Temple Balsall, nine miles further along the Birmingham road, consists of the church,

The schools, built in 1867, are good. The church, which adjoins the west side of the hospital, is Early English, and is about 100ft. long and 30ft. wide. The tracery of the windows is varied, and very good. A corbel table at the exterior west end of the church seems at one time to have supported the roof of some adjoining building. There is a curious octagonal turret at the south-west corner of the church, which in 1849 was rebuilt. Previous to this it lacked symmetry, and appeared out of place. Inside the church is of great beauty, and gradually rises in four stages towards the altar, the altar being elevated three steps higher. On the south side is a canopied niche, which seems to have at one time contained the effigy of a saint. The windows are certainly among the chief features of interest, that at the west end being filled in with stained glass. Above it is a very good wheel window of twelve compartments. The east window, also of five lights, is scarcely less beautiful. On the south side of the altar are a piscina and a sedilia, the



ON TOUR WITH THE A.A.

raised 10ft. and the existing clerestory windows inserted between 1496 and 1508 by Nicholas Brome, lord of the manor. The chancel was rebuilt in 1634 by Edward Ferress, lord of the manor, who was buried here. There is some very good glass in the east window, the centre light having the Crucifixion for its subject; the others being filled in with arms and figures of the Ferrers family. A good Jacobean oak screen stands beneath the tower.

Knowle was next visited. In the village, which is very picturesque, there is some good half timber work, notably the Swan Inn, the sign board of which is suspended by some capitably wrought iron.

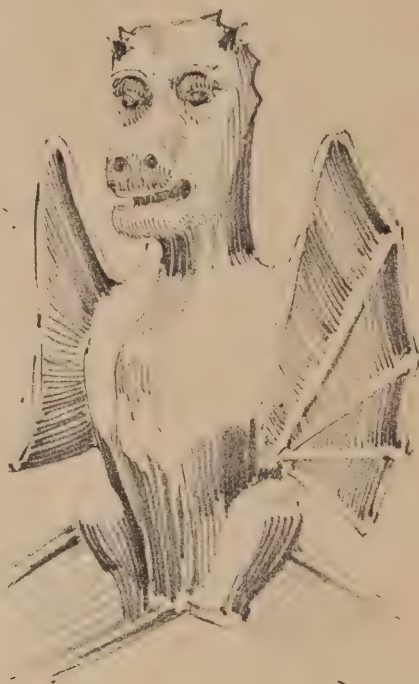
The church, built of red sandstone, is Perpendicular, and consists of a west tower, clerestoried nave with north and south aisles, north chantry, chapel and chancel. The roof was raised in the fifteenth century, when the clerestory was added, and the chancel was lengthened by the addition of two windows.

The rood-screen is very delicately carved, and a good example of Perpendicular work.

hospital and schools. The Lordship of Balsall was given to the Knights Templars in the reign of Henry III. by Roger de Moubray, "whereupon erecting a church fit for their service of God, and a house for habitation. They sent part of their fraternity hither, and made it a Preceptorie or Cell, subordinate to their principal mansion, unto which Preceptorie were also divers lands of good value afterwards given by sundry persons of qualitie." The property reverted to the donor upon the suppression of the Templars by Edward II. in 1307; but by a decree of Pope Clement V. in 1312 the possessions of the Order were transferred to the Knights Hospitallers. The manor, having passed through several hands, finally descended to Lady Catherine Leveson, who bequeathed the whole of the estate to trustees for the purpose of founding a hospital "for twenty poor persons, being widows and poor women, not married, of good lives and conversations." The hospital covers three sides of a quadrangle, the north side forming the master's house, all being built in red brick with stone dressings.

carving throughout being very rich. The church was repaired shortly after the restoration of Charles II., and again in 1849.

On Tuesday, the second day, visits were made to buildings in Warwick, the first of which to be seen was Leicester's Hospital. Passing under the sixteenth century archway, this picturesque group suddenly confronts us; and the gabled houses, with their diamond panes, surrounding the quaint courtyard with its old world air, make one think the clock hands by some mischance must have got three hundred years ahead of their time. This very fine specimen of timber construction was originally the hall of the united guilds of St. George and Holy Trinity, and was probably erected in the reign of Henry VI. The Earl of Leicester, having determined to found a hospital for the relief of poor people, signified his desire, in 1571, to the bailiff and burgesses, whose property it now was, that the building should be handed over to him for this purpose. As the Earl's signification was probably equal to his command, this they did, and a hospital was founded, which was to accommodate twelve



ON TOUR WITH THE A.A.

MAR LODGE.

A CHARMING DEESIDE RESIDENCE.

THE Duke and Duchess of Fife have now entered into residence at Mar Lodge, the new structure which has taken the place of the building burned down three years ago. Her Majesty the Queen has never ceased to take an interest in the new building from the time of the selection of the site, and—as a gilt-inscribed granite panel in the east wing tells—the day on which she laid the foundation stone, on October 15th, 1895, down to the eve of her recent departure from Balmoral, when Her Majesty visited the new residence, and is understood to have expressed her pleasure at the appearance of the structure and at all the arrangements connected therewith. Then it is of special interest to note that both

IN THE GENERAL DESIGN

and in the working out of the details the Duke and Duchess have left their individual impress. The Duchess has, more especially, taken the keenest interest in the minutest details of her new residence. The Duchess (says the Daily Free Press) drew the first rough sketch of the newly completed Mar Lodge, on which Mr. A. Marshall Mackenzie, A.R.S.A., the architect of the building, has worked. She designed practically every fireplace in the lodge, suggesting many effective details otherwise, and selecting, with a taste which never failed, the colour and pattern of wall-paper or ceiling. Prior to the disaster of three years ago, it may be well to note, there were two Mar Lodges—Mar Lodge, the building destroyed by fire, which stood on the south side of the road fully three miles beyond Braemar, and about a quarter of a mile beyond Corriemulzie Falls; and Old Mar Lodge, nearly a mile further west, standing on the opposite (or north) side of the Dee.

After the destruction of Mar Lodge, it was resolved to

ERECT THE NEW RESIDENCE

at Old Mar Lodge. Passing along to the new residence, therefore, one finds the avenues that led to Mar Lodge before the fire entirely closed up, and on crossing the river three-quarters of a mile further west by the pretty Victoria Bridge, one comes in sight of the new residence, erected directly in front of the site of Old Mar Lodge. That old building has been demolished, and one result has been to open up to view from the new residence some handsome pines that crown the heights of Creag a' Bhullg behind the lodge, which give some notion yet of the magnificence of the great Forest of Mar, that contained, according to the veracious Pennant, "the finest natural pines in Europe." Mar Lodge is built facing the south

IN A SORT OF CRESCENT FORM,

the rear portion being constructed as three sides of a hollow square, with the opening towards the north. The front and main portion of the lodge is of two stories, with attics, an additional story being put in at the back, which is not seen, as one approaches the lodge along the avenue, from the river. The style of architecture is more than anything else the Old English half-timbered style of structure, which, with its picturesque gable-forms, is very appropriate in a Highland lodge. It is a feature in connection with the new building that, practically, all the wood and stone employed is from the Fife property. The lodge is built from granite quarried on the neighbouring hill of Morrone. It is a very beautiful coral pink granite, of a remarkably clear complexion. The timber beams which support the overhanging gable roofs are of heavy pine, from the adjoining forest, and these gables are filled in with granite chip work and finished with a harling composed of crushed quartz, gathered from the Cairngorms, the glitter of which is quite dazzling in the sunlight. Round the lodge runs a verandah, 750ft. in its entire length, supported on the trunks of native spruce fir, twisted branches of the same being effectively utilised to form the spreading "bracket" supports of the verandah roof. These supporting timbers—all the external woodwork, indeed, is stained a rich brown colour and varnished. The run of the verandah is interrupted at five points. One is at the main entrance to the lodge, which is covered by a pediment porch, the woodwork of which is of the same rustic character as the verandah. The other points of interruption are the four projecting windows—two on each side of the porch—the tops of which are formed into balconies, entered from windows on the first floor. All the windows are of

THE GRACEFUL FRENCH CASEMENT STYLE,

and attention may be directed particularly to the specially pretty "corbelled-out" windows which adorn what may be termed the end-gables of the lodge. The chimneys have been made to form one of the most pleasing decorative features of the new building. They rise, in the pretty pinkish granite, like clustered shafts which group admirably to the view. Both main building and verandah are roofed with small square ruby tiles, a production of the English potteries. These suit the granite of which the lodge is built, and heighten largely the picturesque effect of the general design. The inside of Mar Lodge is quite as interesting as the exterior. On ascending two granite steps at the main entrance and passing the outer door of Burmah teakwood, one finds oneself in

THE LOFTY AND SPACIOUS HALL,

22ft. wide from right to left as you enter, and extending backward 47ft. The floor is of oak parquet, covered with an occasional rich rug or matting. The walls and ceiling are lined throughout with a light-coloured pine, elaborately wrought in moulded panels, and stained and polished. A magnificent fireplace of the "well" grate design is inserted in the hall, which has a breadth of actual fireplace of 3ft. 6in., constructed specially for the burning of wood blocks, which must form the staple fuel. The fireplace is encircled by a massive

poor men, who were to be presided over by a Master. By an Act of Parliament passed in 1813, the salary of the Master is fixed at £400, and the payments to the brethren at £80 per annum.

On entering the quadrangle the carved barge-boards of the gables are very noticeable, the latter being terminated at their apex with figures of white bears with poles. One side is occupied with the Master's house. On the east is a corridor leading from the common kitchen to the Master's lodge. Approached by a flight of steps is another corridor. At the top of the stairs are the remains of the old Guild Chamber, now divided into rooms for the brethren. In one of the spandrels of the framework of the roof is the red rose of Lancaster, which seems to point to the fact that this building was erected in the time of Henry VI. The banquetting hall is now used as a laundry and coal-house, but it is evident from the one remaining rich piece of carving here that formerly this was a noble apartment. The kitchen contains some ancient oak furniture, mostly with a history attached.

The chapel dedicated to St. James is appropriated to the use of the hospital, and contains a good carved oak screen.

St. John's Hospital, Warwick, was originally founded in the reign of Henry II. "for entertainment and reception of strangers and travellers, as well as those that were poor and infirm." The present house was completed about 1626, and is a large and handsome stone mansion, having two wings with large mullioned bay windows, and a porch in the centre. The front has five gables, the three over the porch and bay windows being originally ornamented with curves and scrolls; the porch gable, however, has been replaced by a plainer one, the original having been blown down. Inside, a good Jacobean staircase will be noticed.

(To be continued.)



INN. KNOWLE
HEWLENG.
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ON TOUR WITH THE A.A. THE SWAN INN, KNOWLE.

mantelpiece of dark purple marble, above which is a handsome mirror that will reflect the light from the elaborate brass "electricolier" of eighteen jets, which, depends from the centre of the ceiling. From the back of the entrance hall rises

THE MAIN STAIRCASE.

Light is admitted, at the height of the first landing, through an ornamental window of muffled or "misted" glass, and falls on the hall through a beautiful hall screen of carved woodwork. On passing into the hall by the main doorway, one finds a door at either hand, leading to the right and left. The door to the left, or westmost side, leads into the private dining-room of the Duke and Duchess, an airy, beautiful room, 19ft. 6in. by 17ft. 6in., with ample bookcases along one side, and with an outlook across the lawn and river quite delightful. The room is panelled with light-coloured pine to a height of 8ft., and around the cosy-looking fireplace is a mantelpiece in dark Italian marble. A door in the room, opposite that which allows entrance from the hall, leads from the private dining-room into the adjoining large dining-room, 35ft. long and 19ft. 6in. wide, suitable, therefore, for quite a large party of guests. This room has two windows looking to the front. Like the smaller dining-room, it is panelled with pine to a height of 8ft. from the oak floor. The remainder of the walls is papered with a heavily-embossed bright ruby paper, and the ceiling is panelled after the manner of the dado. In this case the mantelpiece is of a rich green marble, marked with white veins. The striking feature in the large dining-room is the magnificent display of deers' heads on all sides, that tell of many an exciting day in the neighbouring forest.

THE TWO DINING-ROOMS

occupy the space between the porch and the west wing. The remainder of the front, along the west wing, is taken up with large bedrooms for guests. Returning to the entrance hall, and taking the door on the eastmost side, one enters the spacious drawing-room of the lodge, which occupies the entire space on the front between the porch and the east wing, corresponding to that which the two dining-rooms occupy between the porch and the west wing. It is a noble room, 46ft. long by 18ft. wide, designed in the rich and delicate style characteristic of the celebrated designer, Adam. From the floor, which is closely and heavily carpeted, rises to a height of 3ft. 9in., a dado of panelling in light pine, the panels being set in frames of the

CLASSIC "EGG AND DART" CARVING.

Thence to the frieze the walls are covered with a rich, dark green French paper; the

frieze moulding is also of light pine, and the ceiling is of raised plaster work, formed into numberless medallions, exquisitely entwined. At each end of the room is a "well" grate, set in beautifully-tinted pink tiles, the mantelpieces being in pink and white marble. These are surmounted by rich overmantels, bearing the ducal and Royal crests, and set between fluted pilasters, whence spring clusters of electric lamps. In the east wing, next the drawing-room, is the billiard-room. It also is a handsomely-appointed apartment. Magnificently antlered heads look down from the walls, above this "decoration of the chase" appearing

THE MASSIVE GREEK CORNICE,

and the rich ceiling of decorative fibrous plaster work. The billiard table occupies one end of the room; the other end, with its deep oriel window, is specially set apart for the use of smokers, and, if desired, for writing purposes. The remainder of the front, in the east wing, is occupied by guests' bedrooms. The rooms hitherto described all lie along the front of the lodge. Entrance to all of them is provided from a main corridor which runs along the centre of the main building from end to end. On the opposite side of the corridor, westward of the entrance hall, are the butler's pantry, just opposite the dining-rooms, with wine cellars adjoining, then the room of the groom of the chamber, shoe room, brushing room, and bedrooms to the end of the west wing. Eastward of the entrance hall are a secretaries' room, housekeeper's room, and bedrooms to the end of the wing. In the

REAR PORTION OF THE LODGE,

on the ground floor, are the kitchen, servants' hall, still room, steward's room, packing room, beer cellar, and other similar accommodation. This rear portion, it may be said, is practically a separate building from the lodge, divided from it by a wide passage, though the whole forms one group of buildings. Ample bathroom and lavatory accommodation is provided on this as on all the floors. An abundant and excellent supply of water has been laid on from Craig Valloch, a little distance north-west of the lodge, where two springs have been utilised and the water collected in a reservoir, whence it is conveyed in pipes, underground, to the lodge. Passing up the main staircase to the first floor, the private apartments of the Duke and Duchess are reached. These occupy the front, immediately above the dining-rooms, entrance-hall, and drawing-room. Above the entrance-hall is the private bedroom. Directly east of it is Her Royal Highness's sitting-room, and next to it the night nursery, then the day nursery, with nursery maids' rooms adjoining. West of the bedroom is the Duke's dressing-

room, and westward of it, his Grace's private sitting-room. The rest of the accommodation on this floor, and, indeed, of the other floors as well, is taken up with bedrooms, bath-rooms, &c. It will give a very fair idea of the large amount of

ACCOMMODATION AT MAR LODGE

to mention that it contains 20 guests' bedrooms, about 50 servants' bedrooms, and about 120 rooms of all kinds. The heating and lighting of the lodge are both effected by means of electricity. To supply the motive power, the stream of Corriemulzie has been harnessed, as has been said. Some distance above the Falls a large dam has been formed for the accumulation of the necessary water. At the Falls there is a headlong rush which develops fifty horse-power in the turbine, and at the adjoining power-house the dynamo develops power to the amount of 240 volts, and at the lodge, about a mile distant, 170 volts. To the lodge the power is transmitted

BY OVERHEAD COPPER CABLES.

These are connected with the main switch-board, whence radiate three special circuits for the house, another for the beautiful little Norman chapel erected in the grounds to the east of the lodge, another to the stables near by, and another for the ballroom—which has been transferred from near the Mar Lodge which was burned, and re-erected among the trees to the west of the new residence. For the heating of the building radiators are placed at all needful points, and an equable temperature of sixty degrees maintained. For the lighting there are in the house, alone, no fewer than 526 lights, ranging in power from eight to sixteen candles. In the stables—where there is accommodation for thirty-six horses—there are between forty and fifty lights, and in the ballroom there will be a specially brilliant illumination by means of lights, some of which run as high as fifty candle-power. It may be added that arrangements have been made in connection with the

ELECTRIC INSTALLATION

by which the supply of water to the Falls of Corriemulzie will be utilised only during the night, so that the Falls may retain their wonted beauty during the day. The cost of the lodge, with the attendant works, enlargement of the garden, &c., is between £15,000 and £20,000. The contractors for the work were as follows: For the lodge—Mason work, Mr. Edgar Gauld, Aberdeen; carpenter, Messrs. M'Robbie and Milne, Aberdeen; slater, Mr. James Grant, Ballater; plumber, Messrs. J. Blaikie and Sons, Aberdeen; plasterer and fire-proof floors, Messrs. Stuart and Co., London; iron work, Mr. George Bisset, Aberdeen, and Messrs. J. Abernethy and Co., Aberdeen; electric bells and cooking ranges, Messrs. M'Hardy and Son, Aberdeen; electric lighting and heating, Messrs. P. C. Middleton and Co., Aberdeen; fibrous plaster work, Messrs. Hay and Lyall, Aberdeen; well fires, Messrs. J. Bannochie and Sons, Aberdeen; painting and glazing, Messrs. G. Donald and Sons, Aberdeen, and Messrs. Maple and Co., London. The approaches have been laid out by Mr. A. G. Cumming, Braemar. For the large stables, erected a short distance eastward of the lodge, the contractors were: Mason, Mr. George Hall, Aberdeen; carpenter, Mr. D. Macdonald, Braemar; slater, Mr. James Grant; plasterer, Messrs. Stuart and Co.; painter, Messrs. Donald and Sons; plumber, Messrs. Blaikie and Sons; and electric lighting, Messrs. Middleton and Co.

THE foundation stone of a new edifice which is to take the place of St. James's Church, Aston, a structure formed chiefly of corrugated iron, was laid a week ago. The new church will cost over £4000.

ALL SAINTS CHURCH, Cheadle Hulme, is about to be enlarged by an extension of the nave westwards, and by the addition of a new south aisle with a porch. The font will be placed at the west end of the proposed new aisle. The accommodation will be increased by 177 sittings, and the expense will amount to £1800.



Photo by Tyler,

Stratford-on-Avon.

ON TOUR WITH THE A.A. ST. JOHN'S HOUSE, WARWICK.

BARRACK BUILDINGS.

A NOTABLE ERECTION AT PORTSMOUTH.

COMMENCED as far back as October, 1893, the last portion of the new Clarence Barracks, Portsmouth, has only just been completed. On the vast space of ground extending from King's Terrace to High Street, and from Alexandra Road to Pembroke Road, are three typical barracks, viz., the old "Cambridge," a severely plain and unattractive building; the "Victoria," much more elaborate, commodious, and comfortable, erected principally by convict labour; and the "Clarence," built from up-to-date plans, embracing all the latest sanitary improvements, and acknowledged to be the most palatial, and the finest barracks in every respect, erected in any part of the kingdom. Compared with some of

THE FIRST BARRACKS CONSTRUCTED IN PORTSMOUTH,

the new erections are indeed palaces, and their construction in the present day style shows an advancement in many respects. Many improvements are needed in connection with some of the old Portsmouth barracks to make them as comfortable as they ought to be. Take for instance the Colewort Barracks. They are generally very inconvenient for the purposes for which they were built. The rooms are low and stuffy, and the structural arrangements will not allow of their being brought up to modern requirements, notwithstanding that money is year by year expended in making alterations. The quarters for the married soldiers are badly arranged, and it is anticipated these barracks

WILL SOON BE CONDEMNED,

and buildings erected in their places more on the plan of the Victoria and Clarence Barracks. With this object in view, the War authorities have purchased some property in Armoury Lane, which will probably be the site of a new canteen. Where the Colewort Barracks stand was formerly the Priory of St. Mary. There is evidence that it was in ruins in 1716, that in 1718 it was in the possession of the War authorities, and that materials arising from its demolition were used in the reconstruction of St. Thomas's Church. The Cambridge Barracks were built at a later period than the Colewort. Many improvements are contemplated, including the provision of extra sculleries at the married men's quarters, additional ablution rooms in the men's quarters, and improved facilities for bathing, plans for which have been prepared for some time. The Clarence Barracks consist of five

HANDSOME BLOCKS OF ELABORATE DESIGN,

in the domestic Gothic order of Architecture, and it is to be regretted that the front of the main building could not have faced a main thoroughfare, where its fine proportions might have been the more freely and fully admired. The barracks are built on the pavilion system, this being a great improvement on the old block system—on which lines the "Cambridge" was erected. A feature of the interior arrangement is that in none of the barrack rooms are there angles or corners, and thus the accumulation of dirt is prevented. Generally, it may be stated that the barracks have rooms three times larger than those in the old ones; the ventilation and lighting are much superior. The staircases throughout are made of best hard Shipley stone, on which there is no danger of slipping, and in the arrangements the comfort of the men has received due consideration. The foundations for the buildings proved a serious difficulty, covering as they do the old moats of the fortifications. All

THE OLD FORTIFICATION WALLS

had to be taken up, and new foundations put in to a depth of 20ft. Ten feet of tidal water had to be dealt with, and steam pumps were kept going night and day for months, but eventually all the difficulties were overcome, and the work was most successfully accomplished. The new buildings are all erected with best red Fareham and Foster's bricks,

with Portland stone dressings, and the roofs are of red Horndean tile.

THE OFFICERS' BLOCK

is conveniently situated, facing Pembroke Gardens, is a magnificent pile, and an ornament to the neighbourhood from an architectural point of view. The splendid mess, arranged in the central part of the building, has been elaborately fitted up by the officers. There are ante and billiard rooms, servants' quarters, and lavatories. The corridors throughout are laid with polished marble terrazzo paving, executed by Messrs. de Grelle Houdret and Co. The stoves and chimney-pieces were all specially designed for the building, this portion of the work being carried out by Messrs. Yates, Haywood, and Co., of Rotherham and London. The mess, ante, and billiard rooms and vestibule are lighted with the electric light from the Corporation supply. The general contractors for this block were Messrs. Armitage and Hodgson, Leeds. In the front is a lawn and garden, and there are two beautiful lawns at the back. The soldiers' barracks consist of three blocks, to accommodate nearly 1000 men. Running parallel with Alexandra Road is a detached block, which provides quarters for 276 N.C.O.'s and men, with a fine sergeants' mess in the centre, consisting of mess rooms, billiard room, kitchen, scullery, and all accessories.

THE COAT OF ARMS IN THE GABLES,

which adorns this block, appear to be cast in terra cotta, but as a matter of fact all the panels are beautifully carved in red rubbing bricks. The recreation establishment in the centre building in the long range includes large recreation room and lecture hall, each 61ft. by 30ft. There are also reading, writing, and coffee rooms and library, with regimental offices on the ground floor. Each soldiers' block has its own cook house, baths with hot and cold water, latrines and company offices, and stores complete. There is a large regimental canteen, also separate rooms for corporals, together with a well-furnished grocery bar, guard house, fire-engine house, officers' stables, and shoemakers', smiths', armourers', carpenters', and tailors' shops. These blocks and accessories were erected by Messrs. Perry and Co., of London. The latrines and urinals were supplied by Mr. George Jennings, Lambeth.

THE BUILDINGS FOR MARRIED SOLDIERS

consist of five blocks, to accommodate 108 families, and attached to them are laundries and wash-houses complete; and a large underground tank, holding 18,000 gallons, is provided for storing rain water for washing purposes. These blocks were built by Mr. H. J. Sanders, of Southampton. The schools for infants and adults, comprising all the latest improvements and modern fittings, were erected by Messrs. W. R. Light and Sons, of Portsmouth, who also built the quarters for eight warrant officers in Burnaby Road. The sanitary arrangements throughout comprise the latest improvements, and are up-to-date in every respect, while

THE DRAINAGE

is as perfect as modern science could make it. A large portion of the drain pipes are of cast iron, with caulked lead joints, supported in some places by specially driven piles. A good idea will be formed of the extent of this particular work when it is mentioned that in connection with the barracks there are about six miles of drain pipes, there being two distinct systems, one for sewage and the other for surface water, the former being connected with the town main drainage, and the other being discharged direct into the sea. The total cost of the Clarence Barracks has been about £160,000, or something like £40,000 more than the sum expended upon the Portsmouth Town Hall, with its expensive ornamentation and elaborate furnishing. The works in connection with the new barracks were carried out under the direction of Lieutenant-Colonel C. Wilkinson, R.E., late C.R.E. Portsea Sub-District, and Major Darling, and supervised throughout by Mr. E. North, of the R.E. Civil Staff, and several assistants.

Drawing in the Board Schools.

TIME was when the drawing done in the Board Schools was of little importance—tame, uninteresting, useless. But they have changed all this, and for a year or two (since the introduction of what is known as the "new alternative syllabus") the scholars have been turning out original designs in colour, tile patterns, panels, friezes, &c., which are not only good studies in conventional ornament, good in colour and in form, but they have a commercial value. This syllabus, which has caused quite a revolution in the methods of imparting a knowledge of drawing to the young, was introduced, the Westminster Gazette recalls, by Mr. Acland just before he left office, and the successful results that have been achieved more than justify its adoption. For the usual course of alleged "freehand" and

MODEL DRAWING

with a hard pencil point, as encouraged by the South Kensington authorities, is substituted a course of drawing with the flexible point of a sable brush charged with colour. This true freehand is done straight from the shoulder upon sheets of paper clipped to slabs of heavy millboard wedged into the slate racks at the back of the desks, thus serving as easels. The youngest boys begin with an exercise in coloured chalks on brown paper, to obtain freedom and facility in striking curves; then certain elements of design are sketched on the board, or natural flowers, fruit, and vegetables are put before them, and from these forms the boys work out

A PATTERN IN ANY COLOURS

their fancy dictates, to fill a given space, such as a square, oblong triangle, or circle. It is positively amazing, and not a little amusing, to see a big class of youngsters, say eight years old, dashing away at their sheets of brown paper, and turning out creditable designs by the score. Robbed of their colour they lose much, but when it is remembered that these boys, all under fourteen years of age, have no cultured home surroundings, no access to art galleries in their neighbourhood, and only two hours a week devoted to the work, it must be conceded that the teaching is now on the right lines. The boys show great enthusiasm for the work, and beg for paper on which to do drawings at home. It would be a thousand pities if talent thus cultivated were not turned to account when the boys leave school, but it is to be feared that unless some opening for their employment as

DESIGNERS, ART DECORATORS, POTTERY PAINTERS,

and so forth, are put in their way, the boys will drift into occupations in which this training of hand and eye, so wisely introduced by the Education Department, will be almost entirely thrown away, which would be a distinct loss to the community.

The new Roman Catholic Church of St. Teresa, Birkdale, has been opened.

The Bishop of Salisbury consecrated on Saturday week a new church at Bryanstone.

Foundation stones for a Free Methodist Chapel, Kippax, to cost about £1500, have been laid.

ARRANGEMENTS have been made for the erection of a new church at Elland on a site given by Lord Savile.

The Ramsgate Corporation has decided to offer prizes for competitive plans for the proposed kursaal under the Western Promenade.

The memorial stones of a Wesleyan chapel and school at Rhodes, near Middleton, have been laid. The new building is estimated to cost about £2650.

A SITE containing over 1600 square yards has been secured for the erection of a Wesleyan mission chapel and schools on Messrs. Mather's estate in Liverpool Road, Eccles.

FRESH by-laws as to the width of new streets in York are now in force, and in future streets in that city under 100yds. long will have a minimum width of 30ft.; over 100yds. and under 200yds., of 36ft.; and over 200yds., of 42ft.

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Bricks and Mortar.

EFFINGHAM HOUSE, ARUNDEL STREET,

August 17th, 1898.

"I know what it is to live in a cottage with a deal floor and roof, and a hearth of mica slat; and I know it to be in many respects healthier and happier than living between a Turkey carpet and a gilded ceiling, beside a steel grate and a polished fender. I do not say that such things have not their place and propriety; but I say this, emphatically, that the tenth part of the expense which is sacrificed in domestic vanities, if not absolutely and meaninglessly lost in domestic discomforts and incumbrances, would, if collectively offered and wisely employed, build a marble church for every town in England; such a church as it should be a joy and a blessing ever to pass near in our daily ways and walks, as it would bring the light into the eyes to see from afar, lifting its fair height above the purple crowd of humble roofs."—JOHN RUSKIN.

ONE of London's most notable houses is to be altered and reconstructed almost past recognition. This is the house in the middle of the west side of Leicester Square, with fine frontage and long first-floor windows. It has a history almost unique in interest. For thirty-two years it was occupied by Sir Joshua Reynolds, and before that by Henry Morland—father of a more famous son—who painted the two beautiful Miss Gunnings, respectively "Washing" and "Ironing," in the National Gallery.

IN Sir Joshua's time no house in London had so illustrious a crowd of visitors. There is a stately, last century flavour about the Georgian hall, with its fluted Corinthian columns. The newels from which its balustrades start are carved with acanthus leaves, and taper delicately to the base. Reynolds had the house remodelled, and he spent £1500 on a new gallery and painting room. He was at his easel by nine in the morning. During one year the number of his sitters was 162.

AN extraordinary building is being erected in New York in order to reproduced the art and architecture, manners and life, of the Egyptians, Assyrians, Greeks, Romans, Saracens, &c. It is being done on a very grandiose scale; for instance, in the Hall of Kanak, which is being reproduced, the columns are constructed full size, being 7ft. high and 12ft. in diameter, and the Assyrian throne-room from Nimroud is of the same size; and so is that which depicts the grandeur of Rome in the time of Constantine. The Saracenic rooms will, of course, be reproductions of the Alhambra. The building is to be completed in less than a year.

IT is satisfactory to know that up to the present there is no official declaration about seizing on the masterpieces in Spanish galleries by the Government of the United States as security for the indemnity which will have to be levied. The proposition to imitate Napoleon's conduct is not worthy of a nation that is mainly Anglo-Saxon. Great satisfaction was felt in England by painters when they found that the treasuries of Italian cities and palaces were brought together in Paris. Haydon, Wilkie, West, and others rushed across the Channel to enjoy the sight. But the pictures had eventually to be returned, and the memory of the transaction is not advantageous to France. Some of the American newspapers are endeavouring to persuade the Government to enrich New York with Spanish spoils, but the good sense of the country must be opposed to such a revival of vandalism and spoliation.

ART as a softener of international asperities has had many triumphs. Not one of these was more memorable in its way than that by which Prince Bismarck and Pope Leo XIII. were brought into touch. The medium of communication was Franz Lenbach, the famous Bavarian painter, to whom the Pope gave, not only sittings, but a commission to paint the portrait of his "enemy." Bismarck, much pleased, gave a return commission; and the restoration of friendly relations between the Roman Pontiff and the German Chancellor, whether by mere coincidence or not, certainly dated from the time when each adorned his apartments with the portrait of the other.

ARTISTS are naturally not a little concerned to hear that there is a possibility of serious damage being done in the near future to one of the most picturesque and frequently-painted spots in the West of England. A new light railway is threatened through the district surrounding Lynton and Lynmouth, and the route chosen is one which will most unnecessarily obtrude the utilitarian formality of the line. The scheme is one certain to excite very active opposition; but if this opposition is to be effectual it must be prompt, for the sitting of the Light Railway Commissioners at which the new undertaking is to be discussed will be held this week.

IT is stated that the plans for an Archbishop's residence at Canterbury have now been definitely settled by the Ecclesiastical Commissioners. Additions are to be made to the house that was in former times the Archbishop's Palace, and some buildings in Palace Street are to be pulled down for the purpose of allowing of the extension. The scheme is a large one, and when carried out will greatly add to the architectural features of the cathedral precincts.

THE engineers are, it is stated, engaged in the preliminary work connected with the scheme for a new electric underground line from Baker Street to Waterloo. It is reckoned that this line will take about four years to complete, and it will be three miles long. The southern terminal station will be close to the terminus of the Waterloo and City. From that point it will run under the river towards Charing Cross, and there will be a station at the point where it crosses the District Railway running along the Embankment. Thence it is to run to a station at Piccadilly Circus, and up Regent Street to another at Oxford Circus. The line will thence run down Portland Place, across the Marylebone Road, and round to the left to the south-western corner of Regent's Park, where the Baker Street terminus will be.

A DISTINCT advance in the progress of the world towards ease and comfort is marked by the announcement of the chairman of the Metropolitan Railway Company that experiments are about to be instituted with a view to the substitution of electricity for steam power in London underground traffic. Other people's experiments, it is true, have already demonstrated the feasibility of the change proposed; but it would no doubt be inconsistent with the dignity of a great corporation to plunge into new methods without supplementing these by experiments of its own. In the meantime the mere passenger can only express the hope that these experiments will be conducted with all possible celerity to their inevitable result.

ON September 4th next there will be erected at Brescia a monument to the celebrated painter, Alexandro Bonvicino, nicknamed Il Moretto, who was a native of that town. The monument is by the sculptor Domenico Ghidoni. The greater number of Il Moretto's pictures are still in the churches and gallery of his native place; but here in London, too, we are particularly rich in specimens of his cool and silvery brush. So his admirers in this country should go on a pilgrimage to the National Gallery on September 4th, the 400th anniversary of his birth.

AT the second day's proceedings of the annual meeting of the Society of Art Masters, in the lecture theatre of the South Kensington Museum, Mr. W. Scott, the president, in the chair, various matters affecting the interest of Schools of Art were discussed. In the matter of the attendance grants, it was decided to await the apportionment of the grants for the past year and to make inquiry of the members respecting them. The meeting also decided that representation should be made to the Science and Art Department as the desirability of making payments on attendances in drawing and painting from the "head life" and the draped figure.

AT 30, Parliament Street, the Art Memorial Society has on view a bust of Mr. Gladstone, the work of Mr. H. C. Fehr, whose "St. George and the Rescued Maiden" is a prominent feature amongst the works of sculpture in the central hall at the Royal Academy. Mr. Fehr's bust, which is in scale rather larger than life size, represents the statesman in the later, though not quite at the latest, stage of his career. The shoulders are draped with his doctor's gown, and the head is full of animation and spirit.

FOR an architect's or engineer's estimate to be exceeded is an almost invariable rule, but at a recent meeting of the Metropolitan Asylums Board an instance of the reverse being the case was afforded. For certain works to be carried out at the North-Western Hospital, the estimate given by the architects was £1080, whereas one firm expressed their willingness to undertake the work for the sum of only £643, just three-fifths of the amount that had been anticipated by the Board.

AN interesting anniversary to all lovers of "the old city," to use the phrase adopted in the now moribund unification report, occurred recently. Just 138 years ago on three of the old City gates—Cripplegate, Ludgate, and Aldgate—were sold by order of the Corporation, the purchaser, a speculative builder of the name of Blagden, paying for the materials the sum of £416 10s., and undertaking to remove the debris and restore the roadway to its original condition prior to the end of the following September. Even in those days, it is interesting to note, contractors were not always men of their word as regards completing the work by the date specified. Thus we read in the Corporation minutes that in the following December only Bishopsgate was sold, while Aldgate was "almost down," and Cripplegate would be "cleared" in less than a month. According to all reports, Blagden made a very fine profit out of the venture by selling as relics the decorative portion of the gates.

THE majority of the members of the Town Hall Committee of the Cardiff Corporation were surprised when, at their last meeting, the Town Clerk pointed out to them numerous defects in the accommodation which they had arranged in the costly new municipal buildings which are to be erected in Cathays Park. There was, he said, no provision for the tramways department, but it was pointed out in reply that the Committee would not have been warranted in making provision for this department at the time the instructions were given for the guidance of architects entering for the premiums. The Town Clerk anticipated that the new department would require quite as much if not more room than that of the borough engineer and his staff, and said there were many other matters to be taken into account if the buildings were to cover the needs of the town for the next ten to twenty years.—Councillor Fox and Alderman Beavan said they understood that the new buildings had been designed to meet the town's requirements for nearer half than a quarter of a century.

THE Town Clerk went on to say that there was no larder or wine room attached to the banqueting hall, that there was need of a separate kitchen and dining room for the clerks, that the judges would require a luncheon room in addition to their separate

retiring rooms, and that there was no accommodation shown for the clerk of assize, for the clerk of the peace, for the post-office, or of a central telephone exchange. Mr. Lanchester, a member of the London firm who secured the premium, was in attendance, and after saying that it was possible to throw out two wings without materially affecting the symmetry of the design, dwelt on the desirability of having the whole of the requirements arranged for in the plans before the first stone was laid. The committee asked Mr. Lanchester to re-arrange the rooms so as to provide all the accommodation suggested, and to present the amended plans at the next meeting. Councillor Fox pointed out that while he was prepared to vote for every reasonable provision being made now, he disagreed with the idea of a separate kitchen and dining-room for the clerks. He advocated the establishment of a municipal refreshment room, where the public attending the law courts and members of the Corporation could be provided for, as well as the officials and their staffs. On the recommendation of the architects, Messrs. Young and Brown, of Southampton Street, Bloomsbury, were engaged to draw out the quantities.

An interesting relic of old Newcastle has recently been sold. But it has not been sold in order that it may be demolished, or even that it may be devoted to a purpose other than that which it has fulfilled for nearly four hundred years past. It is the old Black Bull Inn, in the High Bridge, which is said to be one of the oldest licensed houses in Newcastle—as, indeed, it must be, if the records be accurate. The property of which the old hostelry forms the main part is an extensive one, covering, with the shops and warehouses adjoining, a considerable area near the corner of the Bigg Market and High Bridge, with an entrance from each of these thoroughfares. The date of the setting up of the inn is there, on the signboard, for all people to read. "The Black Bull," it says, "Established 1530."

The old Black Bull was a famous house in the coaching days, before trains and steamboats brought people into the town. The front of the inn was not then flush with the street as it is now. There was a courtyard in front, of considerable area, and at one side there were commodious stables for the reception of the coach horses. The coaches coming from both the north and the south drove into the Bigg Market, and swept round into the courtyard, and the passengers were hospitably entertained within. Now the courtyard is covered with buildings. One part of the new buildings was erected as an addition to the hostelry, which has now, therefore, two bars—the old place being the back bar, and the new room the front bar; and they are connected by a covered passage, bringing them both practically under one roof. On the other part of the courtyard a shop was built. The old stables have been transformed into warehouses. Passing behind the newer buildings into the passage beyond, one can readily see that the place is of great age. The old house must have been a fine range of buildings in its time. Inside the old bar itself—the taproom of the Black Bull—there is still a decided smack of antiquity, although it has long since been renewed. A shelf is withdrawn, and one sees the great fireplace, very high, and wide, and deep.

In a leading article the other day, the Daily News voiced a real risk involved in the "cheap facility of the snapshot camera." The camera is prone to supersede the sketch-book, and in many instances with damaging results. "But now that we have sane teaching, and a considerable opening for 'design,' and a comparatively favourable state of public taste and opinion," says our contemporary, "a deadly danger threatens us. Any fool can take a snapshot; and myriads do. That is infinitely swifter and simpler—cheaper, in a word—than even the slightest personal note. Is it not much to be feared that even the children in whom we have trained eyes and hands to a very tolerable point, and in whom a certain observation of nature and a certain love of

beauty has begun to bud, will spoil it all when they arrive at the years of indiscretion, by exchanging the sketch-book for the camera?"

"It used to be supposed that the capacity to draw even a fairly probable flower was wonderfully rare, and that it was almost a mark of genius to be able to make a serious sketch. And, in fact, while our methods of teaching were bad, it did require some natural gifts to surmount the curious obstacles which were carefully placed in the pupils' way. But the supposed rarity of the power to draw is quite imaginary. All children, with a little encouragement, will try to draw. It seems to be a natural development of their devouring zeal for imitation in every form. Moreover, there are probably few bright children, if there are any, who cannot, with a little pains and patience, be got to draw simple objects from Nature with very passable truth. At the outset, no doubt, they will fall into the fallacy of trying to draw not what they see, but what they think they ought to see. A table has four legs: therefore, if they draw a table they must put in the four legs somehow, even if they have to stick the furthest one in any comic and impossible position.

"But once they have been persuaded that what they have to do is only to put on paper what their eye actually do see, and have been shown in a few simple cases what that is, and how they may seize the more characteristic points in it, then they can almost teach themselves. The very fact that their drawings grow visibly better under their eyes is a delight to them and a stimulus to further efforts. Children who hate to draw generally hate it for the very proper reason that they 'cannot make the things come like.' The moment they see a chance of realizing the delights of artistic reproduction they are just as keen about it as more gifted persons—since the desire to imitate, for some mysterious reason, is inborn in the race, and the instinct that makes it amusing to draw the outline of a beast is as old as palæolithic man.

"It will be a thousand pities if either cheap photography or the devouring claims of bread-and-butter designing should kill down the wider chances which the growing generation has at last obtained. Of us who are older, few had any decent chance of learning to use a sketch-book intelligently unless we got it after our school days were over by special trouble. The school children of the present ought to be able with great ease to draw an animal or a plant, a cottage or a landscape, whenever they choose. They will probably be glad enough to do such things for recreation on rainy summer days, if their elders have the sense to put them in the way of it. They will gain by it not only an intelligent pleasure, but also that intimate familiarity with Nature which, in a civilised and hurrying generation, it is so woefully easy to lose. And they will help insensibly to make the cultured public opinion in which alone it is possible for real Art to live."

THE St. James's Gazette is anecdotal in commenting on affairs at South Kensington. An eminent authority on Architecture, it relates, was once consulted as to what was to be done with the memorial church erected to a distinguished person. It had fallen into a bad condition, and needed repair. The eminent authority examined the masterpiece, and then cheerfully gave his opinion that it was bad as building, and so hideous as art that there was nothing to be done with it except pull it down and build something better in its place. He did not know, what, however, was the case, that the church had been built by the family from the designs of the distinguished person himself, who was by way of being an amateur architect. His advice, it is needless to say, was not taken.

THE picture sale season just concluded has, as we have already recorded, been relatively uneventful. True, a very decided appreciation has taken place in the auction value of outstanding works by Rossetti and the late

Sir Edward Burne-Jones, and Millais's "Order of Release" made as high a sum (5000 guineas) as has ever been paid for a work by him. On the other hand, no sensational prices can be recorded for examples by British portraitists, nor have any canvases comparable in importance with the four Turners, which in the Pender sale of 1897 brought over £30,000, come under the hammer. Moreover, instead of thirty-two pictures, as was the case last season, having been knocked down for 14,000 guineas or upwards, no more than sixteen dispersed since January 1st reach or exceed this limit. Of these three are by foreign masters, four by British portraitists, and the remaining nine, including "The Mirror of Venus," the "Chant d'Amour," and "Love and the Pilgrim," by Burne-Jones, may be classed as subject pictures by native artists.

LONDONERS, or as many of them as are compelled to pass along the Strand, have just entered into the delirious excitement of the "up" season. From Exeter Hall to Agar Street the thoroughfare in question will be closed to vehicular traffic for ten days to a fortnight. Already there are unmistakable indications that the public is in for an exceptionally interesting time, and the vestries will, as usual, see that no stone or wood block is left unturned to provide an annual entertainment that will be quite up to the average. In preparation for the opening performance huge stacks of creosoted cubes have been set up on the northern sidewalk of the Strand, and as soon as the supply is complete, the pickaxe fiend and the wheelbarrow man and the person with the shovel, and the dude in corduroy who leans up against the scaffold pole fence, and the rest of them, will be in evidence once again. At present the indications point to a quiet "up" season, but as the asphalters have already taken possession of one half of Queen Victoria Street, down near the Bank, and most of the western Strand is to be closed next week, to say nothing of "a few small jobs" in other parts, there is no reason for despondency.

DEATH has removed of late several architects who have aided to embellish Paris by their buildings. M. Deperthes, whose name will be associated with the present Hôtel de Ville, has to be included among them. He died at Rheims, the Architect announces, in the sixty-fifth year of his age, and his recent plans prove that his skill in designing had not lost its power. The majority of the prominent Parisian architects are natives of the capital, but M. Deperthes was born in Houdilcourt, in the Ardennes, in 1833. He was an assistant of M. Ballu when the competition for rebuilding the Hôtel de Ville was arranged, and co-operated with him in the preparation of the design which found acceptance, and which resembled the former building. His designs were awarded medals at the Salon and other exhibitions, and M. Deperthes well deserved the esteem in which he was held.

ARRANGEMENTS are being made by the London School Board to send examples of the art work of some of the best pupils in their schools to the forthcoming Exhibitions in Madrid and Paris. Certain of the children have shown remarkable artistic ability, not as mere copyists, but in original designs, and the result has amply justified the authorities for taking up this branch of education.

THE inhabitants of Chew Magna, a little village in north Somerset, thought it would be a good way to celebrate the Record Reign by having their peal of cracked bells recast and rehung. Recently the new bells were brought to the village, and in due time successfully hoisted into the historic tower, the old oak beams being replaced with iron. When the ringers tested the ropes, it was discovered that the strength of the tower had not been taken into consideration, and the unwonted agitation of the flagstaff speedily attracted the attention of the bystanders below. As a consequence, the bells will have either to be rehung, or the temperament of the tower consulted.

GREAT ART WORKERS OF THE CENTURIES.

JACQUARD: TEXTILE ART WORKER.

DOUBTLESS the earliest forms of clothing were the skins of beasts with the hair or wool upon them, though it is even probable that anteriorly the leaves of plants were employed wherewith to cover nakedness. In warm climates, however, people would desire something lighter than animals' skins, and there is but little doubt that the plan of crossing and interlacing fibres so as to produce a fabric was discovered at a very early period. We know at least from the dredging of the Swiss lakes that the *ante-historic* man produced mats by this system of interlacing, because fragments of these have been fished up. Coming to the historic period, Egyptian mummies have been disintombed wrapped in textile cere clothes which must of necessity be several thousands of years of age. This fact, of course, proves also the great antiquity of the loom, for, although the mats made by the primitive man might have been laboriously plaited by his squaw while he himself was indulging in the pleasures of the chase, yet the fine linen

TEXTILES OF THE ANCIENT EGYPTIANS

could not have been so produced. The loom as an invention capable of producing a fabric having "warp" and "woof" is therefore, in all probability, at least 4000 years old. Doubtless the extremely simple species of looms found to-day in India and other portions of the East are veritable survivals of the primitive weaving apparatus. It is pretty clear that the cocoon woven by the caterpillar or the silkworm (*bombyx mori*) was very early utilised as a fibre to be woven into regal or princely garments. It might fairly cause surprise that a material so fine as silk could be woven in such rough and clumsy looms as those of antiquity must necessarily have been, did we not know that on their miserable and cumbersome looms the Hindoo weavers of the present day at Dacca and other parts of India can produce the most beautiful and delicate fabrics. It is abundantly evident from ancient authors that silk textiles are of very great antiquity. The Median robes spoken of by the Greek writers of the period of the Persian Empire, and extolled for their lustrous beauty and brilliancy, were doubtless silken vestments. Aristotle is the first Greek author who mentions the silkworm, and he states that the silk was first spun in the Island of Cos, but the raw material was still an Oriental product. Pliny states that the silk came from Assyria, and was worked up by the Greek women. Anent this the author of the article upon "silk" in the Encyclopedia Britannica remarks: "Pliny, whose judgment and discrimination as a compiler are not to be relied upon, reports that the *bombyx* (or silkworm) is a native of Cos, an island

IN THE MEDITERRANEAN ARCHIPELAGO.

It is known that silk was manufactured there at a very early period; but Aristotle had previously explained that *bombykia*, or the stuff produced from *bombyx*, was re-grown or woven by the women of the above island. The inventress of this process was Pamphilia; she unwove the precious material to recompose it in her loom into fabrics of a more extended texture; thus converting the substantial silks of the Seres into their transparent gauzes, obtaining in measure what was lost in substance. Attempts have been made to rob the inventress of all the merits belonging to the process, by identifying the *bombykia* with the raw material, which, it is said, Pamphilia and her nymphs procured from Seres, and thus spun or wove into *serica* or silk. But the fact of reweaving rests upon too good authority to be doubted. It is probable that silk was in use among the Greeks long before they knew whence the substance came, or in what manner it was produced. Virgil supposed that the Seres (Chinese) carded the silk from leaves,

and Dionysius Periegetes also supposed it to be a vegetable product. Thus he says:

Nor flocks nor herds the distant Seres tend;
But from the flow'rs that in the desert bloom,
Tinctur'd with varying hues, they cull
The glossy down, and card it for the loom.

But Pausanius appears to have been aware that silk was produced by an insect. Still, both the raw material and the manufactured product were imported into Europe from the East until the time of the Emperor Justinian, the trade being principally in the hands of Persian merchants when the importation was entirely discontinued. "The trade in silk," says Mr. Timbs, "was in this unsatisfactory state when two Nestorian monks of Persia, who had travelled to China, there saw the common silken dress of the Chinese, and the myriads of silkworms on trees and in houses from which it was obtained. On their return to the West they acquainted Justinian with the mode of producing silk, and undertook to return and bring back with them some of the eggs of the silkworm. This they did, and a quantity of eggs concealed in a hollow cane were brought in safety to Constantinople, and there hatched, and fed with mulberry leaves. These worms in due time spun their silk, and propagated, under the careful attendance of the monks, who also instructed the Romans in the whole process of manufacturing silk." From that time onward, silk was woven in Europe. Commencing in Greece, the art of rearing silkworms and manufacturing silk was transferred to Sicily in the twelfth century, to Italy in the thirteenth century, thence to Spain, to France during the reign of Francis I., and finally the weaving to England

IN THE FIFTEENTH CENTURY.

The rearing of the worms and the production of the raw material have never taken root here owing to faulty climatic conditions. From the first introduction of the art into France, the French workmen have excelled as silk weavers. Lyons has always been the headquarters of the French silk manufacture, and Jacquard, the subject of this brief notice, was a native of that town. In plain silk weaving, the process is much the same as in weaving linen or woollen, but the weaver was assisted by a machine for the even distribution of the warp, which frequently consists of 8000 separate threads in a depth of 20 in. Joseph Marie Jacquard's claim to rank as an art worker is based on the fact that he invented a plan by which the most beautiful and elaborate designs in silk weaving could be simply produced by mechanical means in place of a hand, clumsy, and difficult process. Jacquard was born at Lyons, in France, on July 7, 1752. His grandfather was

A STONEMASON OF CUZON,

and his father was a weaver of stuffs, at which occupation the boy early learned to assist. During this period he gained the rudiments of a simple education, so far, at least, as writing and arithmetic went. His health, however, proving delicate, young Jacquard was placed first with a bookbinder, and afterwards with a typesetter. At this time the boy's mind was teeming with mechanical inventions of a useful character. When he had reached the age of twenty his father, who had come into a small property, commenced business on his own account as a weaver; but he failed, and, despite the heroic efforts of Madame Jacquard, the family could scarcely obtain even food. In 1790 young Jacquard conceived the idea of a machine which should achieve certain important processes in weaving, but his poverty prevented him from taking any steps to work it out. Two years later a copy of the "Poor Richard's Almanack" of Benjamin Franklin, the celebrated American printer and Statesman, fell into the young man's hands. The precepts of thrift and industry therein contained sank into the mind of the young Huguenot. He laboured indefatigably, and at last succeeded in producing a perfect machine, for which the jury of the Exhibition of Industry of 1801 awarded him a medal. In 1804 the great medal of the Society for the Encouragement of the Sciences and Arts was also granted to Jacquard, and, finally, by Imperial decree, he received a pension of 3000 francs per annum. W. N. B.

BUILDING CONTRACTS.

AN IMPORTANT DECISION.

SHERIFF BERRY has just issued an important judgment in the Appeal Court at Glasgow affecting building contracts. The action was brought in respect of the fall of property in the New City Road, Glasgow. The Sheriff Substitute (Strachan) found that the collapse of the building was caused by the negligence and want of skill on the part of the pursuers, after the contract had been given up by the defender, in placing three columns supporting the longitudinal beams on which the upper stories principally rested on a retaining wall of common rubble masonry, which was entirely insufficient for the purpose, and by failing to put in certain supports. The Sheriff Substitute therefore assoiled the defender, with costs. On appeal, the Sheriff adhered to the interlocutor of the Sheriff Substitute, and gave additional expenses. The following is the note:—A consideration of the full argument I have had in this case, and of the proofs and productions, leaves no doubt on my mind that the conclusion of the Sheriff Substitute is the right one. It seems to me impossible to hold that

LIABILITY FOR THE FALL

of the pursuers' building has been brought home to the defender. The connection the defender had with the building is explained in the Sheriff Substitute's note, and I need not recapitulate what is said there. The connection was very short. After the ground had been excavated he proceeded under a contract with pursuer to lay a concrete foundation for the contemplated building and to build the lower walls. When, however, it had been proceeded with but a short way a difference in regard to payment arose between the parties; the defender gave up the contract, and the pursuer himself took up the work and went on with the building. At the time (May, 1896) when the pursuer took the building into his own hands, the area wall had been built as well as part of the back wall. On November 30th, when the building was nearly completed, the chimney heads having been erected and the slating in course of being finished, a large portion fell, and for that fall and its consequences the pursuer seeks to hold the defender liable.

THE GROUND OF LIABILITY

on which the pursuer relies is the allegorical responsibility of the defender for the foundation of what is called the east cube butt, which certainly had an important relation to the stability of the eastern portion of the building, which ultimately fell. The defender had left the building before the construction of the butt was commenced, but he had had the laying of the concrete for its foundation, and it is said that the composition of the concrete used by him was not in accordance with contract, and was defective and weak; and that it was not evenly and properly laid, the result of these defects being, it is contended, that the foundation cracked, the butt tilted to the side, dragging with it certain iron columns with which it was connected, and causing the structure to collapse. On the question as to the composition or quality of the concrete there was not much argument addressed to me, and, indeed, I doubt if that part of the case is seriously relied on. At all events I think it enough to refer to the full explanation regarding it given in the Sheriff Substitute's note. I concur in his conclusion "that the pursuer's allegations as to the defective quality of the concrete are entirely disproved." I hold that the fall cannot in any way be accounted for by insufficiency of the concrete. A more serious argument was rested on the mode in which it was said that the concrete had been laid by the defender. It was laid in two courses, and according to a sketch, No. 18, produced by Mr. Foreman, who appeared as a skilled witness for the pursuer, the upper layer was not placed evenly above the lower; the centres of the two did not correspond, and the butt was built so as to rest for the most part on the upper layer alone, a small portion only

resting on both layers. According to this sketch a large crack or rent appeared under the butt, which, it is said, had had the effect of tilting the butt and causing the ruin which followed. In considering how far the appearance presented in this sketch is to be relied on, one has to contrast it with another, No. 17, also prepared by Mr. Foreman, and produced at a previous stage of the case. This previous sketch or plan corresponds much more closely with a pencil sketch subsequently made on the spot by Mr. Bryden, an architect adduced for the defender, than it does with No. 18. According to Mr. Bryden's sketch as much as

SEVEN-EIGHTHS OF THE BASE

of the butt rested on the place where there were two layers of concrete, and only an eighth on the part where there was a single thin layer. Again, this sketch shows no crack as there appears on Mr. Foreman's second plan, No. 18, the only crack shown being beyond the base of the butt, and such as in all probability would be caused by the impact of heavy material when the fall took place. The accuracy of this sketch of Mr. Bryden has been accepted by the Sheriff Substitute, and, I think, with reason. His reference to the witness Gascoigne as giving independent support to it has been adversely commented on in the argument for the pursuer, on the ground that Gascoigne left the job when the defender left it, and that he cannot, therefore, have been present when the building of the butt was commenced, as he says, at a place 3ft. out of the position originally intended for it. I am not sure that this criticism on his evidence is effectual. The placing of a thin layer of cement by order of M'Kinlay and Scorgie, in the absence of the defender, as described by him, may have been done immediately before the defender left, and he may have been told that the butt was to be built in the altered position. But, however that may be, and whether or not reliance be placed on Gascoigne's evidence as corroborating that of Mr. Bryden, I regard it as clear from the proof that the

FOUNDATION OF THE BUTT

had not sunk or been disturbed, but remained level up to the time of the fall, and indeed afterwards. Mr. Bryden made a careful examination of the place on 4th January, and he tells us that while the butt itself was off the plumb, "the foundation of the butt (and we examined it with the greatest care) showed no signs whatever of any subsidence. It was not the foundation that had gone off the plumb, because I plumbd it." The deflection from the vertical of the butt itself here referred to was to the extent of some 5in. or 6in. That, however, was in all probability caused by a drag when the building fell, and there is evidence which I regard as quite satisfactory that it was in no respect a cause of the fall, even if it had arisen from a defect in the foundation, which, in my opinion, was not the case. Mr. Whyte, the Minister of Works for the city, who examined the building officially when the fall was reported to him, said, in answer to the Court:—"Supposing it was

LEANING OFF THE PERPENDICULAR

in consequence of the weakness of the foundation, I do not think that would have been sufficient to account for the collapse of the building." There is other evidence of a similar nature which places it, I think, beyond doubt that it was in no degree to the butt being off the plumb that the fall of the building can be attributed. That, I think, is enough to relieve the defender from liability. What it was that caused the fall it does not lie on the defender to show. But if a conjecture is to be hazarded, I think the two causes assigned by the Sheriff Substitute may be regarded as having materially contributed to it. The three columns specially referred to in the course of the case were made to rest on a rubble retaining wall, and notwithstanding the opinion regarding the sufficiency of that support, strongly insisted on by Mr. Foreman, the weight of authority is, in my view, contrary to his opinion. Then

THE OMISSION OF SUPPORTS

shown on the plans submitted to the Dean of Guild Court until a very late stage in the

building may well be held as having been a grave cause of weakness. For weeks before the fall, cracks and other signs of yielding had appeared both in the back and front, and in particular at the close towards the east end, which pursuer kept open for use as a cartway. Supports for the stair and at the entrance to the close were left out, and it was only a day or two before the fall that an attempt to prevent the catastrophe then imminent was made by providing support of a temporary kind. The Sheriff Substitute has commented, and I think with justice, on the want of trained skill on the part of the pursuer, who took in hand the construction of this building, with the aid of persons who had little, if any, better qualification for the work than himself. The tenement was of delicate stability, and required the careful application of skilled knowledge to see to its safety in the course of construction. Of that skilled knowledge there was a conspicuous absence, and one is not surprised at the result. The attempt to saddle the defender with responsibility for the fall has, in my opinion, entirely failed.

KEYSTONES.

A NEW board school has been opened at Brynsiencyn, Anglesey.

A PUBLIC shelter has been erected on the South Cliff at Felixstowe. The outlay has been about £2000, and the contractor was Mr. Philip Banyard, of Felixstowe.

THE foundations for a three-story hotel, which is being built in Fore Street, Winkleigh, Devon, were laid last week. Messrs. Fisher Bros., of Northtawton, are the contractors.

EXTENSIVE alterations and additions have been made to the Shire Hall at Worcester, at a cost of £6500. The architect was Mr. Rowe, jun., son of the County Surveyor for Worcester-shire.

ALTHOUGH the city of Gloucester was at one time noted for its bell founding it had up to recently no church which could boast a full peal of ten bells. The peal of St. Michael's has been increased from eight to ten.

THE Catholic Chapel at Brynnyrn has been completed. The church will seat about 120, a new sacristy having been erected, in which a beautiful Gothic window has been designed, representing the Sacred Heart and the Immaculate Conception.

A PORTION of a house in North Street, Newry, collapsed recently, burying several of the occupants. The captain of the Fire Brigade and others rushed in to extricate the occupants, when another portion collapsed, burying the rescuers. One person was killed.

THE War Department's new torpedo factory at Gillingham, near Chatham, is now completed, and preparations are being made for equipping it with the requisite plant and machinery. The site of the old factory will be absorbed in the new naval barracks which are being built at Chatham.

THE Leominster Hospital Committee have decided to erect a new college hospital and nurses' home in South Street, Leominster, the accommodation allowing for five beds, and a separate building is provided for the matron and nursing staff. Mr. Ernest G. Davies, M.S.A., of Hereford, is the architect.

THE scheme whereby various parts of Liverpool are to be supplied with open-air baths is progressing satisfactorily. The one at Gore Street is now practically completed, and will be opened within the next few days; and it is expected that the baths at Mansfield Street and Green Lane, the work of constructing which is to proceed at once, will be in readiness for next season.

AN alarming sequel to the fire at Norwich occurred a day or two ago. The Edinburgh public house, situate at the corner of the block where the fire raged, had withstood the devastation on either side, and had been temporarily shored up. The adjoining buildings were destroyed, but the public house was not considered unsafe, and business was conducted as usual. The house, however, has suddenly collapsed, injuring two or three people.

Professional Items.

ABERDEEN.—Contracts have now been entered into for the erection of a new edifice for the Bon-Accord Congregational Church. The church will be entirely built of grey granite. It is of plain design. Mr. John Rust is architect. The contractors are: Mason, A. Thompson and Sons; carpenter, Leslie and Hay; plumber, John Thom; plasterer, James Stewart; slater, George Farquhar, jun.; painter, Mason and Son; ironwork, John Grant; heating apparatus, Shirras, Laing, and Co., Limited. The estimated cost of the church is about £4000.

BELTON.—The parish church of St. Peter, Belton, Rutland, after being closed for several months for restoration, has just been reopened. Standing on the slope of a hill rising off the main road from Uppingham to Leicester, the fabric is a stone building of the Decorated style, consisting of chancel, nave, south aisle, south porch, and square embattled western tower containing four bells. For many years the building has been in a dilapidated condition, the roof being unsafe, the west arch blocked, the porch much out of the perpendicular, while the windows on the north side had lost their tracery, and there was a west gallery obstructing the arch. The church was repaired in 1841, and it has now undergone internal and external restoration at a cost of £2000. Mr. W. Talbot Brown, Wellingborough, was the architect, and Messrs. Roberts Bros., Weedon, were the contractors. The east window and side window in the chancel have been filled with stained glass.

BIRKDALE.—The new church of St. Teresa, Everton Road, Birkdale, has recently been opened. The church is built from the plans of Messrs. Synnott, Synnott, and Powell, of Liverpool, in the Transitional style of architecture, of red Burnley pressed bricks, with red sandstone dressings. It will accommodate 600 worshippers, and the contractors were Messrs. Fairbridge and Hatch, of Birkdale.

CLOUGHTON.—In the course of a few weeks the memorial window which is to be erected in Cloughton Parish Church in memory of Sir Frank Lockwood will be completed and unveiled. The committee selected the design of Messrs. Atkinson Brothers, of Newcastle-on-Tyne, and the subject illustrated is the "Judgment of Solomon." In the centre light is a very imposing figure of the King in the act of giving judgment; it is draped in an underrobe of white, richly diapered with gold. On each side are the two mothers, one with the dead child at her knees, the other clasping her living child to her breast. A secondary figure is a soldier with drawn sword ready to carry into effect Solomon's award. The composition of the window is in some respects unique, the colouring is singularly rich and harmonious, and the drawing excellent.

COLWYN BAY.—The foundation stone of a new church at Colwyn Bay has just been laid, and the building, which is situate in Conway Road, and has been erected at a cost of £2800, will be a handsome structure when completed. The total cost of the land, building, and the furnishing and decoration of the interior, will amount to about £12,000. The style of Architecture is Gothic, and the building, which will be of stone, will afford sitting accommodation for 600. Immediately adjoining the church, but facing Brackley Avenue, a commodious presbytery will also be erected. The architect is Mr. R. Curran, C.E., Warrington, and the contractor Mr. Thomas Brown, Chester.

GREENOCK.—Messrs. Hardie and Thomson, Glasgow, have prepared plans in the Italian style of architecture for the new buildings which are about to be erected for the Clydesdale Bank on the site of the old White Hart Hotel, corner of Cathcart Square, Greenock. The building is to be three stories in height. The ground floor will be utilised as premises for the bank, the two top flats fitted up for offices, and the

extreme east portion set apart for shops. The cost will be £10,000.

HORFIELD.—A Wesleyan School chapel is being built at Horfield. The new buildings will consist of a large hall, and in the rear four class-rooms. On the first floor will be a room 24ft. by 20ft., used as a church parlour. The building will be in the decorated Gothic style, the walls of red pennant, with freestone dressings. The roof will be covered with green slates, and surmounted by a handsome flèche, rising 70ft. from Gloucester Road. The plans of Messrs. La Trobe and Weston, F.R.I.B.A., were selected in a limited competition, and the building is being carried out under their superintendence, Mr. E. Love being the contractor.

INWARDLEIGH, DEVON.—The restoration of the parish church of Inwardleigh, has been commenced by the contractor, Mr. S. G. A. Pethrick, the architects being Messrs. Tait and Harvey, of Exeter. The first section of the work comprises a new roof for nave, also a new south wall. The principal beams of nave were in a dangerous state, being quite rotten throughout. The other sections to be carried out are reseating and reflooring the tower and chancel.

KILPECK.—The interesting Norman church of Kilpeck has been reopened, after undergoing extensive repairs. The church is well known as one of the most valuable examples in England of the late Norman period, with an elaborate south doorway, chancel arch, and corbel table, profusely ornamented with those grotesques so characteristic of the period at which it was built. So recently as 1860 considerable repairs were done to the church, but for some time the roof had been defective, and the interior had suffered much from damp. Chiefly owing to the liberality of Colonel Windsor Clive, the church has now been put in a sound state, and at the same time every care has been taken to preserve every fragment of old work. A drain has been carried round the exterior, the old stone tile roof has been stripped and relaid, and felt has been introduced between the tiles and the boarding. The interior, which was much disfigured by a thick modern coat of plaster, has been carefully replastered so as to show the worked stone of the interior. No fresco painting was found, this having probably been destroyed in former years, but a small fragment of colour decoration was found on the north side of the chancel. The font, a very large Norman one, has been moved from its position in the centre of the chancel, where it was placed in 1860, to a position at the west end, near the south doorway. A thirteenth century memorial slab has been placed against the north wall of the nave. The repairs have been carried out by Messrs. Collins and Godfrey, builders, of Tewkesbury, from the plans and under the superintendence of Mr. Rowland W. Paul, architect, London.

LONDON, E.—Cardinal-Archbishop Vaughan has just laid the foundation-stone of a new church on a site between the Victoria and Albert Docks, at Custom House, E. It will be Decorated Gothic in style, and will be built of brick with Portland stone dressings without and Bath stone within. When complete it will accommodate 600; but at present only two-thirds of the structure will be erected. It is designed and will be constructed by Mr. R. L. Curtis. The sanctuary and side chapels will be approached by three polished marble steps from the nave and aisles, and the high altar, with its oak predella, will be elevated by three steps more. The altar is to be of Caen stone, standing clear of the sanctuary walls. The portion to be raised immediately will involve a cost of £3211. The interior woodwork of roof, floor, and seating is intended to be of pitch-pine. The dimensions measure from east to west, 120ft.; and 60ft. from north to south.

LONDON, S.E.—A new pavilion has been erected at the Oval, Kennington, S.E., which is one of the most elegant structures of its

kind in the country. All the old buildings were taken down with the exception of the large dining-hall, which has been enlarged by nearly one-half, and, with the new professionals' dressing and club rooms, forms the west wing of the new pavilion. The central portions contain, on the basement floor, spacious lavatories for the members, and under the club-room and bar, commodious storage premises. On the ground floor is the members' club-room, 60ft. by 26ft., overlooking the cricket ground, with a bar in the rear about 50ft. by 18ft., and at the west end of the club-room are the members' private and writing rooms. On the east side of the club-room are the secretary's offices. A wide corridor at each end of the club-room traverses the building and opens on to the stand in front of the club-room. The committee-room and members' dressing-rooms, with lavatory, bath-rooms, and necessary conveniences, are situated on the first floor, and spare dressing rooms are provided on this floor for playing visitors. In the east wing a comfortable ladies' cloak-room is provided adjoining the entrance to the side stands, and on the first floor the Press-room, with telegraph-room, lavatories, spare room, &c., *en suite*. Adjoining the Press-room is the scorers' box, and below the telegraph-room a printing office. The roofs of the central portion of the pavilion and over both wings are constructed with fireproof flooring, and upon these roofs are stepped "stands," affording an unobstructed view of the whole of the cricket ground. Accommodation for 2000 persons is provided on the roof stands, and those on the field level in front of the pavilion. Externally, the building is faced with red brick, relieved with Bath stone dressings, and the roofs to stands and over the committee and dressing rooms are covered with Broseley tiles.

MANCHESTER.—The institution known as the Charter Street Ragged School, Manchester, is to be considerably enlarged. The old building was erected in 1866, and its corner-stone was laid by that great philanthropist, the Earl of Shaftesbury. After its capacity had been tried for some twenty years, the committee resolved to make their work and their experiments more vigorous and bold, thus necessitating a new building. When the new building was erected in 1892, the old ragged school, which faces Charter Street, was left standing. The old school adjoins the newer part of the institution. It is now to be pulled down, and the ground on which it stands rebuilt upon. The newer school and girls' home, with the old school, occupy a small square bounded by several streets, and the committee have bought two cottages in Ashley Lane, one of the narrow thoroughfares which run at right angles from Charter Street and surround the square. These cottages will be pulled down for the purpose of the extension. On the ground now covered by the old ragged school, or rather on part of it, there will be built an addition to the newer school and the working girls' home. Part of the land will be appropriated to public use under the scheme for widening Charter Street, which, in the case of the proposed building, requires the building line to be set back some 15ft. The estimated cost of the extensions is £4600. The architects are Messrs. Maxwell and Tuke, of Manchester, and the work of erecting these additions is to be at once taken in hand.

The new Deansgate goods depôt of the Great Northern Railway Company in Manchester, the first portion of which has been opened for the reception of traffic, is an imposing engineering work. It will, when completed, be one of the largest, best located, and most conveniently situated depôts of the kind in this country. It adjoins the Manchester Central passenger station—the Cheshire Lines Joint Committee's station—of which the Great Northern is one-third owner, and it is bounded on the west by Deansgate, on the north by Peter Street, and on the south by Great Bridgewater Street, from all of which streets it has entrances. Starting from a junction with the four-track road which runs into the Central passenger station, the rails communicating with the new goods station are carried by a girder bridge over Deansgate, and

they enter the site of the depôt at a considerable height above the ground level. The approach road, which is about 300yds. in length, immediately spreads out into six tracks, carried on an upper floor supported upon steel stanchions, at the base of which stands a very large shed for use in loading and unloading trucks. Above this shed a warehouse of three more floors, 80ft. in total height, is in course of construction; and upon each side of the shed branch lines run down at a moderate gradient to the ground floor of the depôt, which, like the upper floor, is laid out with tracks and banks for the shunting, marshalling, loading and unloading of trucks. Thus the area of the site, which is nearly seven acres, is utilised twice over for the purposes of a goods terminus, whilst it also provides the foundation for very extensive warehouse accommodation. Arrangements have been made to light the depôt throughout with the electric light, which is a very great assistance to the working of city goods traffic, so much of it having to be done at night. A full equipment of hydraulic cranes and capstans is also provided. The whole work, which has many admirable engineering features, has been carried out by Messrs. Robert Neill and Sons, of Manchester, under the supervision of Mr. A. Ross, the Great Northern Company's engineer-in-chief.

MORLEY.—The new electric lighting works erected by the Corporation of Morley, from the plans of Mr. Hammond, at a cost of £21,219, were opened recently. The generating works are situated in the Corporation Street, between the new public baths and the corporation depôt. The buildings, which were designed by the late borough surveyor (Mr. M. H. Sykes), are placed on the south side of the land reserved for the generating works, and are so arranged that a considerable area of land is reserved for future extensions. The contracts for the buildings have been carried out by local firms, as follows:—Building and masons' work, Messrs. Newton and Asquith; joiners' work, Mr. D. Marsden; plumbers' work, Mr. Firth; plasterers' work, Mr. Wilson; slaters' work, Messrs. D. Thornton and Sons; painters' work, Mr. W. Lawton.

ROATH.—The Mayor of Cardiff has laid the memorial stone of a new station, which is being erected in Roath by the Great Western Company. The contract, which amounts to £15,000 for the erection of the new station, has been entrusted to the firm of Messrs. Mackay and Davies, of Cardiff, Newport and Pontypridd. The site selected is in Pearl Street, near Splott Bridge.

SHEPLEY.—A new chapel for the Methodist New Connexion body at Shepley is being erected, and Mr. J. W. Firth, of Oldham, is the architect. The building is to be constructed of stone, faced with Brighouse pierpoints and local stone dressings. The style will be Gothic, with a tower and spire and large tracery window in the front gable. The contractors are: Excavating, drainage, brickwork, and mason's work, Mr. Harris Wood; joiner's work, Mr. James Broadbent; slater's work, Mr. R. C. Fletcher, Oldham; plumber's and glazier's work, Mr. George Lindley; painter's and plasterer's work, Mr. Albert Morton.

WOKING.—The Albion Hotel, Woking, is about to be pulled down and rebuilt on an enlarged scale, from the designs of Mr. Clamp, of Woking. The new building will be set back some distance from the present frontage, and in order to allow of business being conducted during the reconstruction, will be erected in two sections. The first portion will consist of the general bar (44ft. by 18ft.), and the apartments for the working staff, and the second the hotel proper, comprising saloon and private bars, coffee room, smoke room, club, and commercial room, the latter whereof being 33ft. by 21ft. 6in. The new building will be faced with red Surrey or Somersetshire bricks with Ancaster stone dressings, and will be provided with all modern hotel appliances. The contract, exclusive of stabling (to be built later), has been let to Mr. A. A. Gale, of Woking.

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Views and Reviews.

THE MANUFACTURE OF GLAZED BRICKS.

Exhaustive and practical, lucidly expressed, and in small compass, the manual upon this subject, by Mr. H. Ansell, is one of the most satisfactory technical works it has been our good fortune to read for many years. Every detail is entered into, every process explained, and *raison d'être* given, and this in the full and convincing manner only possible to the expert. By most architects and builders the manufacture of glazed ware is considered quite a minor matter, but it is full of pitfalls for the unwary, and for its successful accomplishment a vast amount of special scientific knowledge is necessary, combined with extreme care in manipulation. When the skill is present, the knowledge is frequently absent; hence the need for such a book as this, with its careful instructions and numerous reasoned formulæ, giving the constituents and properties of every kind of body and glaze known, with descriptions of the plant needed, the kilns to be used, and the temperature necessary to produce the best results with each. In fact, while interesting to all who have anything to do with glazed wares, this little work is absolutely invaluable to the manufacturer, and should find a ready sale even at what looks at first sight to be a prohibitive price. The only way in which it could now be improved would be by the provision of a really sufficient index.

"The Manufacture of Glazed Bricks and Glazed Sanitary Ware." By H. Ansell. Second and enlarged edition, entirely rewritten and revised. H. Greville Montgomery, 43, Essex Street, Strand, W.C. Small 8vo.; 7s. 6d.

THE WORKMEN'S COMPENSATION ACT.

Few short Acts of Parliament have provoked more attempts to explain them than has the Workmen's Compensation Act, 1897 (60 & 61 Vic., c. 37), for in many respects it is vague in itself, and runs counter to other Acts. Of these attempts one of the best is that of Messrs. Minton-Senhouse and Emery, who have written a treatise upon it, divided into chapters, of which each deals with one of its important features, such as "Persons Entitled to Compensation," "Contracting Out," "Compensation for Personal Injury," "Compensation on Death," "Procedure," "Compensation in an Action," "Medical Examinations of Workmen," and "Duties of Committees and Arbitrators." Each of these points is most carefully considered, but, as the authors point out, there is considerable opening for litigation under the Act, which in this respect is highly unsatisfactory, and there will be much difficulty in arriving at decisions which will meet the needs of abstract justice. In a series of appendices are given the Act itself and its schedules, together with various forms of notices, claims, agreements, and awards, all of which should prove of the greatest value to those interested, especially as the book has a most complete index.

"The Workmen's Compensation Act." Edited by R. M. Minton-Senhouse and G. F. Emery. Crown 8vo. Price 1s. nett. Bemrose and Sons, Ltd., 23, Old Bailey, and Derby.

MOUNTS AND FRAMES.

The Rev. F. C. Lambert is well known amongst amateur photographers as being acquainted with all sorts of little dodges for the improvement of a photograph, and as being always willing to impart his knowledge to others in a pleasant and easily understood way; but it is a little difficult to see at first why his little book on "Mounts and Frames" should have been sent to a building paper for review. Perusal, however, shows that many of the hints given would be of value to any draughtsman, while the notes upon colour are of even wider application, and could be read with profit by many a designer, even if much that is said be to him but reiteration of well-known laws. Small as it is, however, the book needs an index sadly.

"Mounts and Frames, and How to Make Them." By the Rev. F. C. Lambert, M.A. Crown 8vo.; price 1s. Hazell, Watson, and Viney, Ltd., 1, Creed Lane, Ludgate Hill, E.C.

Enquiry Department.

FUMIGATING OAK.

To the Editor of THE BUILDERS' JOURNAL.

SIR,—Could you give me information concerning the methods used to stain wainscot, joiners' and cabinet work?—1. Is this stain done by sealing up the work to be stained in a room, or is it done in a properly built airtight room specially used for fumigating? Can the work be fixed—say if dado, or staircase, or doors—first, then the room properly sealed up or fastened up a time, and fumed? 2. How is the ammonia used, and what quantity would be wanted? In what form is it used, liquid or lump? 3. Would wainscot have the same colour if the spirit of ammonia was used, rubbed on with a piece of rag? 4. How is wax polish made and used to obtain a dull effect?—Your constant reader,

"ABERDEEN."

The process of staining oak, by exposing it to the fumes of spirits of ammonia, is superior to that of staining by the direct application of the raw spirit to the wood, for two reasons: first, it is less harmful to the operator and all in the immediate neighbourhood; second, the colour obtained is more mellow, regular, and natural. The method is as follows:—The work is finished off at the bench, and every trace of oil or glue removed from the surfaces; a chamber or box is then prepared to receive it. All that is necessary in either case is, that it shall be air-tight, the latter is the more usual, and is simply a rough packing-case of a size large enough to contain the largest piece of framing to be stained, well nailed together, the side joints glued, and a loose lid provided. If possible the case should be arranged so that the work may be stood upright, as the tone then will be more regular. Blocks should be nailed at the ends of the case to keep the work about 1in. apart, and all joints and crevices covered on both sides with strips of brown paper pasted on. The work should now be adjusted in the case, and handled with clean rags or shavings, or the finger-marks will show, and the spirit (pure spirits of ammonia) placed at the bottom in two or three shallow vessels—such as saucers, which must be of glass or enamelled earthenware—and the lid quickly closed and screwed down, the joint being luted with brown paper as before. It may now be left a time, varying from four to twelve hours, according to the depth of tone required (which must be found by experiment), then taken out and touched up where required with raw spirit carefully applied with a pencil. If any sapwood be present the stain will have no effect upon it, and this will have to be coloured with French polish to match. To your second query, it would be practically impossible to so seal a house as to be able to fume a staircase dado in position; besides the quantity of spirits required would be out of all proportion to the work, and all paint metals and gilding in the place would be attacked. 3. The quantity used is not so material as the time the work is exposed to the fumes—half-a-pint will do for one, or 50 square feet, according to circumstances. 4. As mentioned above, the application of the spirit to the wood gives a harsher and less natural colour. 5. To make wax polish, melt crude beeswax over a close fire, or in a water bath (be careful not to do it at an open fire), and whilst it is liquid add sufficient turps to make it into a thin paste when cold; this is to be rubbed freely into the work with flannel rubbers, the superfluous wax removed with a linen rag and allowed to stand for two hours; it can then be polished by rubbing vigorously with a flannel rubber. The height of the polish is regulated by the rubbing; if a dull finish is required rub slightly.

ROUGH CAST.

To the Editor of THE BUILDERS' JOURNAL.

SIR,—Could you, through your "Enquiry Department," inform me of the ingredients of a rough cast, such as one occasionally sees on

old Yorkshire cottages, by which I do not mean a pebble dash, but a really rough plaster surface, finished a cream tint all over? I believe it is made with a coarse gravel, but perhaps you can tell me. Also, would it make a firm and permanent job to plaster it right on to brickwork, or would it be necessary to batten and lath for it, and is it necessary to paint it?—Yours faithfully,

H. M. C.

Such a surface as mentioned could probably be obtained with a plaster formed of two of clean gravel to one of Portland cement, coloured with yellow ochre to taste; a little white copperas added in the mixing will prevent the colour washing out. The coarseness of the surface may be regulated by the mesh of the screen when screening the gravel. Battens are not required; rake the joints well and hack the face of the wall. If the walls are not yet built, run them with lines only, the rough surface will afford a good key. Avoid paint, it is expensive and unsatisfactory; incorporating the colour with the cement is much the better way. Any of the ordinary oxides of lead or iron will do.

GRADIENTS

To the Editor of THE BUILDERS' JOURNAL.

SIR,—Will you please show by workings the method of calculating the gradients of roads and sewers? The lengths and falls being given, as, say, 700ft. length, 9in. fall, what is the gradient? And could you state what is considered the flattest gradient for 9in., 12in., and 15in. sewers respectively?—Yours, &c.

A. R.

To ascertain the gradient reduce the given length to the same denomination as the given fall, and divide the former by the latter, the quotient will give the ratio of fall in 1; for instance:—

$$\frac{700\text{ft.} = 8400\text{in.}}{8400} = \frac{\text{a fall of } 9\text{in.}}{933.3} \text{ in } 8400\text{in.} = 933.3, \text{ or expressed } 1 \text{ in } 933.$$

The flattest gradient for general purposes for sewers of 9in., 12in., and 15in., when running half full bore is, 1 in 90, 1 in 120, and 1 in 150 respectively; but so much depends on circumstances, the nature of the sewage, the regularity of the flow, &c., that the question is hardly capable of a general answer.

Under Discussion.

CHURCH RUINS IN IRELAND.

The Architectural Association of Ireland recently had an excursion to Glendalough. The ruins of the famous churches in connection with the once world-renowned seat of learning, the ancient University of Glendalough, were visited by the party. The so-called "Kevin's Kitchen" and St. Saviour's Church are the best preserved of the ancient glories of the place. The former building is a rectangular chamber of characteristically Irish construction. Its origin and use are still undetermined. Most people nowadays hold to the theories of Dr. Petrie, backed, as they are by the weight of his pre-eminent authority as an archaeologist. But still the older school of antiquaries, who assign to such remains of early Irish Art a much more ancient date, attributing them to Pagan times, has many adherents. One suggestion is that "Kevin's Kitchen," with its round tower-like superstructure, was the fire-chamber of some mysterious religious rites akin to the Buddhist, or pre-Buddhist ceremonies known to have been practised in the East. That the very early history of Ireland had much in common with the East in regard to its extremely early civilisation and Art, appears more apparent day by day. Nevertheless, the dictum of Petrie to-day holds the field as far as the majority of people are concerned. The members dined together in the evening. The president, Mr. J. Howard Pentland, R.H.A., presided.

TENDERS.

Information from accredited sources should be sent to "The Editor." No results of tenders can be accepted unless they contain the name of the Architect or Surveyor for the Work.

ASHTON-IN-MAKERFIELD (Lancs).—For the construction of water supply works, &c., for the Urban District Council. Mr. J. W. Liversedge, waterworks engineer, Bryn-street, Ashton-in-Makerfield:—

Newton Chambers	£1,400 0 0	Merton and Co., on behalf of Wood and Co.	£1,385 8 6
Stanton Iron Works	1,411 0 0	Cochrane & Co., Dudley	1,375 10 9
G. & J. Staveley and Co.	1,406 8 9		* Accepted.
Thompson & Co.	1,404 17 7		

BELFAST (near).—Terrace of five houses:—
Wm. Nimick £2,729
Campbell and Lowry 2,595
Grainger Bros. 2,900
* Accepted.

BOURNEMOUTH.—Accepted for alterations and re-decoration of "Sandykeld," Manor-road, for the Rt. Hon. Lord Vernon. Mr. G. A. Bligh Livesey, architect:—
F. T. Cutler £320

BRAINTREE (Essex).—For the erection of house and two cottages, for Mr. H. Calver. Mr. J. W. Clark, architect, Coggeshall, Essex:—
Silas Parmenter £895 0
J. Smith and Son, Witham £798 10
* Accepted.

BRISTOL.—For extensions to school, Greenbank, for the School Board. Mr. F. Bligh Bond, architect, Alliance-chambers, Corn-street, Bristol:—
Keen and Keen £2,085
J. Hatherley £1,937
W. J. Tanner 1,972
E. Walters 1,920
E. Clark 1,950
W. Church 1,887
* Accepted.

J. Wilkins, Bristol* £42
[Four others tendered.]

BURTON-ON-TRENT.—Accepted for the erection of a rector house, &c., at gasworks, for the Corporation. Mr. F. L. Ramsden, engineer, Town Hall, Burton-on-Trent:—

J. T. Farlow, Burton-on-Trent	£2,395 19 4
Gough and Felgate, Burton-on-Trent	£589 13 6

CARDIFF.—For the erection of business premises, 31 and 32, High-street, for Mr. A. F. Langley. Mr. E. Jenkin Williams, architect, 14, High-street, Cardiff. Quantities by the architect:—

F. Small	£3,651 15 0	W. Thomas & Co.	£2,965 0 0
Newman & James	3,603 6 4	W. Bowers & Co.	2,963 10 0
Mainwaring and Davies	3,370 13 0	C. C. Dunn	2,909 0 0
J. M. Hockridge	3,150 0 0	C. Price and Son	2,899 0 0
D. Thomas & Co.	2,995 0 0	W. H. Ingleson	2,846 0 0
Knox and Wells	2,983 0 0	S. Shepton & Co.	2,840 0 0
Williams	2,969 0 0	E. Turner & Sons	2,668 0 0

CARDIFF.—For alterations to house, &c., at waterworks depot, Trade-street, Penarth-road, for the Corporation. Mr. C. H. Priestley, engineer, Town Hall, Cardiff:—

Williams & Thomas	£299 14 6	W. T. Morgan	£241 13 6
W. H. Ingleson	262 0 0	Cox and Bardo	237 1 4
E. Turner & Sons	251 6 9	C. C. Dunn	205 15 8
G. Griffiths	248 9 8	Blackier Bros., Llan-fair-road, Cardiff	193 12 0

CARDIFF.—Accepted for extensions to school, for the Paisley Landward School Board. Messrs. Kerr and

Watson, architects, Johnstone. Quantities by Mr. J. H. Bradshaw, Glasgow:—

Building.—J. J. Wardrop, Lochwinnoch	£1,138
Joinery.—Adam Kirk, Whiteinch	691
Plumbing.—C. Murdoch and Sons, Johnstone	189
Plastering.—Geo. Thomson & Son, Johnstone	101
Slating.—Geo. Thomson and Son, Johnstone	76
Tile-laying.—Thos. Main, Glasgow	86

CLEATOR (Cumberland).—Accepted for the erection of church room and caretaker's house, for the Rev. G. B. Amos, Cleator Parish Church. Mr. J. Stephenson Stout, architect, Gillford, Egremont:—

Masonry, &c.—Robert Pearson, Jacktress-road, Cleator Moor	£244 12 1
Plastering.—Robert Pearson, Jacktress-road, Cleator Moor	66 11 0
Slating.—Robert Pearson, Jacktress-road, Cleator Moor	115 18 0
Joinery.—John Martindale, Crossfield-road, Cleator Moor	198 3 0
Plumbing.—Jackson Sumpton, Market-place, Cleator Moor	46 10 0
Painting.—J. H. Tyson, Dalzell-street, Moor-row	10 15 0

CORSHAM (Wilts).—Accepted for new parsonage at Corsham Side, for Mr. G. P. Fuller. Mr. Harold Brakspear, architect, Corsham:—
R. Rudman, Chippenham £750

CRAWLEY (Sussex).—For extension of sewers at Crawley for the Horsham Rural District Council. Mr. C. H. Burstow, F.I.A.S., architect and surveyor, Horsham:—
Steer £425
Easton, Crawley* £335
Cook and Sons 345
* Accepted.

CRAWLEY (Sussex).—For shops and houses at Crawley, for Mr. M. Nightingale. Mr. C. H. Burstow, F.I.A.S., architect and surveyor, Horsham:—
Cook and Sons £1,699
J. Ockendon and Sons, Crawley (accepted) £1,659
Steer 1,696

CRAY (Brecon).—For the erection of a chapel for the Calvinistic Methodist. Mr. Rees Llewellyn, architect, Birchgrove House, Llanhamlet:—
Henry Jones £920 8
Thomas and Jones £897 0
William Jones, Cray, Breconshire* 900 0
John Jones 892 15
* Accepted.

DUNMOW (Essex).—For the erection of stables, carriage house, sheds, &c., Roughie, for Mr. O. Barnard. Mr. J. W. Clark, architect, Coggeshall:—
E. West £618 0
J. Smith and Son 544 0
A. W. Warren 500 0
T. A. Goodey, Dun-mow* £488 10
J. Pepper 483 0
* Accepted.

HOLYWOOD (near Belfast).—For erection of a villa, stabling, &c.:—
Wm. Nimick £1,093
Wm. Millar £2890
Campbell and Lowry 1,023
R. Ferris, Holywood* 790
* Accepted.

HOLYWOOD (near Belfast).—Erection of three houses:—
Wm. Neeson £590
Wm. Millar £435
R. Ferris 480
Grainger Bros., Holywood* 410
* Accepted.

HORSHAM.—For house at Eastlands, Billingshurst, for Mrs. M. Moore. Mr. C. H. Burstow, F.I.A.S., architect and surveyor, Horsham:—
Wadey and Sons £2910
G. Marden 798
J. Ockendon and Sons 780

HORWICH (Lancs).—Accepted for the erection of square brick chimney, 45yd. high, for Messrs. A. Mason and Son. Mr. E. W. Dyson, C.E., 17, Lee-lane, Horwich. Quantities by the engineer:—
Fairclough Leonard, Adlington, Lancs £364 2 10
[Six other contractors tendered.]

LONDON.—For alterations to saloon bar, &c., "Albany Arms," Albany-road, S.E., for M. C. Cook:—
Nash £460 0
W. E. Hill 371 10
Simpson and Cove* £239 0
* Accepted.

LONDON.—For pulling down and rebuilding Nos. 17 and 19, Hare-street, Woolwich, for Mr. J. Sackett. Messrs. Church, Quick, and Whinop, architects:—
Proctor £2,397
Ware 2,070
Kitley 1,930
Sandford £1,879
Thomas and Edge* 1,867
* Accepted.

LONDON.—For pulling down and rebuilding Nos. 40, 42, and part of 44, Hare-street, Woolwich, for Mr. J. S. Taylor. Mr. Percy H. Monckton, architect:—
West Bros., Rochester £4,515
Nightingale 4,224
Batey, Son, & Holness 4,045
Jerrard and Son 3,684
J. Greenwood 3,960
H. L. Holloway £3,947
Thomas and Edge 3,900
Harris & Wardrop 3,800
Turtle & Appleton 3,533

LONDON.—For the supply of dynamos and engines at the Northern Hospital, for the Metropolitan Asylums Board:—

	Dynamos and Spare Engines, Armature.
Ernest Scott and Mountain, Ltd.	£1,945
Clarke, Chapman and Co., Ltd.	1,775
Thomas Parker, Ltd.	1,891
Easton, Anderson and Gooldeen	1,651
P. R. Jackson and Co., Ltd.	1,816
India-rubber, Gutta-Percha, and Telegraph Works Co., Ltd., Silvertown, E.	2,145
Crompton and Co., Ltd.	1,955
Mather and Platt, Ltd.	1,785
Siemens Bros. and Co., Ltd.	1,695
Johnson and Phillips	1,890
Electric Construction Co., Ltd.	1,742
J. H. Holmes and Co., Newcastle-on-Tyne	1,877
	1,743
	1,748
	1,780
	2,100
	1,560
	1,640
	1,750
	1,903
	2,307
	2,060
	1,890
	1,740
	2,075
	2,230

* Accepted. Consulting Engineer's revised estimate, £1,900.

LONDON.—For the supply of boilers in connection with electric light installation, at the Northern Hospital, for the Metropolitan Asylums Board:—
Hawley, Wild, & Co., Ltd. £2900
J. Thompson 870
Fraser and Fraser Ltd. 827
Tinkers Ltd. 820
Davey, Paxman, & Co., Ltd. £780
E. Danks and Co. Ltd. £725
R. Taylor and Sons 735

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of 135°.

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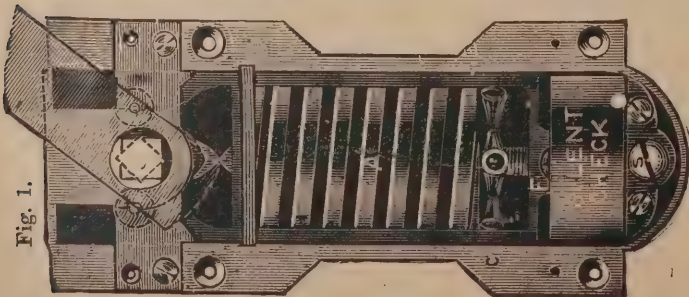


Fig. 1.

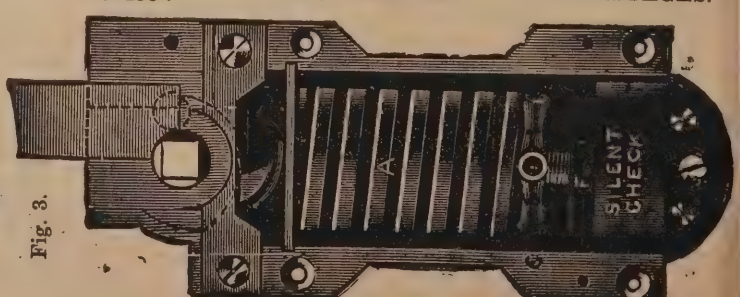


Fig. 3.

LONDON.—For the erection of new head office buildings, Metropolitan Asylums Board. Mr. E. T. Hall, architect:—
E. Nightingale 254,827 John Shillitoe & Son,
Lawrance and Sons 54,127 Bury St. Edmunds* £47,532
die and Co., Ltd. 54,043 Henry Lovatt, Wolver-
Pattinson & Sons 51,243 hampton ... Not priced
ster and Dicksee 48,980 * Accepted.
[Architect's revised estimate, £46,328].
WILMESHAM (Wilts).—For addition of new billiard-
room wing to the Manor House, Burton Hill, for Colonel
Major Hall. Mr. Harold Brakspear, architect, Corsham:—
ter and Sons 9750 R. Rudman, Chippenham* £2937
* Accepted.

MELKSHAM (Wilts).—Accepted for new shop and house
in the High-street, for Mr. W. Collett. Mr. Harold Brak-
spear, architect, Corsham:—
Bigwood and Co. 2700
NEWPORT (Mon.).—For the erection of the Hotel
Wanllwyd, for Mr. J. B. Yendal. Messrs. Swallow and
Cruchton, architects, Newport, Mon.:—
Rodgers and Williams £6,325 J. C. Parfitt 25,500
J. Charles 6,430 D. Lewis, Llanbuloth* 5,500
Lawson and Co. 6,173 D. Jones 5,400
E. C. Jordan 5,880 A. C. Parfitt 5,300
J. G. Thomas 5,765 J. Morgan 5,135
C. H. Reed 5,600 * Accepted.

PLAISTOW (Essex).—For the erection of twenty-nine
houses, Hermit-road, for the West Ham Town Council.
Mr. Lewis Angell, borough engineer, Town Hall, Strat-
ford, E.:—
G. W. Read 217,874 G. Sharpe 215,350
J. G. Horlock 15,890 H. J. Carter 13,991
Balam Bros. 15,550 Morredew and Wort 13,947
PORT TALBOT (Wales).—For the erection of a shop and
premises, Station-road, for Mr. T. B. Bamford. Mr. Frank
B. Smith, architect, Port Talbot:—
Jno. Davies 2698 0 W. Stephens, 2529 19 6
Stephen Rees 662 0 Swansea*
Morgan Cox 595 0 * Accepted.

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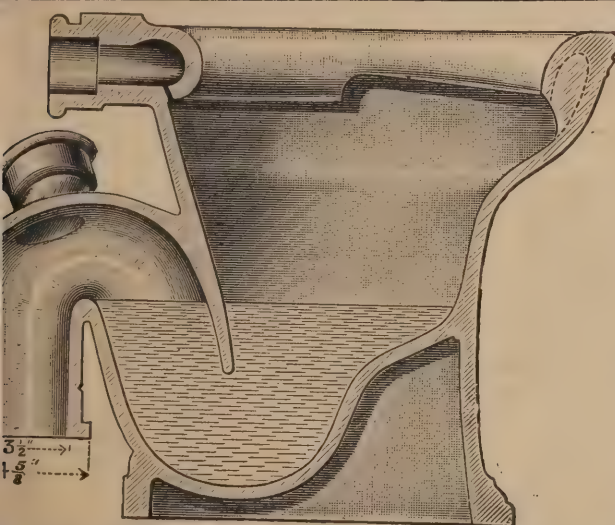
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BROSELEY ROOFING TILES,

"**LIGHTMOOR**" BRAND.

CONTRACTS OPEN.**CIRENCESTER SURFACE WATER DRAINAGE WORKS.**

The Cirencester Urban District Council are prepared to receive TENDERS for the CONSTRUCTION of a system of SURFACE WATER DRAINS in a portion of their district.

The drawings and specification may be seen at my office, where copies of the quantities and forms of Tender can be obtained on payment of £1 ls., returnable if a bona-fide Tender be made.

Sealed Tenders, which must be on the proper form and endorsed "Tender for Surface Water Drainage Works," must be delivered at my office on or before THURSDAY, SEPTEMBER 1st, 1898.

The Council do not bind themselves to accept the lowest or any Tender.

By order of the Council,

Cirencester,
August 10th, 1898.

THOMAS HIBBERT,
Surveyor.

TO ARCHITECTS.

The Council of the Borough of Reigate invites COMPETITIVE DESIGNS for the ERECTION of MUNICIPAL BUILDINGS, FIRE STATION, POLICE OFFICES, &c.

Three premiums are offered, and the conditions of competition, together with a lithographed plan of the site, can be obtained on application to the Borough Surveyor.

All drawings to be addressed to the undersigned, and delivered at my Office, No. 84, Station-road, Redhill, not later than THURSDAY, OCTOBER 6th next.

By order,

CLAIR J. GRECE,
Town Clerk.

**BOROUGH of ROTHERHAM.
SEWERAGE AND SEWAGE DISPOSAL WORKS.**

CONTRACTS Nos. 1 AND 2.

The Corporation of Rotherham is prepared to receive TENDERS from competent persons for the CON-

STRUCTION of SEWERS, OUTFALL WORKS, and other WORK connected therewith.

The drawings may be seen, and copies of the specification, bill of quantities, and form of Tender may be obtained from the Engineer, Mr. R. E. BERRINGTON, Bank-buildings, Wolverhampton, on payment of Five Guineas, which will be returned on receipt of a bona-fide Tender.

The Contractor must not pay less than the standard rate of wages paid in the district, and must observe the proper conditions of labour, and no sub-contracting will be allowed except by permission of the Corporation.

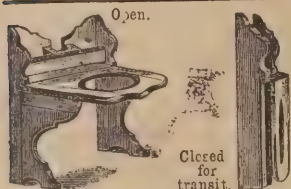
Sealed Tenders, addressed to me, and endorsed "Tender for Sewerage Works, Contract No. 1 or 2," as the case may be, are to be delivered at my Office, Town Hall, Rotherham, at or before NOON on TUESDAY, AUGUST 23rd next.

The Corporation does not bind itself to accept the lowest or any Tender.

H. H. HICKMOTT,

Town Clerk's Office,
Rotherham,
July 12th, 1898.

Town Clerk.



Open.

Closed for transit.

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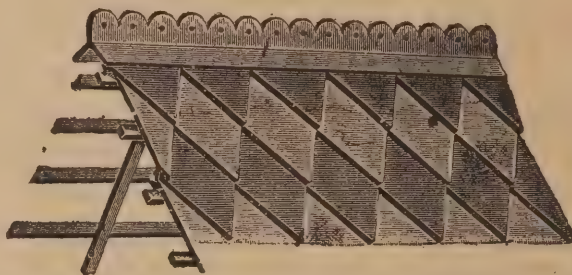
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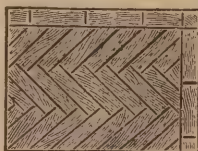
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234.-WASH-OUT.

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PATENTEE AND MANUFACTURER OF THE

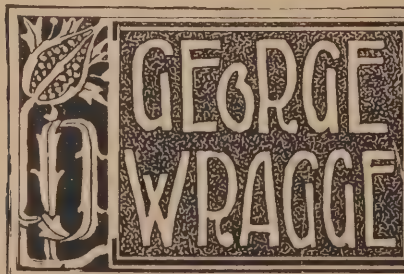
"WASH-OUT" CLOSET

(PATENT).

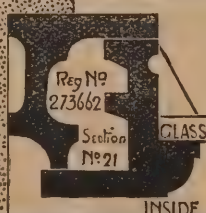
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AUGUST 17TH, 1898.

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See Large Advertisement, Back Page, Monthly.

INTRODUCTION OF NON-FLAMMABLE WOOD INTO EUROPE.

The British Non-Flammable Wood Co. Ltd.

Beg to announce that their Works in London, the first erected in Europe, are now completed, and they are prepared to

Take Orders for the supply of "NON-FLAMMABLE WOOD" in large quantities.

"NON-FLAMMABLE WOOD," as produced by the Company's process, is now in use on the following

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BATTLESHIPS.—"IOWA" and "OREGON." MONITOR.—"MIANOT." CRUISERS.—"BROOKLYN," "CHICAGO,"
GUNBOATS.—"HELENA," "WILMINGTON," "NASHVILLE," "ANNAPOLIS," "WHEELING," "MARIETTA," "NEWPORT," "VICKSBURG."

And is being used for the Battleships "KEARSAGE," "KENTUCKY," "ALABAMA," "WISCONSIN," and "ILLINOIS," now being built.

"NON-FLAMMABLE WOOD" has also been used for all the Carpentry and Joinery Work in the following well-known
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"NON-FLAMMABLE WOOD" has been tested by H.M. Admiralty, and Large Orders have been given to the Company
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Address all applications to the General Manager,

BRITISH NON-FLAMMABLE WOOD CO. Limited,
2, Army and Navy Mansions, Victoria Street, London, S.W.

GAS-WORKS MACHINERY.*

By EDWARD ALFRED HARMAN, C.E.,
Gas Engineer to the Huddersfield Corporation.

(Continued from page ii.)

FUNCTIONS OF STOKING MACHINERY.

HUNDREDS of stoking machines are now giving entire satisfaction in London and the provinces, as well as on the Continent. By the rapidity of charging, the consequent saving of heat in the retort, and the even distribution of the coal inside the retort, an increased volume of gas per ton is obtained. There is also the more important consideration of a reduction in labour and cost of working. With the aid of machinery the coal is broken to a regular size, and is evenly charged throughout the entire length of the retort by the chargers. It therefore follows that a greater quantity of coal can be carbonised per retort than is the case with ordinary hand labour. Very important advantages accrue from the foregoing facts, inasmuch as they not only enable more coal to be carbonised per retort, and a greater volume of gas to be produced (due, as stated, to the even disposition of the coal), but there is also a considerable saving effected in capital expenditure on plant, due to the extra manufacture from a given retort area. This saving goes a long way towards recouping the capital expenditure employed on the machinery. The two principal systems now in use are the West, and the Arrol-Foulis. The machinery designed by Mr. John West, M.Inst.C.E., has now been in successful operation for about a quarter of a century. Mr. West's manual type of charging machine consists of a square upright frame on wheels, travelling on tramlines laid in front of, and parallel to, the retort bench. The machine is propelled by a hand wheel and gearing attached to one side of the machine, and on the opposite side there is another hand wheel and gearing for hoisting and unloading an adjustable coal hopper from one tier of retorts to any other. The adjustable coal hopper on the charging machine receives its supply of coal for a number of retorts from the overhead fixed coal hoppers, and is free to move vertically between the four uprights of the charging machine frame, being guided by them, and suspended by chains. A light frame is suspended from the coal hopper for carrying the charger when it is out of the retort. At the bottom of the hopper, but directly over the charger, is a feeder-box for supplying the charger with coal. The charger consists of a light carriage, running on three wheels, having two semi-circular scoops at the bottom. The scoops are arranged to turn over in opposite directions by the twisting of the long driving rod about half way round in one direction. It will be noticed that this manual charger is designed to charge half the length of the retort at a time, and goes in the retort twice to make a complete charge. A removable platform is used for working the top tiers of retorts. Mr. West's manual drawing machine is similar to the charger. With the manual machinery forty-five retorts can be charged and drawn as regular duty in forty-five minutes, and this without causing the men half as much fatigue as the ordinary hand labour work involves.

COMPRESSED AIR SYSTEM.

The compressed air system is the one now applied to Mr. West's power machines. After something like seventeen years' use of this power, the excellent working results have fully justified its use. Cotton and wire rope driven machines are at work with excellent results. The ropes are overhead, and are driven by a stationary steam or gas engine, fixed at one end of the retort house. These engines for driving stoking machinery are preferably arranged in a house detached altogether from the retort house, as it is most undesirable to have such engines working in dust and dirt, when avoidable. After numerous experiments with gas engines fixed on the machines themselves, it was found un-

desirable to adopt gas power at all, unless the engines were quite separated from the retort house, and it was therefore arranged to drive overhead ropes for the system, or to drive an air compressor for the compressed air system, only when arranged in buildings quite separated from the dust and dirt of the retort house. The air is compressed to the comparatively low pressure of 60lb. per square inch, and conveyed to the required machine by a flexible pipe, with connections and gearing so arranged that little, if any, attention is necessary from the attendant.

POWER MACHINERY.

The time taken for supplying the coal to the charger, and completing the full charge in the retort, averages 30 seconds per retort, or at the rate of say 120 retorts per hour. Taking the time from the commencement of a draw to the completion of the last charge, and bringing the machines back into place ready for the successive draw, these machines work 80 retorts per hour. Indeed this rate has often been exceeded. Before the power machinery was employed, the retorts were charged with $6\frac{1}{2}$ to 7cwt. of coal, which was carbonised in four hours and forty-eight minutes. The power machinery puts in 8cwt. per retort, which is carbonised in the same time as formerly, which equals about 16 per cent. increased weight of coal alone.

POWER CHARGER MACHINE.

The power charging machines are fitted with propelling gear, for travelling up and down the retort house. Each machine has an adjustable coal hopper, which is raised or lowered to suit the various tiers of retorts, by means of gearing worked by the same motor propelling the machine. The hopper is provided with a feeder-box, for regulating the weight of the charge of coal. The charger which enters the retort is carried in a frame suspended below the hopper, and is driven in and withdrawn from the retort by a compressed air cylinder rack and pinion, chain drum and chains. The charger consists of a scoop and carriage, containing the apparatus for emptying the coal out of the scoop and replacing it for a fresh supply. The scoop enters each retort twice for making a complete charge, first turning over in one direction and then in the other, thus throwing the coal towards the right and left-hand sides of the retorts respectively, which ensures the charge depositing evenly over the whole base of the retort.

POWER DRAWING MACHINES.

The drawing machines are fitted with travelling and hoisting gear, for raising and lowering the rake bar frame, carrying the rake bar and head to the several tiers of retorts. They are fitted with compressed air and controlling cylinders, rack and pinion chain drums, for the various operations.

AIR PIPES AND HOSE GEAR.

The air is conveyed from the receivers by iron pipes to the hose drums, fitted to the girders carrying the overhead coal hoppers. There is generally a large hose drum, complete with all fittings, for each of the charging and drawing machines. A long length of flexible hose is attached to each of these drums at one end, and at the other end to the machine supplying it. Each drum is provided with a hollow shaft, through which air is supplied, and by an arrangement of gun-metal swivel joints the air is supplied to the hose on the drums during their revolutions. On each of the hose drum shafts a chain drum is keyed, while a chain attached to this leads over pulleys into the retort house roof, having weights at the other end which rise and fall as the hose is automatically given in and out by the machine as required. The hose leading from the drums to the machines is specially designed for conveying air. It is supported at intervals by suspending brackets and rollers, so that the strain on the hose is very light. The exhausted air assists materially in the ventilation of the retort house.

ARROL-FOULIS POWER MACHINERY.

The Arrol-Foulis hydraulic stoking machinery has many points of interest, requiring similar coal breaking, conveying and elevating plant

as the machinery already described. The charging machine obtains its supply from the overhead coal hopper. A small quantity of coal is dropped in front of the pusher plate, which is then propelled into the retort, the coal being delivered by about half-a-dozen propulsions, beginning from the furthest end of the retort, and receding to the mouth. The apparatus for this work consists of a horizontal slide beam, on which are placed two hydraulic rams, one for the forward movement to the pusher plate, and the other for withdrawing it. Alongside the forward or pushing ram is a turning shaft carrying a series of stoppers, which come into operation as the shaft is revolved, bringing the pusher plate to a stand in the successive positions of its stroke. The coal-feeding gear consists of an open drum divided into segmental compartments revolving underneath the coal hopper, and put in motion at regular intervals by means of a hydraulic ram and rack. The action of the drawing machine is so similar to that of the charger that it need not be described. The working pressure usually adopted for this hydraulic machinery is about 400lb. per square inch.

DEPRECIATION OF MACHINERY.

It is sometimes considered that the depreciation of gas-works machinery is necessarily much greater than in other engineering establishments. With proper care and attention this, however, should not be the case. Every wearable part of any of the machines has to be renewed from time to time to keep it in working order, so that, although the wear and tear are greater, the machine itself remains in as fair a condition as machinery elsewhere. As an illustration of this it may be remarked that the author has worked exhaustors of the Jones type, which consisted of two rollers of a figure 8 section, which were fifty years old, for many years with considerable success and equality of vacuum.

LOCOMOTIVES.

The quantity of dust upon a gas-works, especially upon the sidings, and in and about the retort-houses, is every great. The type of locomotive is therefore a consideration. Mr. S. Geoghegan's patent shunting locomotive engine is peculiarly adapted for these conditions for narrow-gauge railways. The working parts of the engine are boxed up on the top of the boiler, and are therefore clear of the liability to be cut by coke dust and grit, as is so often the case when the working parts are under the boiler.

CONCLUSION.

The author considers the foregoing remarks will prove conclusively that rule-of-thumb methods as far as gas-works machinery is concerned are being rapidly superseded by mathematical calculation and design, which to all engineers must be a matter of satisfaction.

A new bridge over the river Derwent, constructed at a cost of over £7000, was opened last week by Mr. Victor Cavendish, M.P., in the unavoidable absence of the Duke of Devonshire.

THE Bristol Town Council has adopted a recommendation of the Docks Committee in favour of going to Parliament for powers to construct a new lock and other works at Portishead Dock, so as to provide accommodation for the largest classes of steamers afloat or building. The estimated outlay is £350,000. An amendment to the effect that the "dockisation" of the River Avon was the best scheme was defeated.

Two propositions are under consideration by the North British Railway for the improvement of their line at Glasgow—the doubling of the tunnel and the reducing of the gradient or the construction of a new branch from the main line round by Sighthill. The latter proposal would mean the carrying on of all the traffic underground, with the necessity of lowering the level of the main station. A start will be made in November with the erection of the Station Hotel on the site of the present hotel and the erection of new offices, &c.

* A paper read before the Society of Engineers, on June 6th, 1898.

Surveying and Sanitary Notes.

THE troubles of turbid water that were so prevalent in the Mid-Sussex district a short time since appear to have passed away. The work of placing valves in the low-lying parts of the mains of the Cuckfield District Council's waterworks, between Balcombe and Cuckfield, disturbed an accumulation of sediment that had been gathering for the past few years, but now that the valves are in working order, the mains clear, and the filter bed at the works so laid down, the water supplied by the Council has been clear and of the best quality.

THE Hackney Vestry moves in a mysterious way. It requires the services of a consulting engineer in connection with its electric lighting scheme. Instead of engaging in a straightforward way the services of a competent man and entrusting the work to him, this vestry is virtually put the job up to auction, and, by a printed circular distributed to a number of eminent engineers, has announced its intention to reserve "the power to carry out the work contained in" the engineer's report either with or without the assistance of the engineer submitting the same." Confronted by such palpable evidence that the vestry is unwilling to place entire confidence in its engineer, even after it has engaged him out of a number of presumable candidates, the eminent engineers approached will probably decline the vestry's invitation to enter the lists as competitors for its patronage. Indeed, in the case, at any rate, such a reply has already been sent.

MR. TROUTBECK and a special jury at Westminster recently heard the case of "Artis v. Her Majesty's Office of Works," a claim for compensation in respect of the freehold interest in premises No. 8, Delahay Street, Westminster. Mr. Cripps, Q.C., M.P., and Mr. A. J. Jam appeared for the claimant; the Attorney-General (Sir Richard Webster, Q.C., M.P.), and Mr. Danckwerts represented the Office of Works.—Mr. Daniel Watney, past president of the Surveyors' Institution, estimated the premises as worth £250 a year on repairing lease, and said that twenty-four years' purchase represented their value, £6000, to which he added ten per cent. for forced sale, £600, making a total of £6600.—Mr. Henry Arthur Hunt and Mr. Robert Griggs also gave evidence for the claimant.—On behalf of the Crown the first witness was Mr. Robert Vigers, president of the Surveyors' Institution, who expressed his opinion that the gross rental of the premises would be about £242, and the net rental £182, which he capitalised at twenty years' purchase, £3640, and, adding ten per cent. for compulsory sale, his total valuation amounted to £4004.—Mr. James Green, Mr. V. E. Horne, and Mr. A. L. Ryde also gave evidence.—The jury awarded the claimant £5000, including the customary allowance of ten per cent. for compulsory sale.

IN the Court of Appeal, before the Master of the Rolls and Lords Justices Chitty and Collins, judgment was given in the case of the Southwark and Vauxhall Water Company v. the Wandsworth District Board of Works. The defendants in this action appealed from the order made by Mr. Justice Kekewich on the 8th of last month on interlocutory motion, whereby he restrained them till the trial or further order from lowering the footways of streets, in their district, under which pipes or mains of the plaintiffs were laid without lowering the pipes or mains to a depth that would protect them. The District Board proposed to lower a footway along one side of West Hill Road, Wimbledon, the object being to level it for the convenience of the public, and the work was carried out on June 16th. This action was brought on June 20th, and Mr. Justice Kekewich granted an interim injunction restraining the defendants from lowering the footway without also lowering

the plaintiff's pipes under it, so as not to expose them to greater danger from frost or otherwise than they were in before. It was agreed on the appeal to treat the motion as the trial of the action.—The order appealed from was discharged, and judgment entered for the defendants with costs.

AT the Middlesex Guildhall, Westminster, recently, Mr. Troutbeck and a special jury heard the case of "Roberts v. The London County Council," a claim for about £33,000 as compensation in respect of the freehold interest in the premises Nos. 268, 270, and 271, Strand, which have been acquired by the London County Council for the purposes of the Strand improvement. The premises Nos. 270 and 271 are in the occupation of Mr. Nutt, at £650 a year, on lease for twenty-one years from 1888; while No. 268 is at present vacant, the front being let as an advertising station at £130 a year. It appeared that Mr. Nutt had to expend about £1000 a year on the premises as one of the conditions of the lease, and it was submitted on behalf of the claimant that the present rental value of the premises 270-271, Strand, is £900 a year. Sir J. Whittaker Ellis valued the property Nos. 270 and 271 for the term of the lease at £6500, and in reversion (deferred twelve years on the 3 per cent. table) at £15,700; and No. 268 at £310 a year (on the 5 per cent. table), £7750; a total of £29,950, to which he added 10 per cent. for compulsory sale, making £32,945, to which one year's rent of No. 268 had to be added as a solatium for the interference with the letting of the property subsequent to the date of the notice to treat.—On behalf of the London County Council the rental in the lease of Nos. 270-271 was stated to be full, and the reversionary rental as not more than £700, while the rental of No. 268 was estimated at £200. From this there was a deduction for repairs, and the total valuations averaged £21,600.—The jury awarded the claimant the sum of £25,850, plus one year's rent of No. 268, making a total of £26,100.

AT the City of London Court, before Mr. Commissioner Kerr, the case of Ockerby v. Legg was heard. Mr. Horace Ockerby, 114, Queen Victoria Street, sought to recover the sum of £15 18s. 8d., rent due from the defendant, Mr. I. J. Legg, 63, Station Road, Camberwell.—The defendant said he did not dispute that the rent was owing, but he raised a counterclaim for money which he had had to expend in doing repairs to the drains of the house. The drains, he said, at the adjoining premises were defective. The plaintiff was the landlord of both houses. The drains next door were a long time being repaired, and when they were finished it was found that one of the pipes running under a wall dividing the premises was defective. The sanitary inspector called, and inquired who was the owner, and he told him. Then the sanitary inspector served notice on the landlord requiring him to do the repairs. The plaintiff sent him a note saying that he was responsible for the work, but he did not accept that position. One foolish thing he did was to tell his own builder to put one of the pipes right, considering the time the neighbours were inconvenienced. When the drains were opened up it was discovered that they were laid beneath the wall of the house, and that was condemned by the sanitary inspector. The relaying of the drains came to £15 18s. 8d., and that sum he now asked the landlord to pay.—The learned Commissioner said the question was, was the landlord bound to make good the cost?—The plaintiff's solicitor said the lease would put the defendant out of court. The repairs were done to the defendant's own drains and by his own builder. There was also a covenant to repair the drains on the part of the tenant.—The defendant said his view was that the work did not consist of repairs.—His Honour said that there must be judgment for the plaintiff on the claim, but the counterclaim would be excluded. The defendant could then bring an action for damages on the ground raised, if so advised.

Builders' Notes.

PREPARATIONS are now being made to demolish the almshouses in West Derby Road, Liverpool. The land, when cleared, is to form a site for a spacious People's Hall. It is interesting to note in this connection that West Derby Road is a very old thoroughfare, having been in existence, under the name of Rakes Lane, so far back as 1768.

THE work of reconstructing Highgate Archway, which is estimated to cost £25,000, is progressing. When completed, the new bridge will have a width of 40ft. between the parapets, 24ft. going to the roadway, and the other 16ft. divided between two footways. This will be a great improvement on the old viaduct, and there will be a clear way beneath it, the bridge having a span of 120ft. The old supports of the viaduct were a great obstruction to traffic.

IT is to be a steel and cast-iron bridge, with concrete, brick, and Portland stone abutments, and so far as possible the old structure is being built into the new. The parapets are to be composed of cast-iron standards, with ornamental iron grilles, surmounted by revolving chevaux-de-frise, so that in future those who are tired of the world either in Hornsey or Islington will find it impracticable to get out of it by climbing over either parapet. The viaduct now giving way to a more modern and commodious piece of engineering was authorised by Act of Parliament in 1810. In order to carry out this and to run a tunnel through Highgate Hill, a company was formed with about £100,000 capital. The tunnel, however, fell in, and the promoters of the scheme gave it up in despair, and resolved to make an open cutting.

AS a result of negotiations, the dispute in the plastering trades at Bolton is at an end. On the 18th June the men struck work for an advance from 9d. to 10d. per hour, and a reduction of working hours from 52 to 49½. The question was then referred to the Lancashire and Cheshire Building Trades Federation. Conferences have been held, and the result of the last conference is that amended rules have been signed, and the men have now returned to work. A concession is made in the hours in favour of the men, who are also granted the advance of 1d. per hour, making the rate 10d. The men on the other hand concede one apprentice to each four men as against a maximum of two, whatever the number of men employed. The rules stand until the first Saturday in July next year.

IT is proposed to construct a new road from Colston Avenue to Stokes Croft, Bristol. The object is to give a direct, wide, and easy thoroughfare from the city to Stokes Croft, relieving the present narrow and circuitous route of a good deal of the through traffic, including the tramways. The new road would commence with a junction with Rupert Street near Christmas Street, passing in front of Lewin's Mead chapel, and pursuing a direct course between the Infirmary and St. James's Church, and north of Messrs. Derham's factory, to the bottom of Stokes Croft. The length would be 633yds., a saving of 100yds. in distance, while the width would be 50ft., and the gradient would be about 1 in 60 throughout, against 1 in 15 in the St. James's churchyard. The scheme would undoubtedly provide a much better entrance to the city from the northern district, and provide valuable sites for shops, warehouses, dwellings, &c.; and it is claimed that while a clearance would be effected of a considerable number of small houses in closely packed districts, no important building would be touched.

A NEW bridge over the Harlem at New York, which has cost over £600,000, was formally opened last month.

THE Salford Corporation has applied to the Local Government Board for power to borrow £33,000 for purposes of electric lighting and £2200 for sanitary works.

PARIS ABATTOIRS.*

By R. STEPHEN AYLING, A.R.I.B.A.

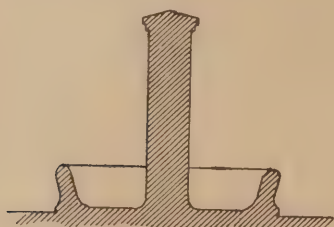
(Continued from page lii., Vol. vii.)

CONTINUING with the buildings placed between the markets and canal, F¹ (Fig. 1) is used as a stable, coach-house, and pound for animals unclaimed by the owners at the end of the market hours. The animals are seldom kept here for any length of time, as a fine is imposed on the owner and a charge made for lodging and food.

Three large buildings running parallel with the canal are grouped round central courts, with two drinking troughs in each. G¹ (Fig. 1) is for stabling calves, H¹ and J¹ for beasts, I¹ for pigs, and K¹ for sheep. The buildings are two stories in height, the upper one being used as forage and litter stores.

Another large "Bouverie" (stable for beasts) is placed at the end of this block (L¹ Fig. 1), with an open court and drinking troughs.

The open yard M¹ is for manure.

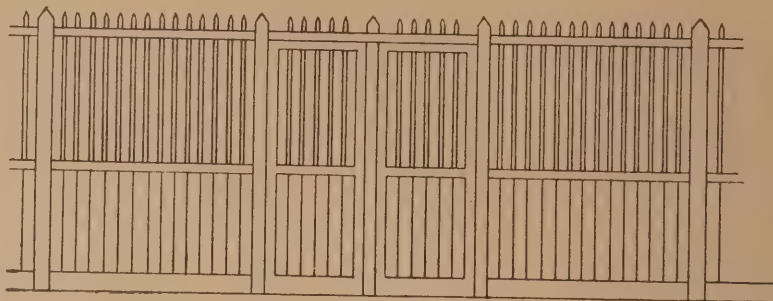
SECTION OF DRINKING TROUGH
FIG. 17

A long range of low buildings is placed adjoining the boundary wall of the Canal du Depotoir, and comprise office and weighing machine (O¹) and at N¹ stables, coach-houses, stores, w.c.'s, and private "Bergeries." These latter are each about 21ft. by 18ft.

The foregoing complete the buildings on the southern side of the canal, and are practically all devoted to the sale and part stabling of the live animals.

The Canal de l'Ourocq, with towing paths on either side, is spanned by two bridges (P¹ Fig. 1) with stairs for foot passengers at Q¹,

* This series deals with the construction of the Cattle Markets and Abattoirs of La Villette and La Rive Gauche, Paris.

DIVISIONS OF BERGERIES
FIG. 18

and eight sloping roads (R¹) for animals and carts passing from the markets to the slaughter-houses.

The four small buildings, S¹, are offices and stores.

The "Grand Sanatorium" at T¹ (Fig. 1) consists of an immense wooden structure in which are stabled the sheep arriving from Germany.

At the entrance is a small enclosure (U¹) for the Veterinary Inspector, who examines each animal as it passes through the barriers. They are kept in the sanatorium for some days previous to being killed, and are inspected twice a week during that time.

An open court divides this building from V¹, in which are stables for foreign cattle, and also a Lazaret.

The "Usine Frigorifique" at W¹ is a comparatively new and well designed building in stone with tiled roofs. It is here that the meat is frozen for consumption by the Army, and is the only Government building on the site. Permission to enter can only be obtained from the Minister of War, and this I was unable to get during my visits. The freezing process, is, I believe, a secret one, and the entrance is guarded by a sentry who was even doubtful about allowing me to take sufficient measurements to indicate the position of the building on plan.

The "Usine Electrique," for supplying electric light over the whole site, is at X¹ (Fig. 1). This is also a new building, and is exceedingly good in design.

The "Triperie" is at Y¹ (Fig. 1), and it is in this building that intestines are finally cleansed and rendered fit for food. There are also a number of boilers and machines for preparing calves' feet, &c.

The tripe and intestines generally are first washed in the large glass-covered court at Z¹, where there are two long stone troughs for this purpose.

The small buildings A A, B B, C C (Fig. 1), are used for various purposes in connection with the preparation of tripe, sheeps' heads, calves' feet, &c. D D is a stable and coach-house.

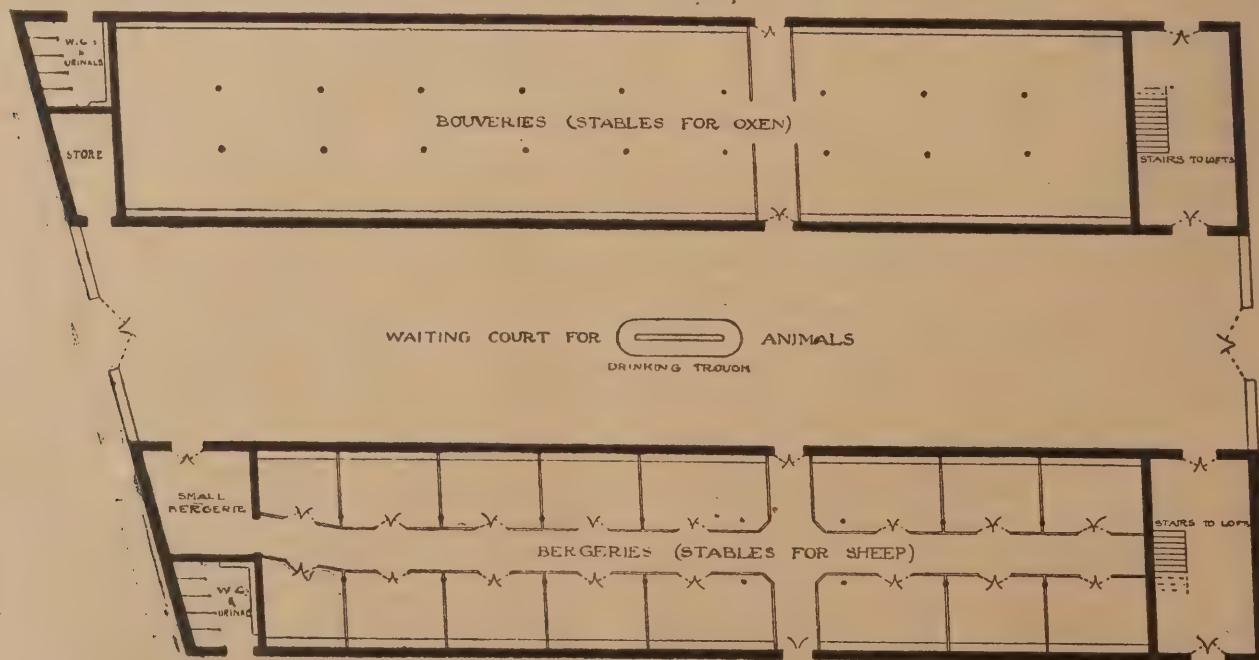
We now come to the large group of buildings for stabling and killing the animals, and for dressing the carcasses.

These buildings are divided by a wide central roadway (Avenue du Centre) and by two roads of less width (Avenues du Nord and du Sud), whilst the blocks of stables are separated from the slaughter-houses by transverse roads.

Fig. 15 (F F on block plan) shows the plan in detail of one range of cattle stables, and, whilst (as will be seen on plan) they all vary in size, it may be taken as typical of the general arrangements.

Between the "Bouveries" and "Bergeries" is a large courtyard 30ft. wide, and covered by an iron and glass roof (Fig. 16), and has a double drinking trough in the centre. It is in this court that the animals are kept just previously to being killed, and they are taken direct from here to the slaughter-house. At the extreme ends of the court are folding wooden gates. On the southern side are the "Bouveries" (stable for beasts), 33ft. wide, and on the northern side are the "Bergeries" (stable for sheep), of equal width.

Feeding troughs are placed along the outside walls as shown. Cast-iron columns support girders carrying the fireproof floor between the stables and lofts over. These latter are

PLAN
FIG. 15

approached by staircases at the ends of each block. The stables are paved in cement, and the courtyard in granite blocks.

In the "Bouveries" iron rings are fixed in the walls, at a distance of 3ft. apart, to which the animals are tethered. The partitions for dividing the pens in the "Bergeries" are of wood, matchboarded below and with square balusters above, as shown on Fig. 18.

The stables both for beasts and sheep are lighted and ventilated by windows, the eills of which are about 9ft. from the ground (see Fig. 16). The elevations generally are similar to those of the "Echaudoirs" described and illustrated later on, with the exception that the lofts are provided with dormers for receiving forage and litter, and the positions of doors vary as shown on the plans.

(To be continued.)

A RELIC, which appears to possess authentic claims to great historical interest, has just been acquired by the Musée Carnavalet in Paris. It consists of a portrait, in neutral tint on porcelain, of Robespierre, and there is every reason to believe that the incorruptible hero of the Revolution considered it his most faithful presentment. At any rate, according to Dr. Suberbielle, to whom he gave the picture, it used to adorn the modest bedchamber occu-



FIG. 16. INTERIOR OF WAITING COURT.

pied by Robespierre in the house of the Duplays, out of the Rue St. Honoré. Before his death Dr. Suberbielle handed over the treasured plaque to the famous artist, David d'Angers, who recorded the fact in a duly signed inscription on the back of the frame. M. Robert David d'Angers, the representative of the sculptor's family, has presented this heirloom to M. Georges Cain, the director of the museum, in order that it may be preserved to posterity.

Trade and Craft.

MESSRS. YOUNG AND MARTEN.

The employees of Messrs. Young and Marten, of Caledonian Works, Stratford, E., had their annual outing a few days ago. For the great majority, Margate was the rendezvous, and the excursionists had the hearty good wishes of the principals, who were represented by Messrs. Frank and Ernest Marten; and the personal support and co-operation of the very popular general manager, Mr. E. Montague Edwards. The annual outing is but one of many social functions held in connection with the works during the year, and the spirit of good fellowship fostered by these social re-unions must inevitably conduce to the excellent results of the firm's operations. At Margate, the staff had dinner at the Terrace Hotel. Mr. Edwards (the chairman) proposed "Prosperity to the Firm." In a sense, he said, every individual present formed part of the firm, as without the continued harmonious working of each, its advancement could not be assured, and it needed their entire co-operation. He remarked: It has been stated the firm is becoming too large for one or two individuals to direct, but personally I am convinced that with the administrative powers of the heads

head of all matters, Mr. H. Holdich Marten, who is very ably represented at your boards by Mr. Frank and Mr. Ernest Marten.—"The health of Mr. H. H. Marten and family and of the firm" was very cordially honoured. Mr. Frank Marten replied.—Mr. R. Letby proposed the Chairman's health, remarking how very highly Mr. Edwards was respected by every man assembled, from the highest to the lowest, and mentioned how, if any were in a difficulty, he was the first to enter into it and assist them out. He not only carried his sympathies into business life, but into their little pleasures and social matters.—The toast was drunk amid loud cheering.—In responding, Mr. Edwards said: I thank you sincerely for the kind way you have acknowledged and received the toast of my health. I came here specially to be at your banquet. I fear this may be the last occasion I may be privileged to preside in the sense I am now doing. The administration of your funds must of necessity be slightly altered. I am glad you have caught the spirit of these remarks, and feel this will assist the matter, and shall have the opportunity of putting this before you in detail and in a more lucid manner for consideration at a later date. You will not lose your outing; that must be a thing in perpetuity. As years come and years go we shall expect to meet you. I trust that I may be spared in health and strength to be with you to preside over your annual gathering, year by year, so that you will understand I am in no sense desirous of dispensing with these very enjoyable occasions. I thank you sincerely one and all for the kind manner in which you have received this.—Mr. Swainson proposed the health of "The Visitors."—Mr. Ernest Rayner replied on behalf of the visitors.—A few remarks from Mr. H. J. Dyer, in which the health of Mr. David Owens (honorary secretary) and Mr. A. Milne (assistant secretary) was proposed, brought the proceedings to a termination.

PARQUET FLOORING.

The handsome parquet flooring in the upper hall of the Walker Art Gallery, Liverpool, which, as we announced in a recent issue, has just undergone renovation after twenty-one years' service, is Arrowsmith's well-known solid inch thick material. The floor was laid by Messrs. A. J. Arrowsmith and Co., of 80, New Bond Street, W., in March, 1877, and now that the various woods—oak, sycamore, walnut, and ebony—have been revived and polished, the effect, we are informed, equals new work.

A PLAN for converting the unsightly mud foreshore at Southend into a sand parade has been submitted for approval. The proposal is to fill in the space—which is at present useless for sea or land purposes—to above high-water mark, so as to be available at all times of the tide. It is stated there are no engineering difficulties to overcome, and little more than unskilled labour would be necessary, so that the cost would be small for making one of the finest seaside promenades in the kingdom.

COMPLETE LIST OF CONTRACTS OPEN.

DATE OF DELIVERY.	WORK TO BE EXECUTED.	FOR WHOM.	FROM WHOM FORMS OF TENDER MAY BE OBTAINED.
BUILDINGS—			
Aug. 20	Aberberg—School	School Board	Swash and Bain, Midland Bank-chambers, Newport.
" 20	Charleville—School		J. O'Regan, Bunmona, Charleville.
" 20	Leominster—Cottage Hospital	Trustees	J. B. Dowling, 5, Corn-square, Leominster.
" 20	Mansfield—Schools	School Board	Vallance and Westwick, White Hart-chambers, Mansfield.
" 20	St. Anne's-on-Sea—Church		J. Taylor, 52, Church-road, St. Anne's.
" 20	Stowmarket—Warehouse Additions	Thurlow and Sons	H. G. Bishop, Cheapside, Stowmarket.
" 20	Winchester—School	School Board	Cancellor and Hill, 12, Jewry-street, Winchester.
" 20	Llantwit Major—School Additions		E. J. Williams, 14, High-street, Cardiff.
" 20	Haberton—Farmhouse		Bourne and Son, Totnes.
" 20	Durham—Alterations to Chapel		W. Fenwick, Wheatley Hill, Durham.
" 22	Oxford—Cottage and Farm Buildings	Corporation	W. H. White, Town Hall, Oxford.
" 23	Grangemouth—Houses	Co-operative Bldg. & Investment Soc.	G. D. Page, Old Glebe-chambers, Falkirk.
" 23	Blackburn—Homes	Guardians	Stones and Gradwell, Richmond-terrace, Blackburn.
" 23	Ilford—Latrine	Urban District Council	H. Shaw, 7, Cranbrook-road, Ilford.
" 23	Walthamstow—Public Baths	Urban District Council	Spalding and Cross, 15, Queen-street, Cheapside.
" 25	Aberdeen—Byres, Stables, &c.	Corporation	J. Annand, Kildrummy.
" 25	Sunderland—Technical College	S. Crosbie	Town Clerk, Sunderland.
" 25	Bangor—Houses	Corporation	Young and Mackenzie, Donegal-square East, Belfast.
" 25	Darwen—Iron and Steel Buildings	Corporation	Borough Engineer, Darwen.

COMPLETE LIST OF CONTRACTS OPEN—continued.

DATE OF DELIVERY.	WORK TO BE EXECUTED.	FOR WHOM.	FROM WHOM FORMS OF TENDER MAY BE OBTAINED.
BUILDINGS—Continued.			
Aug. 26	Mortlake—Postmen's Offices ...	Commissioners H.M. Works ...	Offices, Storey's-gate, S.W.
" 26	Morley—Brickwork and Masonry ...	Sewerage Purification Committee ...	W. E. Putman, Borough Engineer, Morley.
" 29	Sheffield—Destructor Buildings ...	Health Committee ...	C. F. Wike, Town Hall, Sheffield.
" 30	Lee, S.E.—Sorting Office ...	Commissioners H.M. Works ...	Offices, Storey's-gate, S.W.
" 31	Birmingham—Covered Way ...	Workhouse Guardians ...	W. H. Ward, Paradise-street, Birmingham.
" 31	Consett—Institute Buildings ...	Technical Institute Committee ...	C. E. Oliver, Consett Iron Co.'s Office, Blackhill, Durham.
" 31	Llanarmon—Alterations to Chapel ...	City Borough ...	N. Lloyd, Bwlchgwyn Quarries, Wrexham.
Sept. 1	West Ham—Museum ...	West Riding Asylums Committee ...	Gibson and Russell, 11, Gray's Inn-square, W.C.
" 1	Burley-in-Warfield—Retreat ...	Corporation ...	County Surveyor, County Hall, Wakefield.
" 8	Birmingham—Aqueduct ...	School Board ...	J. Mansergh, 5, Victoria-street, S.W.
" 19	Swansea—Board School ...	Urban District Council ...	G. E. T. Laurence, 181, Queen Victoria-street, E.C.
No date.	Malden and Coombe—Public Buildings ...	Holy Rood School Managers ...	T. V. H. Davison, New Malden, Surrey.
"	Swindon—Schools and Hall ...	Gillingham Urban District Council ...	Silcock and Reay Octagon-chambers, Milsom-st., Bath.
"	New Brompton—Additions to Institute ...		F. Smith, High-street, New Brompton.
"	Leeds—Schools ...		W. C. Hall, Park-row, Leeds.
"	Aberfeldy—Hotel ...		D. Cameron, Inverness.
"	Brentwood—Warehouse Additions ...	Cramphorn & Co. Limited ...	A. T. G. Woods, Brentwood.
"	Crossan—Manse ...		A. Boyd & Co., Castle-buildings, Lisburn.
"	Dartmouth—Rebuilding Coal Store ...		J. Tall, Dartmouth Gas Company.
"	East Ham—Public Library ...		S. Trevall, Palace-chambers, 9, Bridge-st., Westminster, S.W.
"	Eldwick—House and Shop ...		J. Judson and Moore, Keighley.
"	Farby—Farm Buildings ...	S. Broadbent ...	E. Tineson, Sutton Grange, Masham.
"	Grange-over-Sands—Shop Premises ...		J. Hutton, Kendal.
"	Horsforth—Seven Cottages ...	A. Stone ...	M. Walker, Albert Mount, Broadgate-lane, Horsforth.
"	Hunslet—Fourteen Houses ...	Carpet Manufacturing Co. ...	W. M. Coghill, Beach Grove, Stourton.
"	Kidderminster—Additions to Wharf ...	W. and A. M. Greaves ...	J. M. Gething, Oxford-chambers, Kidderminster.
"	Leeds—Two Villas ...		A. E. Kirk, 13, Bond-street, Leeds.
"	London, S.E.—Houses ...		"T. B., 41, St. Margaret's-road, Brockley, S.E.
"	Scalby—Four Houses ...		Hall, Cooper, and Davies, Scarborough.
"	Stockfield—House and Shop ...	Miss Robson ...	T. L. Anderson, Newcastle.
"	Stratford-on-Avon—Laboratory, &c., at Grammar School ...	Governors ...	T. T. Allen, 2, Broad-street, Stratford-on-Avon.
"	Lincoln—Three Houses ...		W. Mortimer and Son, Lincoln.
"	Thornaby-on-Tees—House ...		J. M. Bottomley, 96, Albert-road, Middlesborough.
"	Hindley—Chapel ...		W. Waddington and Son, 17, St. Anne's-square, Manchester.
"	Manchester—Additions to Owen's College ...		A. Waterhouse and Son, 20, New Cavendish-street, W.
"	Epping—Additions to Hospital ...	Rural District Council ...	E. Egan, Holmdale, Loughton.
ENGINEERING—			
Aug. 24	Woking—Sludge Pressing Machinery ...	Urban District Council ...	J. Taylor and Son, 27, Great George-street, Westminster.
" 26	Haworth—Converting Tank ...	Urban District Council ...	Manager, Gasworks, Haworth.
" 26	Morley—Steel Girder Bridge ...	Sewage Purification Committee ...	W. E. Putman, Borough Engineer, Morley.
" 29	Wimbleton—Pipe-work ...	Urban District Council ...	A. H. Preece, 39, Victoria-street, Westminster.
Sept. 1	Burton-upon-Trent—Retort Setting ...	Corporation ...	F. L. Ramsden, Gas Works, Burton-upon-Trent.
" 1	London, E.C.—Refrigerating Plants ...	Transvaalsche Koelkamers Beperkt ...	National Bank of South African Republic, 73, Cornhill, E.C.
" 5	Littleover—Reservoir ...	Corporation ...	Borough Surveyor, Babbington-lane, Derby.
" 8	Swansea—Dock Works ...	Harbour Trustees ...	A. C. Schenk, Harbour Offices, Swansea.
No date.	Baku, Russia—Water Supply ...	Municipal Delegation ...	Mayor of Baku, Caucasus, Russia.
"	Radford—Sinking Shaft ...		Wollaton Colliery Company Limited, near Nottingham.
IRON AND STEEL—			
Aug. 22	Glasgow—Rails, &c. ...	Corporation ...	J. Young, 88, Renfield-street, Glasgow.
" 24	Halifax—Tramway Rails, &c. ...	Committee ...	E. R. S. Escott, Town Hall, Halifax.
" 26	Nelson—Pipes, &c. ...	Water Committee ...	J. Hartley, Town Hall, Nelson.
" 26	Morley—Pipes ...	Sewage Purification Committee ...	W. E. Putman, Borough Engineer, Morley.
" 27	Nelson—Wrought-iron Fencing ...	Corporation ...	B. Ball, Borough Engineer, Nelson.
" 30	London, E.C.—Girder Work ...		Managing Director, His Highness the Nizam's Guaranteed State Railways Company Limited, Winchester House, E.C.
ROADS—			
Aug. 20	Consett—Kerbing, &c. ...	Urban District Council ...	W. S. Shell, Consett.
" 20	Rugby—Street Making ...	Rural District Council ...	T. W. Willard, Council Surveyor, Rugby.
" 20	Tonbridge—Supply Quartzite ...	Urban District Council ...	A. H. Neve, 83, High-street, Tonbridge.
" 20	Southborough—Paving, &c. ...	Urban District Council ...	W. Harmer, 137, London-road, Southborough.
" 22	Litherland—Flagging ...	Urban District Council ...	W. B. Garton, 25, Setton-road, Litherland.
" 22	Teddington—Road Works ...	Urban District Council ...	M. Hainsworth, Elmfield House, Teddington.
" 22	Whitley—Road Works ...	Urban District Council ...	Council Offices, Whitley.
" 22	Stevenage—Supply of Granite ...	Urban District Council ...	W. C. Times, Council Offices, Stevenage.
" 23	Carshalton—Widening Street ...	Urban District Council ...	W. W. Gale, Carshalton.
" 23	Carshalton—Supply of Granite ...	Urban District Council ...	W. W. Gale, Carshalton.
" 23	Goole—Wood Paving ...	Urban District Council ...	Surveyor, Council Offices, Goole.
" 23	Turton—Street Works ...	Urban District Council ...	V. W. Laithwaite, Bromley Cross, near Bolton.
" 23	Hale—Street Works ...	Rural District Council ...	J. M. McKenzie, 7, Market-street, Altrincham.
" 23	Milton-next-Sittingbourne—Materials ...	Urban District Council ...	A. B. Acworth, Town Hall, Sittingbourne.
" 23	Tynemouth—Paving ...	Corporation ...	J. F. Smellie, Borough Surveyor, Tynemouth.
" 25	Tunbridge—Kerb ...	Urban District Council ...	W. C. Cripps, Town Clerk, Tunbridge.
" 26	Wilmslow—Street Works ...	Urban District Council ...	Council Offices, Wilmslow.
" 28	Cleator Moor—Asphalting ...	Urban District Council ...	R. Robertson, Surveyor, Cleator Moor.
" 31	New Malden—Materials ...	Urban District Council ...	T. V. H. Davison, Glebe Side, New Malden.
Sept. 3	Norwich—Street Works ...	Corporation ...	A. E. Collins, Guildhall, Norwich.
No date.	Maple Hayes—Drive Works ...		A. C. Worthington, Auchmore House, Killin, N.B.
SANITARY—			
Aug. 22	Oxford—Sewage Farm Extension ...	Corporation ...	City Engineer, Town Hall, Oxford.
" 22	Wilmslow—Sewers, &c. ...	Urban District Council ...	J. Bowden, 14, Ridgefield, Manchester.
" 23	Rotherham—Sewers, &c. ...	Corporation ...	R. E. W. Berrington, Bank-buildings, Wolverhampton.
" 24	Shoreditch—Pipe Sewer ...	Vestry ...	J. R. Dixon, Town Hall, Old-street, E.C.
" 24	Carlisle—Sewer Pipe, &c. ...	Rural District Council ...	Clerks' Office, 25, Lowther-street, Carlisle.
" 30	Barnet—Sewers ...	Urban District Council ...	W. H. Mansbridge, 40, High-street, Barnet.
Sept. 1	Cirencester—Surface Water Drains ...	Urban District Council ...	
PAINTING AND PLUMBING—			
Aug. 20	Burnley—Painting Town Hall ...		Borough Surveyor, Burnley.
" 22	Morley—Painting ...	Waterworks Committee ...	W. E. Putman, Town Hall, Morley.
" 29	Stafford—Painting at Cemetery ...	Corporation ...	W. Blackshaw, Borough Surveyor, Stafford.
No date.	Leeds—Painting Villas ...		G. Hutton, 72, Albion-street, Leeds.

COMPETITIONS.

DATE DESIGNS TO BE SENT IN.	DESIGNS REQUIRED.	AMOUNT OF PREMIUM.	BY WHOM ADVERTISED.
Aug. 25	London, N.W.—Baths ...	£50 ...	St. Pancras Vestry.
" 31	Glasgow—City Improvements ...	£100, £50, £25 ...	Glasgow Corporation.
" 31	Glasgow—City Improvements between King-street, City, and the New Wynd.	£100, £50, £25 ...	J. D. Marwick, Town Clerk, City-chambers, Glasgow.
Sept. 31	Stockholm—City Railway Stations and Junctions ...	£656, £438, £219 ...	Consulate General, 27, Great Winchester-street, E.C.
Sept. 24	Plymouth—Shops, &c. ...	£250 ...	Plymouth Town Council.
" 29	Wivenhoe—Water Supply and Drainage Schemes ...	£250 ...	Wivenhoe Urban District Council.
Oct. 3	Liverpool—New Buildings for Royal Institution ...	£52 10s., £21 ...	Harold Waterhouse, Hon. Sec., 3, Cook-street, Liverpool.
" 3	Godalming—Football Stand (150 seats—£150 limit) ...	£3 3s. ...	Secretary, Recreation Club, Godalming.
" 3	Leamington—Free Library and Technical Institute ...	£105 (merged), £52 10s. ...	H. Consett Passman, Town Clerk, Leamington.
" 3	Rotherham—Extension Baptist Schoolroom (£600 limit) ...	£250 ...	A. Crowcroft, Clifton-crescent, South Rotherham.
No date.	Plymouth—Tavistock-street Buildings (no Assessor) ...	£250 ...	J. H. Ellis, Town Clerk, Plymouth.

Property and Land Sales.

LIST OF AUCTION SALES.

MESSRS. DOUGLAS YOUNG and CO.'S AUCTION ARRANGEMENTS for 1898 include **PROPERTY SALES** at the **MART, E.C.**, on the following dates throughout the ensuing year:—
 Wednesday, Sept. 7. Wednesday, Nov. 16.
 Wednesday, Sept. 21. Wednesday, Nov. 30.
 Wednesday, Oct. 5. Wednesday, Dec. 7.
 Wednesday Oct. 19. Wednesday, Dec. 14.
 And important **LAND SALES** on the following dates:—

1. **BEMBRIDGE**, Isle of Wight.—Tuesday, Sept. 20.
 2. **ILFORD** (on the Park Estate).—Thursday, Sept. 22.
 3. **HAROLD WOOD**, Essex.—Wednesday, Sept. 21.
 4. **BRIGHTON** (Queen's Park Estate).—Wednesday, Sept. 21.
 5. **ILFORD** (Lorford Hall Estate).—Wednesday, Sept. 21.
 6. **BEXHILL-ON-SEA**.—Early in October.
 7. **HIGHGATE** (Priory Estate).—Early in October.
- Further particulars may be obtained of the **AUCTIONEERS**, 51, Coleman-street, E.C.

ALE, at the **Mart, E.C.**, on Wednesday, September 7th.

LEWISHAM, WANDSWORTH, and ILFORD.
EWISHAM.—By order of the Mortgagees.—Leasehold Ground Rents, amounting to £85 10s. per annum, secured upon and arising out of Five Substantial Residences, a range of Stabling, and Four Parcels of Building Land, situate in Slaitwaite-road, Lingards-road, and Morley-road. Solicitors, Messrs. Thorne and Welsford, Solicitors, 17, Gracechurch-street, E.C.; John Annan and Edward Dexter, Joint Managers United Realisation Company, 32, Old Jewry, E.C.

WANDSWORTH.—By order of Trustees.—A Pair of attractive, semi-detached Freehold Residences, known as Gilmerston and Denmead, Nos. 111 and 113, The Grove, St. Ann's-hill, having an important frontage of 88ft. and depth of 181ft. Let at low rentals of £40 and £55 per annum. Solicitors, Messrs. Bramall, White, and Sanders, 23, Leadenhall-street, E.C.

ILFORD.—Freehold Ground Rents, amounting to £72 per annum, amply secured upon 19 capital houses, Nos. 44-58, 51-53, and 55-65, Ley-street, with reversion to rack rentals amounting to £543 per annum. Solicitors, Messrs. J. N. Mason and Co., 32, Gresham-street, E.C.

MESSRS. DOUGLAS YOUNG and CO. will **SELL** the above by **AUCTION**, at the **MART, E.C.**, on **WEDNESDAY, SEPTEMBER 7th**, at **10** precisely.
 Particulars and conditions of sale may be obtained at the **MART, E.C.**; of the respective **SOLICITORS**; or of the **AUCTIONEERS**, 51, Coleman-street, E.C., 213, Clapton-road, S.W., and Ilford, E.

IMPORTANT SALE on **TUESDAY, Sept. 20th, 1898**, of the House and Land Investment Trust (Limited). In Liquidation.—One of the Balfour Group of Companies.

BEMBRIDGE, ISLE OF WIGHT.
 Wealthy Capitalists, Syndicates, Land Speculators, and others.

Celebrated for its equable climate and unrivalled land and marine views, situated between Ryde and Sandown, on the coast line of the world-renowned yachting waters of the Solent, and possessing a harbour with good quay accommodations and sheltered anchorage. The Isle of Wight Railway Company has a station here, and has recently acquired large areas of land for extension of the line.
 The important Freehold Properties known respectively as the Bembridge Lodge Estate and Brading Harbour Estate, comprising 38 acres of building land ripe for development, twenty-six choice building sites, and two detached residences known as Garcock and Glenhurst, in Bembridge-road; 520 acres Agricultural and Pastoral Land, including the Home Farm, with farmhouse, homestead, and two cottages; the Ladies' Golf Links, having an area of nearly 42 acres, and several parcels of allotment land and pasture; also as a going concern, the Bembridge Brickfield, with Scotch kiln and brickmaking plant.

MESSRS. DOUGLAS YOUNG and CO. will **SELL** the above **ESTATE**, in lots, by **AUCTION**, in a **Marquee** on the estate, on **TUESDAY, SEPTEMBER 20th**, at **TWO** precisely (after the noon).

Full particulars, plans, and conditions of sale may be obtained of Messrs. **BAXTER, SPREAR, and JOHNSTON**, Solicitors, 32, Old Jewry, E.C.; of Messrs. **WELLS, ADDISON, BROWN, and JONES**, Solicitors, 2, Old-court, Walbrook; of **JOHN ANNAN and EDWARD DEXTER**, Joint Managers, United Realisation Company, Old Jewry, E.C.; at the principal hotels in the neighbourhood; or of the **AUCTIONEERS**, 51, Coleman-street, E.C., and at Clapham, S.W., and Ilford, E.

Westgate-on-Sea, proverbially one of the healthiest towns on the English coast, 1½ hours' journey from London.—Valuable sites in choice positions, suitable for the erection of marine residences.

MESSRS. ROGERS, CHAPMAN, and THOMAS (in conjunction with Mr. E. Temple) will **SELL** by **AUCTION**, at the Station Hotel, Westgate-on-Sea, on **WEDNESDAY, AUGUST 31st, 1898**, at **2 P.M.** precisely, in lots, several **PLOTS** of **LAND**, commanding sea views, and others suitable for the erection of detached and semi-detached residences of all character; also a few shop plots. Favourable opportunities are offered to gentlemen desirous of doing to their own tastes in a select seaside resort, an excellent bathing, pure water, good train service, sheltered gardens, and public promenades. Arrangements can be made for payment by instalments.—Plans, particulars, and conditions of sale of Messrs. **FARRER & CO.**, Solicitors, 66, Lincoln's Inn-fields, W.C.; of **E. Temple**, Estate Office, Westgate-on-Sea; and of **AUCTIONEERS**, 50, Belgrave-road, South Belgravia, W.8; Gloucester-road, South Kensington.

Sale, September 6th.
LEWES, Sussex.—To Builders, Land Companies, Speculators, and others.—A very eligible **FREEHOLD BUILDING ESTATE**, ripe for immediate development, comprising the remaining portion of the Wolands Park Estate, occupying a choice position, immediately adjoining the notably healthy country town of Lewes, comprising an area of about 30 acres, divided into lots varying from quarter to 14 acres, affording charming sites for medium-sized residences, similar to those already erected upon the estate, whilst the western portion is more particularly adapted for the erection of cottages, both of which are in great demand. Also Freehold Rent Charges, amounting to £36 8s. 6d. per annum, well secured upon properties already erected upon the estate, Freehold Ground Rent of £1, and tithe apportioned at £4 16s. 2d. per annum.

MESSRS. BEAN, BURNETT, and ELDRIDGE will **SELL** the above by **AUCTION**, by direction of the Trustees of William E. Baxter, Esq., deceased, at the **WHITE HART HOTEL, LEWES**, on **TUESDAY, SEPTEMBER 6th, 1898**, in 23 Lots.
 Particulars and plans may be obtained at the place of sale; of **REGINALD T. BAXTER, Esq., Solicitor**, No. 9, Albion-street, Lewes; or of the **AUCTIONEERS**, 14, Nicholas-lane, London, E.C.

By order of the Mortgagees.
BEDFORDSHIRE.—The Cockayne Hatley Estate.—An important Freehold Manorial Residential and Sporting Estate, situate five miles from Sandy on the G.N.R., whence London is reached in about an hour, two miles from Potton and Gamlingay Stations on the L. and N.W. Ry., also six miles from Biggleswade and fourteen from Cambridge.

It comprises an exceedingly picturesque old-fashioned mansion-house, approached through a well-timbered park by a long carriage-drive, with lodge entrance, and contains all the accommodation required by a family of position. There are excellent stables, gardens, grounds, and kitchen gardens.
 The estate extends to an area 1527 acres, and includes a large portion of the village of Cockayne Hatley, Wrestlingworth, farmhouses, cottages, buildings, &c. It lies in a ring fence, and forms a most compact sporting estate, the woods of 120 acres being well situated for the preservation of game, and the farm lands are excellent pasture ground, the whole producing about £1200 per annum. Also the Manor of Cockayne Hatley and an undivided third of the Manor of Wrestlingworth, and the Advowson of the Rectory of Cockayne Hatley, subject to the life of the present incumbent.

MESSRS. HUMBERT and FLINT have received instructions to **SELL** the above by **AUCTION**, at the **MART, Tokenhouse-yard, E.C.**, during the month of September.

Particulars and conditions of sale (when ready) may be obtained from Messrs. **R. S. TAYLOR, SON, and HUMBERT**, Solicitors, 4, Field-court, Gray's-inn, W.C.; and from the **AUCTIONEERS**, 11, Serle-street, Lincoln's-inn, W.C., and Watford, Herts.

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WILLIAM HUNT, Donington House, Norfolk-street, Strand.

TO CONTRACTORS, BUILDERS, WHARFINGERS, and OTHERS.
BY ORDER OF THE KENSINGTON VESTRY.
NOTICE OF SALE BY TENDER OF FREEHOLD and LEASEHOLD WHARF PROPERTY, Queen's-road, Hammersmith.

The Vestry of the Parish of St. Mary Abbott's, Kensington, in the Administrative County of London, hereby give Notice that they are prepared to accept **TENDERS** for the **PURCHASE**, in separate lots, of their valuable **FREEHOLD and LEASEHOLD RIVERSIDE WHARVES**, in Queen's-road, Hammersmith.

The Leasehold Wharf is held by the Vestry direct from the Freeholder for a term of 99 years, from JUNE 24th, 1864 (leaving about 65 years unexpired), at an annual rental of £120.

Full possession will be given on completion of the purchase.

Forms and conditions of Tender, with plan, can be obtained at the Offices of the Vestry Clerk, or of the Surveyor, Town Hall, Kensington High-street.

Tenders must be delivered in a sealed cover at the Vestry Clerk's Office, on or before **FOUR P.M.** on **SEPTEMBER 9th, 1898**, endorsed "Wharf Tender," and signed by the party tendering.

Town Hall, **WM. CHAMBERS LEETE**, Vestry Clerk.
 Kensington High-street, W.
 July 18th, 1898.

SANITARY INSPECTORS' EXAMINATIONS.—An Associate of the Sanitary Institute thoroughly **PREPARES CANDIDATES** for the above Exams. by correspondence; no books are required.—For particulars and testimonials apply, "Certified Coach," 31, Herbert-road, Plumstead, S.E.

R. I. B. A. EXAMS. PREPARATION, personally or by correspondence, in three, six, nine, or twelve months' courses. Architectural Lending Library. Special three months' finishing courses.—For full particulars apply to Mr. **W. CHURCH HOWGATE, A.R.I.B.A.**, Perchard House, 70, Gower-street, W.C. (close to the British Museum).

COMMISSION open to Gentlemen already calling upon Architects.—**J. W.**, 12, Red Rock-street, Liverpool.

PARTNERSHIP.—Young **ARCHITECT** good London training, **DESIRES WORKING PARTNERSHIP** in established firm. Is an able designer and draughtsman, with good practical experience.—Address, **ARCHITECT**, care of **J. R. Farrar, Esq., Solicitor**, Halifax.

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COSTING CLERK REQUIRED, accustomed to Builder's or Engineer's office. Must be quick at figures. One with a knowledge of architectural drawing preferred.—Address, stating age, qualifications, and salary, with copies of testimonials, to Box 996, BUILDERS' JOURNAL Office.

BUILDING SURVEYOR WANTED, having a knowledge of land surveying. Permanency.—Address, **SAMUEL ROBERTSON**, Contractor, Bristol.

ARCHITECT'S ASSISTANT WANTED at once. Good general knowledge. Quick and reliable.—Address, **J. Wigg, Architect**, Berridge-street, Leicester.

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CLERK OF WORKS WANTED.

The Guardians of the above Union require **AT ONCE** the **SERVICES** of a competent **CLERK OF WORKS** to supervise the carrying out of the above Drainage Scheme.

It is essential that Candidates should have had considerable experience in drainage work.

Salary £4 per week, guaranteed for three months.

Applications, stating age, qualifications, &c., together with copies of three recent testimonials, must reach me not later than **TEN a.m.** on **SATURDAY**, the 20th inst.

WILLIAM MORGAN, Clerk.
 Union Offices, Stafford,
 August 15th, 1898.

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YOUNG ARCHITECT, A.R.I.B.A., **DESIRES TO ASSIST** others in the **PREPARATION OF DRAWINGS** at his own office.

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YOUNG MAN WANTS SITUATION; take charge of engine, boiler, planer, and sawbench; town preferred.—"C. J. L.", care of Wallis, Hairdresser, Wallington, Surrey.

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IRELAND: ROBERT KIRK, Green Street, Belfast.
BARROW-IN-FURNESS: EDWARD BOWDEN, Imperial Hotel.
WHITEHAVEN: J. WHITTLE & SON.



An Architectural Causerie.

The Architectural Draughtsman. In a well-known handbook of English domestic Architecture there is a series of illustrations of country cottages and inns, drawn with such tedious monotony of treatment as to make one wonder whether the idea of individuality in a building had ever occurred to the artist's mind. We

of houses in a park, or the blank dreariness of East London "mean streets," and the sordid mysticism of the Ghetto. There seems nothing to correspond with this delineative power in the treatment of Architecture in modern black-and-white. Leaving out the one or two really capable artists whose work appears from time to time in architectural journals, the average illustrator either produces a feeble imitation of Mr. Herbert Railton's style, or lapses into a hasty rough-draft of elevations and sites. What is chiefly lacking is an intelligent interest in the buildings themselves; that knowledge "of the fact behind the appearance," on which is based the only impressionism proper to Art. Just as a great portrait painter can make an entirely plain face eloquent upon canvas—just as Millet reveals a living personality in the bowed figure of a peasant, whose features are scarcely seen—so an artist with the true architectural feeling can make the most commonplace building show distinctive character beneath his touch, breathing the very

—a feeling for the individual qualities of structures and substances, over and above the merely literal transcription of their form. The masters of modern black and white have learned in other fields of study to express character in a single line; to put humour, pathos, and satire into the roughest thumb-nail sketch of the society beauty or the man in the street. Might not a little of this skill be turned in the direction of Architecture? Who will say that there is no humour in the shops and houses of an English country town, and still more in its monuments and churches—in Mediæval and Renaissance carvings, made when imagination peopled the air with gnomes and fairies, devils and saints, who frown or grin at us out of the old grotesque gargoyles and pinnacles? And apart from these fantastic relics, the very body of a house may almost laugh or weep. Who does not know ghostly houses—furnish and populate them to the utmost, and they will look empty still; pale skeletons, which no decking or garnishing



AROUND WARWICK WITH THE ARCHITECTURAL ASSOCIATION. KNOWLE CHURCH.

know with what infinite variety of touch a good writer will draw in words his picture of a village or a dwelling in a town, revealing in a few keen phrases the character of trim suburban terraces, the hospitable seclusion

spirit of the country and the soil, and even of the people that built and inhabit it. And how rich our own land is in material for treatment of this kind!—we will not call it idealisation, but rather a finer kind of realism

will ever make alive? Each highway has its empty houses, too; bare stranded hulks that haunt the memory; "haunted" themselves probably by nothing worse than bad drainage and an unlucky site; but "done

up" and repainted vainly so often that it seems as if the shell had shrivelled under the brush. Again, the dominant features of a building vary immensely at different seasons and hours. There is at Hampstead a "phantom window," which, when lit up at night from within, appears in certain aspects to have "no visible means of support"; to gleam, as it were, out of the sky, with no house behind or beneath it. Dormer windows set at great distance from the lower stories will often wear this remote and isolated look, especially in hilly landscapes on a dark evening, when perspective plays strange tricks with the sight. These rare and fascinating aspects of Architecture are left—and perhaps rightly—to the painter of pictures; but the office-trained draughtsman, wholly ignorant of Art, does not scruple to dabble in pictorial trimmings to his professional work. A few stock clouds, three birds, and a milk-cart, are the usual accessories to somebody's new house at Shingleton, or an elm and a choir-boy to somebody else's proposed church at Holbury. These regulation properties are seldom exceeded: he would be a bold man who should seek to emphasise the beauties of "The Nest," or "The Haven," by a rainbow and a thunder shower. It is not our contention that the architect should be discouraged from making his plans and elevations into a picture, if he so pleases: on the contrary, no true account of any building, old or new, can be given in a bare and literal transcript of its form. But there should be a clear distinction made between a professional statement in line, drawn up for the use of those concerned with the practical and technical side of the case, and a picture intended to give a general representation of the building to the public eye. The draughtsman who attempts this should know the habits and moods both of old and new buildings as well as the society satirist knows expression and costume. He should be able to recognise the signs of age in Architecture, such as the droop of an ancient roof, like the slope of an old man's shoulders. He must see more than the prosaic noonday aspect of his subject, but he must be consistent in the setting which he chooses to carry out. He should no more "pose" his building in an affected and antiquated fashion than he would have his own portrait taken beside the cardboard balcony of twenty years ago, with the conventional album and potted fern. The surrounding landscape must be accurate in its features. The draughtsman who has nothing but new buildings to deal with is apt to lack the sense of proportion and balance in his work. Historic feeling is unattainable by him who knows only one generation of builders, and has not at some time steeped himself in the aspirations of the past. Unfortunately, however, not only the architectural draughtsman in the Profession itself, but even the average black-and-white illustrator, is densely ignorant of architectural styles, and might at any time lapse into Byzantine ornament in a sketch of Durham Cathedral, or try to transfer the exquisite Flemish grace of Ely or Boston to the rugged fanes of the north and west. It is surely not too much to ask from him some elementary knowledge of Gothic principles, and of what combinations actually occur on English ground. To go still further, and to demand that he shall intelligently know towns as Thackeray knew them, would doubtless be to put the draughtsman into closer touch with literature and history than he is usually found. The suggestion throws us back upon the need of broader and more versatile culture in the artist himself; breaking down the artificial and mischievous barriers that have arisen between different branches of Art, and bringing the professional and the æsthetic sides of Architecture into right relations with each other.

E. W.

THE PRESERVATION OF OLD LONDON.

FROM time to time London learns through the Press of the impending destruction of some memorial of its past. Sometimes it is a spot sung of poets, such as the Tabard in Southwark; sometimes a relic of a bygone phase of life—an Inn of Chancery, an old pleasure garden; sometimes a specimen of the work of a great architect. Occasionally public feeling is aroused, strenuous efforts are made, and the threatened blow is averted or delayed. The contest over the Trinity Almshouses at Mile End, and its successful issue, are fresh in the public mind. Staple Inn, put up for sale as a building estate, was a few years since rescued by the generous intervention of the Prudential Assurance Company. Parliament refused

TO RUIN THE CHARTERHOUSE.

But too often the news comes too late to admit of intervention, and in some cases intervention is impossible. Lady Dacre's Hospital at Westminster, the quiet beauty of which is said to have inspired Fred Walker's "Heaven of Rest," and the old Palace of Bromley-by-Bow, one of the few remaining Elizabethan houses of London, have both disappeared during the present decade. These fragments of antiquity were of a more or less public character; buildings in private hands are in still greater danger. The "Old Bell," in Holborn, with its pit and gallery, has been demolished within the last twelve months. Sir Joshua Reynolds' house in Leicester Fields is threatened. And Hampstead, the suburb which, rich in associations, in natural beauty, and in

QUAINT VILLAGE-LIKE NOOKS AND CORNERS, most resolutely resists absorption in the metropolis, sees one of its characteristic features, Church Row, invaded by the modern pile of flats. Some of these changes cannot be prevented. But a little consideration and careful planning may sometimes save the charm of a building without interfering with its money-making capacities. Everything has its value in a complex community like London, and there is a certain market price for quaintness and antiquity, perhaps for architectural beauty. Thus, even where purely private interests are concerned, something may now and again be done to avert needless destruction; where public bodies can be appealed to, there is better hope. But at present there is a serious preliminary difficulty in the absence of definite and easily accessible

INFORMATION RESPECTING OLD LONDON,

and of any machinery for insuring timely warning of a threatened danger. It is satisfactory to learn, says the Times, that an attempt has lately been made to meet this want. As might have been expected, the society which the late Mr. William Morris organised for the protection of ancient buildings is the home of the movement. Some three years ago a committee in connection with this society was formed for the purpose of compiling a register of all objects of an historic or æsthetic nature within an area bounded on the south by the Thames, and extending northwards and eastwards twenty miles from Aldgate. Buildings are, of course, the primary care of the committee, but it extends its survey to any interesting relic—an open space, a beautiful tree, "any interesting piece of handicraft, if it be but a sign-board or wrought-iron gate." The methods of the committee are exact and business-like. The position of the building or other object, its owners and occupiers and condition of repair, a careful description of its character and date, notes as to its history, and a reference to any books which treat of it, are all entered in a schedule. These particulars are illustrated by sketches, photographs, and measured drawings, which are arranged in albums according to parishes. The fulness with which the committee performs its task may be estimated from the fact that, while some two hundred places have been the subject of examination and report, no fewer than a thousand drawings, photographs, and

sketches have been made. It is obvious that, if the work is completed on the same scale, it will eventually, as the committee states, form "a unique collection of what Greater London at the close of the present century still retained of historic interest or beauty." The fact that the late Lord Leighton was president of the committee, and that such names as Mr. Walter Crane, Mr. Philip Norman, Mr. Hamo Thornycroft, Mr. Humphry Ward, and Sir Walter Besant appear on the list of its supporters is a guarantee of the thoroughness of the work. Its chairman and organiser is Mr. C. R. Ashbee. It is the design of the committee—which possesses a long name but prefers to be called the "watch committee"—to publish not only the register, in suitable parts, but separate

MONOGRAPHS ON PLACES OF ESPECIAL INTEREST.

One of these has already seen the light. Its subject was the Trinity Hospital, Mile End. And here the practical as well as the literary value of the committee's work is well seen. For it was owing to information obtained by the Watch Committee in the course of its work that attention was drawn to the proposal of the Elder Brethren of the Trinity House to sell the hospital and remove its inmates—a proposal eventually negated by the Charity Commissioners upon the opposition of many societies. Again, the State Room in the old Palace of Bromley-by-Bow (the subject of another monograph) was, at the instance of the Committee, moved to South Kensington; and an attempt to pull down Bow Church for the widening of the thoroughfare was foiled through an appeal to the London County Council. But the most remarkable outcome of the committee's work has still to be mentioned. In December last it induced the London County Council to call together representatives of the several societies interested in Old London. At a committee of the Council it was decided to be desirable that a "register or list be made of buildings of historic or architectural interest in London," and that a permanent committee, to consist of members of the Council and of outside bodies, be constituted for the purpose. The work of the Watch Committee was, moreover, adopted as the foundation for the official register, portions of which will in due course be published. Further, by an Act of this Session, the Council has obtained power

TO PRESERVE OLD LONDON,

either by the purchase (by agreement) of buildings and places of historical or architectural interest, or by entering into arrangements for the maintenance and management of such buildings and places. As the Council is itself constantly engaged in carrying out, or authorising, schemes which involve serious changes, it is something to know that the importance of preserving, so far as possible, what is interesting or beautiful will not be lost sight of in such operations. But, apart from this, it is a notable step in advance to have secured the recognition by a powerful executive body of considerations which have often been condemned as merely sentimental. Throughout most of the countries of Europe there are authoritative registers of antiquities, and commissions charged with the duty of fostering respect for, and interest in, these legacies of time. The only similar attempt in this country is embodied in Sir John Lubbock's Act for the Protection of Ancient Monuments, but its scope is singularly narrow, embracing only monuments of the megalithic order. It is to be hoped that the many societies interested in such questions (with the powerful aid, now secured, of the London County Council) may be instrumental in extending the protection of organised public sentiment to a much larger class of interesting remains; and there cannot be a more fitting centre in which to begin such work than the ancient and historic capital of the Empire.

A NEW Wesleyan chapel is about to be built at Hindle, near Wigan, from plans by Messrs. William Waddington and Son, of St. Ann's Square, Manchester.

On Tour with the A.A.

IN AND AROUND STRATFORD-ON-AVON.

(By a Special Correspondent.)

(Continued from page 20.)

STRATFORD-ON-AVON, with its many places of historic interest, is the next town to be visited, space allowing mention of the church alone.

This building stands on the banks of the Avon, and the whole forms a picture of much beauty. It is dedicated to the Holy Trinity, and consists of a nave, with aisles, transepts, chancel, central tower, and north porch. The walls of the tower, the north aisle, transepts, and nave, are of the commencement of the thirteenth century, but owing to the many alterations made, these have lost many of their original characteristics. The south aisle was erected about 1332 by John de Stratford, who, at this time, made many alterations here, and Thomas Balshall, warden of the college, took down the old chancel and raised the present choir between 1465 and 1490. The porch is later, having been added at the latter part of the fifteenth century, and the present stone spire takes the place of a timber one taken down in 1764 owing to decay. The tower has crocketed pinnacles at the angles, and is lighted on each side by a circular window filled with tracery. The nave has a good panelled oak roof, and six decorated arches divide it from the aisles. The clerestory, pulled down at the end of the fifteenth century, was also decorated. This has been replaced by the present one, consisting of twelve large windows, each of three lights.

The north aisle is lighted by four three-light windows. This aisle was originally narrower, but was enlarged at the time the south aisle was built. At the east end was originally a chapel dedicated to the Holy

Virgin. This site is now occupied by monuments. The south aisle is also lighted by four three-light windows, each differing as to its details. In 1332 the aisle was rebuilt by John de Stratford. A chapel at the east end, dedicated to St. Thomas à Becket, was founded by him, though of this not much remains. At the east end are several monuments, and in the south wall the remains of a triple sedilia are to be seen.

Mention must be made of the north porch, which was added at end of fifteenth century, and this is battlemented and supported by buttresses, having crocketed pinnacles. The upper story contains a room, and is lighted by a three-light perpendicular window between two canopied niches. Over the arched doorway at the west end are three canopied niches, which at one time evidently held the figures of saints.

Solihull was the next town visited. This is a small picturesque town lying between Knowle and Birmingham. As in most villages in this county, good examples of half-timber work are to be found, so Solihull is no exception to this fact, and in the main street two excellent specimens may be seen.

The church is built in red sandstone, and has a nave with aisles, central tower with spire, north and south transepts, and a very good chancel. The spire, which is about 213ft. high, was rebuilt in 1757, the original having been blown down. The tower is a fourteenth-century one. Entrance to the church is gained by a north porch, and a doorway at the west end. There is no clerestory, resulting in the nave arches being lofty. At the east end of the south aisle is a stone reredos divided into fourteen niches, being intended for figures of the Virgin, the patron saint, and twelve apostles. The remains of a wooden reredos and piscina are in the north aisle, which forms St. Anthony's Chapel. On the north side of the church is a chapel of two stories, the top portion being used as a vestry.

The chancel has many features of interest, and is of Decorative period. On the south side, the two-light windows are unique, the

peculiar cusping being especially noticeable. The east window of five lights is also good. A plain sedilia, having three seats at different levels, and a piscina having a crocketed canopy, occupy a portion of the south side, the entrances to which are side by side—one leading to the lower chamber, the other to the vestry. The lower chamber is divided into two bays, and is lighted by four narrow lancet windows. The upper chamber was originally most likely a chantry chapel founded in 1301. It was formerly lighted by six windows, of similar design to those in the chancel, two of these, now blocked up, formerly opened into the chancel.

The pulpit is Jacobean. Here, as in many other cases, some good oak furniture is to be seen.

Hampton-in-Arden.—The church consists of a chancel, battlemented nave and tower, and aisles, and is also built in the red sandstone. Formerly there was a spire, but this in 1603 was struck by lightning. The chancel is twelfth century; nave and aisles, thirteenth; the clerestory having been added in the fifteenth century, when the tower was also built. On the south wall is a trefoiled piscina, and adjoining this is a recess for an altar. There is an interesting stone seat here, which extends along this south wall nearly to the door. This form of seating was used before pews were introduced. On the south side of the chancel, a piscina and stone sedilia will be noticed on the south side of the chancel. In this wall is a heart shrine—i.e., a shrine where the heart of a deceased person has been interred, this having been a common practice. It consists of an Early English arch, supported by dwarf shafts enclosing a trefoiled arch, inside of which is an angel bearing a shield, with the arms of the Erdington family.

Close to the church is an old half-timbered house, with porch, round which traces of a moat may be seen. This was formerly the manor house of Ardens.

Among other places Bedford Church was visited. It consists of a chancel, nave, and aisles, and a very unique tower. This is



MR. WALTER CRANE.

battlemented. The base slopes to a considerable height, and at one corner is a projecting stair turret, lighted by small windows. This finishes with a battlemented parapet, which rises above the tower. The chancel is Early English, and contains a monument to Dorothy Skipworth, 1655. Close to the altar is a piscina, which has been restored extensively. A large church iron-bound chest is one of the most interesting objects here.

Besides the places mentioned above, Baddesley Clinton, Ram Hall (near Hampton), The Priory, St. Mary's, and the Castle at Warwick, Honington Hall and Darlingscote, Stratford-on-Avon, and Kenilworth Castle were visited, but of these we have not space to give details.

Castle Bromwich.—This fine old home, built in red brickwork with stone dressings, was built during the latter part of the sixteenth century. On approaching it the first thing noticed is the porch. This is built in white and red stone, and projects 10ft. from the house; it consists of a brassen pediment supported on Corinthian columns, the two inner ones being twisted—two figures above represent Peace and Plenty. Running round the top of the house is a good balustrade, on which are four ornamental vases. This porch was added in 1672 by Sir John Bridgeman. On either are projecting wings. In the garden front are twelve large windows with stone mullions signifying the twelve Apostles, and four gables—the four Evangelists. Internally, there is some excellent oak panelling, and some of the door-heads are well worthy of notice, as is also the heavily moulded dining-room ceiling. A walk round the gardens, where the hollyhocks mingle with the roses and carnations in a wild cluster, amply repays the time thus spent.

The roof of the Working Men's Home, a lodging-house in Lee Lane, Horwich, fell in recently. Two men were injured.

A new station is being erected in Roath, Cardiff, by the Great Western Company. The contract, which amounts to £15,000, has been entrusted to the firm of Messrs. Mackay and Davies, of Cardiff, Newport, and Pontypridd. The site selected is in Pearl Street, near Splott Bridge.

MR. M. H. SPIELMANN contributes to the Daily Graphic an interesting article on Mr. Walter Crane, who, as the reader knows, has just been appointed Principal of the Royal College of Art. Mr. Crane has in him a good deal of his friend William Morris, and in character, the writer records, is scarcely less sturdy, independent, and original. His work covers an enormous field; he is a painter, a book illustrator for young and old, a decorator, a designer for stained glass and tapestry, paper-hangings, tiles, pottery, and textiles, a sculptor and a craftsman in many materials, an able lecturer, a fanciful poet, and a facile writer—one whose artistic taste is restrained and ordered by his clear-cut principles and logical and constructional mind. His triumphs have been many, won in many fields; and it is hardly too much to say that his work is known and his name is honoured even more and better in the capitals of Europe—at least in Paris, Munich, Berlin, and Brussels—than here in England, where yet he is esteemed so highly. His mind is of that order that, while in quite an unusual degree it belongs to the imaginative and poetic class, it is, nevertheless, possessed of the logical preciseness that is

NECESSARY TO THE SUCCESSFUL CRAFTSMAN, and that distinguishes the deliberate thinker and man of action. He was only sixteen years old when, in 1862, he contributed to the Royal Academy his first publicly exhibited work—a drawing called "The Lady of Shalott." It hung in what was called "the middle room," when the exhibitions were still held at Trafalgar Square, and since that day a perfectly feverish activity seems to have possessed him. We find him a serious author in such books as "Decorative Illustration" and "The Bases of Design"; a dainty and even opulent designer of the highest class in the pages of such works as "The Baby's Opera," "Flora's Feast," "Grimm's Stories," "The First of May," and, especially, "Spenser's Faerie Queen," with other books that will readily occur to the reader. Mr. Crane has even wandered into Punch's page. His pictures in oil, essentially decorative always, include "The Renaissance

of Venus," which belongs to Mr. G. F. Watts, "The Fate of Persephone," "The Bridge of Life"—many of them on an ambitious scale of size, in order to correspond with the bigness of the ideas illustrated; while his water-colour drawings—the best of them transcripts from nature, wrought on his travels about Europe—have for some years attracted attention on the walls of the Royal Water-Colour Society. His decorative works, whether ceilings, friezes, floors, or what-not, in every method and in every material, have beautified many rooms in England and America; and it is mainly as a decorator that he would be judged. And, as if all this work did not yield sufficient outlet for his energy and talent, Mr. Walter Crane has filled his odd time with writing magazine articles, with managing the affairs of the Arts and Crafts Society (of which he is president), with "examining" officially at South Kensington, "directing" at the Manchester Municipal School—from which, however, he recently retired—and more recently at the University Extension College at Reading. Mr. Crane's work and its characteristics are well known. In his

WALL PAPERS AND FORMAL DECORATIONS he shows some affinity with William Morris; in his female and his male figures with Albert Moore, and even at times with Burne-Jones; and it is not a little strange to trace in his work now the keen and intelligent sympathy with the Greek ideal of pure beauty, and now the fine Gothic passion for opulent decorative ornamentation. And yet, notwithstanding all this extraordinary versatility with this spreading of his energy over nearly every section of the arts and crafts, in which his inexhaustible invention and resource inevitably make themselves felt, we find ourselves asking whether the accentuated manner—it need not be called mannerism—of so forceful a character and so marked a genius will not, perhaps, despite his variety of subject, impress itself too strongly on the pupils in the schools. It is to be presumed, however, that one who has shown so much independence and originality of his own will insist on the same individuality in others, and that the wise rule of Mr. Sparkes will be maintained—with a difference—by his distinguished successor.



AROUND WARWICK WITH THE ARCHITECTURAL ASSOCIATION. THE FORMER MANOR OF ARDENS.

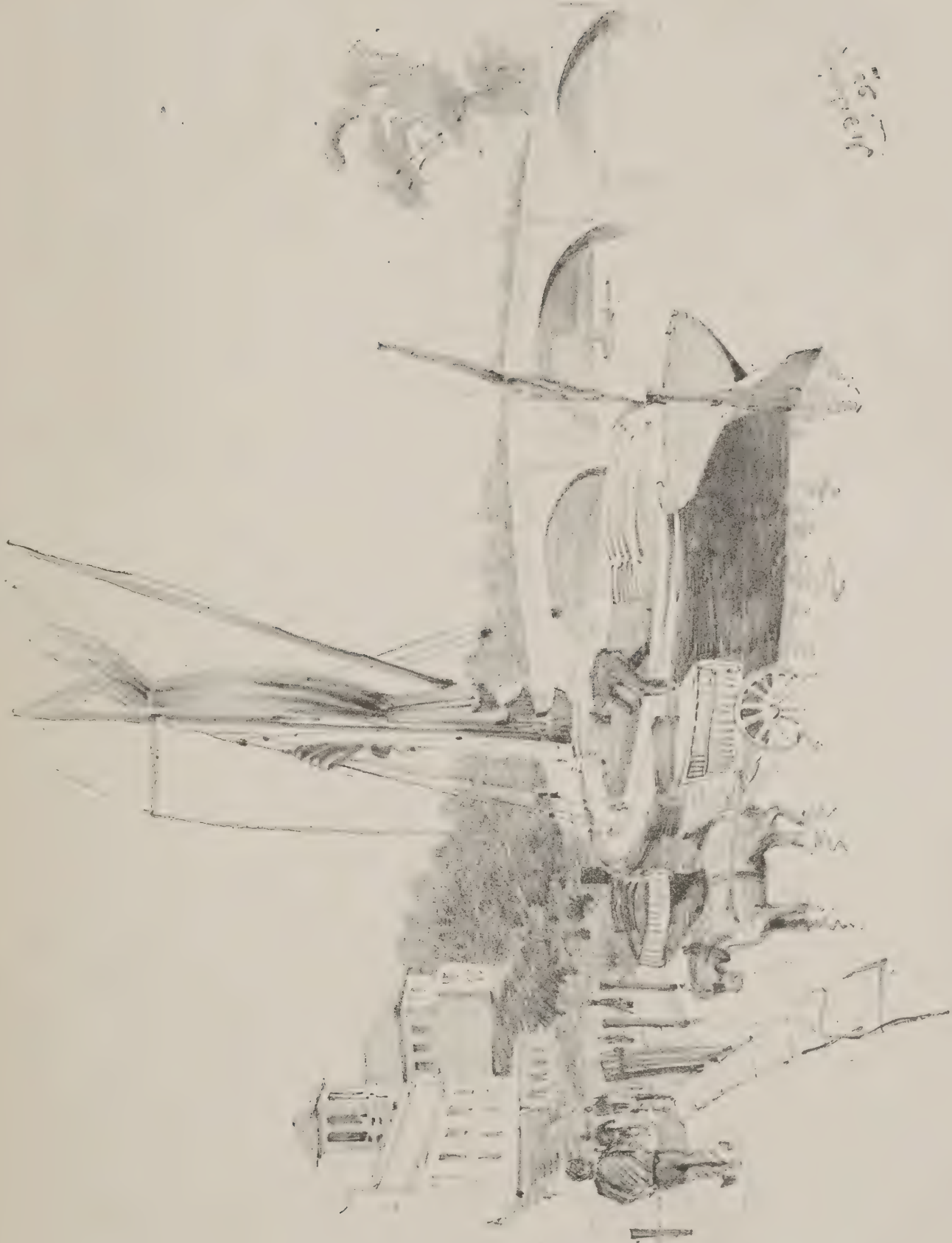
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LEICESTERS
HOSPITAL, WARWICK.

ON TOUR WITH THE ARCHITECTURAL ASSOCIATION.
LEICESTER'S HOSPITAL, WARWICK.



SKETCHES AROUND LONDON. IV.—RICHMOND BRIDGE.

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ARCHÆOLOGISTS AFIELD.

III.—IN SUSSEX.

THE Sussex Archaeological Society had an excursion to Ashburnham and Battle—places beloved by antiquaries and familiar to students of English history—a few days ago.

ASHBURNHAM CHURCH.

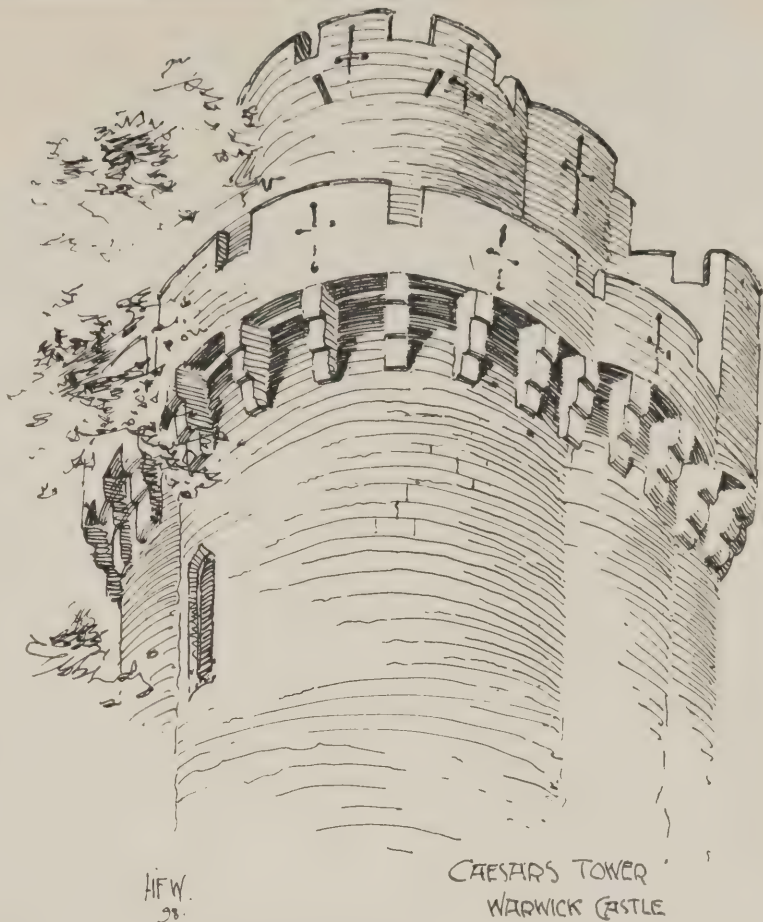
The archaeological treasures at Ashburnham Church include the massive Communion plate, presented to the church by its founder, John Ashburnham, Groom of the Bedchamber both to Charles I. and Charles II., and the parish registers dating from 1538. The chancel contains a curiously worded epitaph on this John Ashburnham, describing him as son of "that unfortunate person, Sir John Ashburnham." There is also, among other memorials, a fine sculptured tomb, in memory of Jane, Countess of Marlborough, who married into the Ashburnham family, and whose virtues are extolled in a high strain. An account of the church was given by the vicar, who said there had probably been a church on the site from the eleventh century, though the present edifice was built in 1663. The special features of the Architecture were the wooden mullions of the windows, and the seven steps from the floor of the tower to the nave, and seven steps again from the nave to the chancel, which gave the altar a very lofty position. In the hall at Ashburnham Place were to be seen the famous relics of Charles I.

BATTLE ABBEY.

Mr. W. H. St. John Hope described Battle Abbey. The abbey, he explained, was founded by William the Conqueror as the tardy fulfilment of a vow made before the Battle of Hastings. The site was on the very scene of the battle, and the high altar was supposed to have been placed on the very spot where Harold's body was found. The later history of the abbey was practically nil, except such as was written on its stones, for though part of it had been destroyed, sufficient remained to enable them to put together a fairly intelligible story. The abbey he described as of the normal Benedictine type, and he identified the remaining portions of the building as the guest-house, refectory, dormitory, infirmary, locutorium, &c., pointing out the special features of each. He particularly called attention to the fine gateway, the beautiful twelfth century work on the exterior of the guest-house, and the ruins of the dormitory. In the church, the Norman font and the splendid monument to Sir Anthony Browne, Master of the Horse to Henry VIII., were centres of attraction.

IV.—IN SHROPSHIRE.

The Cambrian Archaeological Association has been holding a meeting at Ludlow. Stanton Lacy was among the places visited. Here is a well-known church to ecclesiastical archaeologists, by reason of the undoubted Saxon work that is included in the building. In addition to this work, the peculiar characteristic of which is the use of flat pilasters formed of long stones, alternating with short ones, the church is interesting as containing several canopied niches built into the external walls of the fabric, and containing some mutilated figures. A peculiar stone, consisting of an ornament in the form of a square staff surmounting four parallel billets, which has been let into the wall above a closed Saxon doorway, is similar in character to the tympanum of one of the doorways of Portskewett Church. Culmington Church and Diddlebury Church were also visited. This latter church, though not so well known as that of Stanton Lacy, is, perhaps, of greater interest to antiquaries from the mixture of Saxon, Norman, and later styles perceptible in the edifice. The most interesting features of Holgate Church are a fine Norman font of excellent preservation, and a Romanesque south doorway. At the Heath was seen the most perfect example of a Norman church, which has remained practically unchanged since its erection. Richard's Castle, where are the remains of an early Norman fortress; the church, also, has several interesting



AROUND WARWICK WITH THE ARCHITECTURAL ASSOCIATION.

features of antiquity, came under survey. A small party went off to examine the church of Ashford Carbonell, an edifice containing much Norman work. The east end of the church is lighted by two windows, having the ordinary plain Norman rounded heads; above these is a beautiful oval window, technically termed a vesica. This, if contemporary with the lower windows, would be one of the earliest instances of the appearance of the pointed arch in association with that with rounded head. Until the restoration of the edifice, about fifteen years ago, these windows were hidden by plaster, and it was only at that period that the original form of the windows was discovered. The two parties united at Orleton, where is another late Norman church, which had been enlarged, probably, in the time of Edward I., as it is said that two beautifully-carved corbel heads represent the great King and his Queen, Philippa. At Shobdon the only old portion of the present church is the tower. About a century ago the owner of the

RUINS OF SHOBDON PRIORY

carted away the remains of several arches, which had survived the destruction of the priory church, and erected them in the form of a triumphal arch on the hill above the present church. The central archway was probably the arch between the chancel and nave, and the two side arches were no doubt doorways in different parts of the original building. Two tympana have been placed over openings between the central arch and that on its right and left. The arches are of the most elaborate Romanesque character, the sculpture with which every portion of the arches is covered possessing certain features which seem more Continental than English. Aymestry Church, which was also visited, consists of a nave, chancel, and nave aisles. Across the chancel arch runs a tall

OAKEN SCREEN OF BEAUTIFUL PERPENDICULAR WORK,

which is an evident insertion. It was stated that the screen had been put into the church about the commencement of the present century, and that it had been brought from a

church somewhere in the neighbourhood of Swansea or Neath. Colonel Morgan, Swansea, observed that about one hundred years ago the old Church of St. John at Swansea was taken down and replaced by a building in the poor taste of that period. It was well known that the old church was a fine edifice, containing some beautiful details, none of which had been perpetuated in the present church. The general opinion of the experts seemed to be that the balance of evidence was in favour of the Aymestry screen having come from old St. John's at Swansea. The members next proceeded to Wigmore Church, a large edifice, built in Norman times, but almost entirely remodelled in the Decorated period. The castle is a strong post, erected by one of the first members of the Mortimer family, but it has been so effectually dismantled that it is not easy to make out its ancient features. The fourth and last excursion took place to Bucknall, Coxwall Knoll, and back to Stokesay. The remains of the gateway of Bramfield Old Priory and the church, part of the original conventual church founded as a secular college in 1105, with two Norman arches, were inspected. On to Leintwardine village, a little to the left of the Roman road, Watling Street, the site of a Roman station, thought to be Bravinium, and where from time to time have been found fragments of Roman pottery, a bronze ring, and a third brass of Constantine the Great. To the south is Brandon Camp, with two valla, a counterwork of the stronghold on Coxwall Knoll. On to Brampton Brian Castle, which was built probably by Brian de Harley in the reign of Edward III., only the gateway and a fragment of the main building remaining. The next place visited was Coxwall Knoll, a mile to the north, where some writers say the decisive battle between Caractacus and Ostorius Scapula was fought A.D. 52. On the north and east side are entrenchments and an artificial terrace is cut along the brow of the hill. On to Bucknell Church, and then by train to Craven Arms, and visited Stokesay Castle, one of the finest examples in England of a castellated mansion of the thirteenth century, and then to Ludlow.



AROUND WARWICK WITH THE ARCHITECTURAL ASSOCIATION.

RUSKIN ON ART AND LIFE.

MR. GEORGE ALLEN publishes in a large quarto, beautifully printed on fine paper, the text of three "Lectures on Landscape" delivered by Mr. Ruskin at Oxford during the Lent Term of 1871. The graceful and luminous English in which the Slade Professor couched the artistic truths he wished to impress on his pupils renders these lectures as pleasant to read as they must have been delightful to hear. Through them may be caught the echo of a personal note, insisting on that quietness, earnestness, and simplicity which have been the speaker's ideal of nobility in the sphere not of Art only, but of thought and conduct. The lectures are entitled "Outline," "Light and Shade," and "Colour," and may be taken as epitomising Mr. Ruskin's views as to the general direction of study to be pursued by the landscape artist. It is not surprising to those familiar with his tenets and practice that in his first address he presses home the

IMPORTANCE OF ACCURATE DRAUGHTSMANSHIP:

"Most landscape painters have been tempted to neglect outline altogether, and think only of effects of light or colour on masses more or less obscurely defined. They have thus gradually lost their sense of organic form, their precision of hand, and their respect for limiting law; in a word, for all the safeguards and severe dignities of their Art. And landscape painting has, therefore, more in consequence of this one error than of any other, become weak, frivolous, and justly despised." In the second lecture the professor, going to Turner for illustration of his theories, dwells upon the due expression of gradation in landscape. His distinction between and comparison of the Greek and Gothic schools—as he christens them—is the subject of eloquent discussion, carried further in his third and most elaborate address on "Colour." The comparison is too familiar to need citation here; but for the satisfaction of Ruskin lovers we subjoin a quotation: "You know I told you that

THE PURE GOTHIC SCHOOL OF COLOUR

was certainly cheerful; that, as applied to landscape, it assumes that all nature is lovely, and may be clearly seen; that destruction and decay are accidents of our present state, never to be thought of seriously, and, above all things, never to be painted; but that whatever is orderly, healthy, radiant, fruitful, and beautiful, is to be loved with all our

hearts and painted with all our skill. I told you also that no complete system of Art for either natural history or landscape could be formed on this system; that the wrath of a wild beast, and the tossing of a mountain torrent were impossible to a painter of the purist school; that in higher fields of thought increasing knowledge means increasing sorrow, and every Art which has complete sympathy with humanity must be chastened by the sight and oppressed by the memory of pain." Because the "Gothic" style has never reached a fair condition of development, Mr. Ruskin urged on his young hearers that they should attempt to study with a view to carrying on the work for whose furtherance he looked in vain to the Pre-Raphaelites. To ardent youth, the accuracy of detail which can make the drawing of a single petal a beautiful thing seldom proves attractive; and the

CHARACTERISTICS OF THE GREEK SCHOOL,

as their teacher defined them, would probably fire to imitation the greater number among the lecturer's pupils. The "tragic horror and gloom" of the School of Clay may have struck the lecturer as inappropriate to the boyish minds and hearts reflected in the faces

before him, and have moved him to the declaration—characteristic of the speaker—that "as long as he could keep them there they should stay—among the almond and the apple-blossom." "I wish you therefore to begin your study of natural history and landscape by discerning the simple outlines and the pleasant colours of things; and to rest in them as long as you can. But, observe, you can only do this on one condition—that of striving also to create, in reality, the beauty which you seek in imagination. It will be wholly impossible for you to retain the tranquillity of temper and felicity of faith necessary for noble purist painting, unless you are actively engaged in promoting the felicity and peace of practical life." The extracts for which we have found room will give some idea of the dignity of thought and language for which the Oxford undergraduates had to thank the Slade Professor. These three lectures are, indeed, replete with noble imaginative utterances.

RE-PAVING LONDON.

THE complete re-paving of the Strand is now in progress. For the past week or two the observant wayfarer near the Savoy and Somerset House, whose "Front looks down on all the pride and business of the town," has watched the construction from blocks of pitch-coated teak or Jarrah of a series of barricades upon the pavement, deep enough to suggest immunity from artillery attack, but obviously so easily displaced that a light framework of thin laths has been nailed along their outer edges. First, of course, the existing roadway has been torn up. Then came a period when the foundation of the road underwent treatment, and lastly, with all deliberation, and a complete absence of anything approaching to speed of execution, the cubes are laid with an

ACCOMPANYING DRESSING OF TAR.

A coating of sand and gravel will be permitted ample time to "work down," and, as the days of autumn are well advanced, the Strand may once more be open to the use of wheeled vehicles. Now, the average citizen who knows that streets must at intervals be re-paved would bear this visitation with greater equanimity were the parallel thoroughfare of Holborn in a fit state to receive its share of the overflow traffic. But at the present time it is not too much to say that Holborn is being submitted to a process of complete transformation. The pedestrian going eastward from Tottenham Court Road finds that if the General Post Office has at last taken possession of its fine new West Central branch, its old premises at the corner of Southampton Row are under-



ON TOUR WITH THE ARCHITECTURAL ASSOCIATION. CHAPEL STREET, STRATFORD-ON-AVON.

going demolition, and here will be found a chronic block between scaffolding, carts

LADEN WITH BROKEN BRICKS,

and holes to reach various pipes and connections. Proceeding to the very narrowest part of this great artery—namely, where Red Lion Street debouches into it, something more than half the roadway is “up,” and excavations of considerable depth are being made, while it may be added that the effluvia from sewers laid bare about this point is frequently of the most offensive character. Omnibuses and other vehicles can only pass in single line, and the delays and stoppages are extremely annoying to busy people. Opposite Chancery Lane, where one of the stations of the new electric railway from Shepherd’s Bush to the Bank is to be situated, underground works of the most extensive description have been going on for months past, and show no signs whatever of approaching completion. In fact, a kind of wooden structure of solid beams and boards, roofed with tarpaulin, has recently been reared right across the north side pavement and far into the road itself. Meantime, on the south side, the frantic announcements in the shop windows of “compulsory sale,” “stock must be cleared,” and so on, in addition to boards enormously lettered to the effect that these buildings will be superseded by the Holborn frontage of the Birkbeck Bank, whose somewhat garish Architecture in Southampton Buildings is almost finished, tell of considerable further stoppage in the ordinary flow of street business. At the extreme south end of Gray’s Inn Road blocks caused by work of more or less magnitude have been incessant for weeks past, and the destruction of Fumival’s Inn in the absorption of its site by the Prudential Assurance Company foreshadows much building in the near future and interruption at this point. Meantime, Fetter Lane is in the hands of asphalt layers, and conspicuous warning of “No thoroughfare” stands at either end. Even the narrow passageway of Shoe Lane is threatened, as some of its dingy old houses are under the immediate doom of the march of improvement. The whole of the east end of Queen Victoria Street, from Cannon Street to the Mansion House, is raided off, and being repaved, with the exception of a narrow strip wide enough for a single file of hansom on its south side. During this stoppage the omnibuses from the Strand and Fleet Street are sent down Cheapside, where the congested state of the thoroughfare recalls the conditions which prevailed before the City Police exercised their authority, and divided them at the Mansion House from those whose route lay along Oxford Street. At the Bank itself matters are

TEMPORARILY BETTER

than they were, and it is only fair to say that west of Piccadilly Circus there are few interruptions to speak of, a state of affairs which rather suggests, however, that the West End and South-West vestries try to time their repairs to take place when the residential quarters are in crowded occupation. The obvious conclusion seems that some sort of board should be formed from among the local authorities who are charged with the maintenance of our roads. It is perfectly scandalous, for instance, says the Daily Telegraph, that two such main highways of London’s commerce as the Strand and Holborn should be permitted simultaneously to be “up”; for, though the latter is not nominally in this condition, the blocks allowed there make it practically so. Another strongly urged point is that road repairs, involving, as they do, such enormous inconvenience to shopkeepers, as well as those passing to and fro upon their “lawful occasions,” should be carried on by night as well as by day. With three shifts of men working eight hours each it would be possible to accomplish the tasks in one-third of the time now occupied. There need be no insuperable difficulties for vestries to overcome in making this an essential condition of contract, and the ratepayers have assuredly the right to demand that the period of disorganisation and chaos shall be reduced to the minimum.

IN THE HARTZ DISTRICT.

By G. A. T. MIDDLETON, A.R.I.B.A.

V.—HILDESHIEM.

HILDESHIEM is proud of being called the Nuremberg of North Germany; and she is rapidly depriving herself of all claim to that title, founded as it is rather on both cities being full of picturesque old buildings than of any similitude between them; for the old work is being pulled down to make room for new at a pace quite unparalleled in any other town I know. No less than six works of demolition within a radius of 100 yds. are going on at the present time. At this pace there will be no Hildeshiem worth seeing by the architect and the art lover three years hence, and what remains now is clearly but a tithe of what existed a decade ago; so that all who wish to understand what a mediæval city really looked like must make haste, and take their tickets at once; or else they will have to go further afield, and visit Rothenburg, for Nuremberg has already suffered irreparably in the same way. After all, the journey is not a great one, and, taken *viâ* the Hook, not a tiring one either; and Hildeshiem is well worth visiting, sketch book in hand. Fortunately, it was the last place visited during the tour; had it been the first all others would have appeared tame.

The Dom—the former cathedral—alone is a disappointment, it being a modern reconstruction; and yet not wholly a disappointment either, for of the old Romanesque work there are still two magnificent remains, one being a column and cap, sculptured all over after the manner of the Trajan column, and known as the “Christus Pillar,” the scenes represented being taken from our Saviour’s life; and the other being a marvellous pair of bronze gates, covered with figures which project from its surface. How this has been done is somewhat of a puzzle, but I am inclined to think they were cast separately, and have been brazed on. The iron gates to the northern portico are also noticeable, though their date is uncertain. The scroll work is in the favourite rod iron with flattened leaves, the junctions with the frame being by means of riveted staples; the compound junctions formed of wrought human figures; and other joints being some of them welded, some riveted, and some mere connections by twisted strands of iron wire. Some iron of a very similar character, apparently the work of the same smith, is to be found in the grille over the north door of the Andreas-Kirche, the flat central band of which is worked in *repoussé*—or was, for the pattern is now difficult to decipher—and having the terminals of the leaves most curiously intertwined, but the human figures are absent, and the connecting staples are covered by rosettes.

While on the subject of metal, mention may be made of one of the most curious door knockers I have ever seen, to be found on an unused door in the Rath-haus Strasse, made of bronze, and worked into the form of grotesque human faces.

The Andreas Kirche, besides its ironwork, has most stupendous crockets to its small north and south doors, while the flying buttresses are of eccentric construction, being supported midway. They suggest the flying buttresses of Amiens Cathedral, but there the support is vertical and near to the main wall, here it is central and arched. After all, however, the principal attraction is the Market Square, with its central fountain and quaint buildings all round, grouping well in all directions, and of all dates. One, known as the Templars’ House, is of a curious late false Gothic, yet eminently picturesque in spite of its want of truth to style, inset into which is a fine Renaissance bay, with its lower part ruthlessly cut away to make room for a modern shop window. Possibly the ornament is overdone, and the proportions not all that they might be in delicacy, but seen in position it is decidedly charming.

About the timber houses so much has been said when writing about other towns, that little remains to add. Several had been

enlarged at various times by the throwing out of bays and oriels, generally of carved wood-work, and here and there a minor detail of some interest could be seen, such as a scroll band of the broad-leaved German foliage, or a specimen of interpenetration, while lettered inscriptions are frequent, with the capital letter beautifully formed.

The fact of so much demolition going on gave an opportunity to observe the construction of some of the old houses now exposed to view. A great deal is done by central support by posts carried right down to the ground, and by collars carried right across; but of framing there is scarcely any, even the overhanging of upper stories being very simply continued on the dead weight principle. Of the open space in the roof no use seemed to be made, in spite of the suggestion of floors by the appearance of external dormers, which, if used at all, were connected down by shoots to light portions of a lower floor. The timbers are strong, but widely spaced, the rafters being a full 2 ft. apart, with tile-laths 2½ in. by 1½ in. to carry the heavy tiles, and obviously the fire risk is considerable. There is consequently a substantial argument in favour of rebuilding, while another of even more moment is to be found in the state of the subsoil, which, when excavated, is found to be little else than the accumulated sewerage of centuries, which has to be completely removed before a new building on the site is commenced; in fact, it would not carry a brick or masonry structure, to say nothing of its unhealthiness.

A great deal of this reconstruction is being done piecemeal to avoid the regulation which would compel the setting back of frontage line if all were rebuilt at once; the lower portion being first “repaired,” while the upper is supported on needles, and then the upper part removed and “renovated” a few years later. But wherever work is going on it is being rapidly pushed forward. With no trade unions to limit the work done by each man to the capacity of the weakest, with plenty of hands and a sharp foreman, a building in construction looks like a busy ant hill; and the work is not only rapidly done, but strongly also, material being by no means spared, though somewhat roughly put together where not exposed to view; bricklayers seem to have little compunction in laying a two-brick wall direct without footings on the hard subsoil when it is reached (or on the doubtful, if the architect’s back be turned), or of carrying a wall 10 ft. or even 12 ft. higher in some parts than in others. Iron, too, is largely used in modern construction, thrown in, one would imagine, without previous calculation, save that of a rough rule-of-thumb, allowing a very ample margin indeed for stability. In fact, soundness is achieved by mass rather than by scientific means.

The ancient walls surrounding the historic borough of Conway were reopened on Friday week, after restoration.

A block of waiting rooms and offices is being built on the up platform at St. Neot’s railway station, Hunts. The contractors are Messrs. Kirk, Knight, and Co.

The chancel of St. Mary’s Mission Church, St. Helens, Lancs., has been redecorated. The adornment of the chancel was carried out by Mr. Freeman, of St. Helens.

At Boxmoor, Herts, a new Roman Catholic Church has just been opened. Mr. G. Harvey was the architect, Mr. Payne the builder, and Mr. Hales carried out the decorations.

The chief feature of recent business at the Tokenhouse Yard Auction Mart was the appreciation for building estates. The most important of these was the Knott’s Green Estate at Leyton, which has frontages to existing roads of over 3700 ft. and an entire area of over 100 acres, and fetched about £600 per acre.

PRINCESS LOUISE has made considerable progress with the model of the statue of the Queen which she has undertaken to execute for the west porch of Manchester Cathedral. The work represents her Majesty in robes of State at the age which she had attained when she opened the Art Treasures Exhibition at Manchester in 1857.

AN OLD HOSTELRY REBUILT.

THE rebuilding of the Crown and Anchor Hotel at Ipswich is an enterprise of interest to all who know the old town. It is one of the ancient hostelries of an ancient borough, the title deeds of the property dating back to the year 1523. The architectural style of the new building is described as Flamboyant Domestic Norman. So far as the façade is concerned, it has been accommodated to the chief characteristics of the old front, so that the associations connected with a familiar appearance have not been obliterated, but improved upon and dignified. The entrance, closed by studded doors of an antique type, is of imposing breadth and height. It is surmounted by an archway and balcony, supported upon clustered black marble shafts, with carved capitals, and having the name of the hotel above it in open stone work. The whole elevation is carried out in white or creamy white stone. The more conspicuous features are three projecting bay windows to the two upper stories, with circular shafts at the angles, and

QUATREFOIL TRACERY

under the balconies, the upper panels of the windows are carved, and the design is harmoniously crowned and completed by a pierced parapet, with crocketed terminals and dormer windows. The open space between the bays is broken and adorned with various devices, including medallions showing the Crown and Anchor, and a carved panel in which the same symbols are differently represented, guarded by heraldic lions. The interior of the hotel is eminently suggestive of a general planning out in which considerations of comfort and luxury are combined with solidity and spaciousness. The vestibule and hall are laid with tessellated pavement, and covered in part with rich Turkey carpets; and lounges, upholstered in the best morocco leather, are here provided, together with such necessities as letter-boxes and brush-stands, all in carved oak. As in most modern hotels,

THE HALL

itself is made a comfortable place of resort, but the hall here is practically extended into a cosy apartment, on the right-hand side from the doorway, which affords an "occasional" meeting-place, and is unique in its way. Fronting the entrance, behind a handsome mahogany partition, there is an inquiry office; in the rear is a private bar, and this suite of offices, right in the centre of the building, also includes a private room from which the whole of the ground floor may be kept under observation. The commercial room, which is approached from the right hand side of the entrance hall, and faces Westgate Street, is of large dimensions, measuring 30ft. by 22ft.; it is correspondingly lofty, and the ceiling is deeply panelled. The walls are covered with embossed Japanese paper, in a rich design of red and gold, with a Lincrusta dado, and a Japanese gold frieze. The coffee room is on the other side of the entrance hall. The Japanese wall-paper is of sea-green, in contrast with the embossed gold pattern, and the frieze is of red gold. The apartment which shows more original characteristics than any other is the smoke room, the entrance to which is through an ornamental screen or lobby to the left of the inquiry office. The fireplace is lined with Dutch tiles, with pictures thereon of vessels appropriately broad in the beam; the overhanging chimney-piece is built of fumed oak; there is a wainscoting of the same wood, strangely varied in graining, all round the wall, 7ft. 6in. high, with a heavy Tyne Castle frieze above it; the chairs are also of fumed oak, together with the tables, and the windows are of old English lead lights, with fanlights above, opening inwards. Throughout the whole building fine artistic feeling has been shown.

PLANS of proposed new county police buildings in Crief have been passed by the local Dean of Guild Court. The buildings are to be in the Scotch Baronial style, and will be two stories in height, with attics.

BRIDGE BUILDING EXTRA-ORDINARY.

IT does not often happen that a few hours witness the complete removal of an old railway bridge and the substitution for it of a brand new structure, over which heavy express trains can run with perfect safety. Yet this feat of engineering has just been accomplished with remarkable neatness and celerity at the Finsbury Park Station of the Great Northern Railway. The precise point is that at which the Stroud Green Road is crossed by three separate iron bridges, which are a continuation of those over the Seven Sisters Road, and support one end of the station itself. In the early part of the present year the directors of the line decided to replace the middle bridge of the three, and

TO ALTER THE CONSTRUCTION

in such a way as to leave the roadway beneath clear. The old bridge was supported upon heavy brick piers at the edge of each footway, but the new one is a single-span girder erection, so strongly made of steel as to be capable of bearing with ease the enormously heavier locomotives and carriages which are nowadays in use. Yet the task was by no means easy. It had to be carried out without disturbing the traffic either on the railway above or the road below, and therefore the plan sometimes adopted of building the new bridge all ready to be slipped, as it were, into the place of the original crossing was utilised, and with great success. Messrs. Handyside, of Derby, were entrusted by the Company with the contract, and they commenced the work in March. First of all, a very

SUBSTANTIAL KIND OF SCAFFOLDING

was built underneath the bridges on either side of the road. This erection was composed of baulks of timber about 1ft. thick each way, and calculated to bear the great weight which was to come upon it eventually. Next a miniature railway was laid along each scaffold, which, of course, ran nearly at right angles to the bridges. Then the building of the new bridge was commenced. It was constructed of heavy steel girders and plates, all bolted and riveted together, and each end of it lay upon a series of small-wheeled trucks which in their turn rested upon the scaffold railway. The bridge was fully equipped with a permanent way ready to be joined up to the main line directly it should be in proper position. Although it does not take long to recount the process of preparation, the affair was really a difficult one. True, the

SPAN OF THE BRIDGE

was not long, but the contractors were a great deal hampered by the presence of the other two bridges on either side of them, and the very narrowness of the Stroud Green Road formed an obstacle to speedy construction. However, on Sunday afternoon last everything was ready for the main operation, that of taking away the old bridge and shifting the new one bodily into its place. This task was commenced at three o'clock in the afternoon. First of all powerful steam cranes, specially erected for the purpose, hoisted out the condemned iron girders, which weighed some ten tons each. A very short time elapsed before all these were taken away, and for a while there was a blank space. Next ropes were attached to the new bridge, and steam winches were set to work to haul the structure slowly along on the little carriages at either end, until, in less than half an hour, the break of continuity in the railway was repaired, and when the metals on the bridge were connected to those on the main line, it was again possible for trains to run over, which, as a matter of fact, they actually began to do about eight o'clock in the evening. Naturally a great deal remains to be done before the business is entirely finished. The brick piers in the roadway have to be demolished, and the ends of the bridge built up so as to form a continuous part of the line, but yesterday a heavy express train was seen rushing across at considerable speed, and apparently the erection was as sound and staunch as though it had been there

for years. The replacing of the Stroud Green Road bridge is only the latest of

A SERIES OF ENGINEERING FEATS

which have been carried out during the past few years. A bridge over the Uxbridge Road on the North London Railway was renewed in a similar manner in about two hours. But one of the best achievements of the kind was effected a couple of years ago, when a bridge on the Great Eastern Railway was cleared away and a new one substituted in a very few hours. In this case the difficulty of the job was enhanced by the fact that the line at the point in question crossed a river, and that it was on the skew or slant. Yet the whole thing was done without a hitch. The principal secret of success lies in the proper construction of the small railway which supports each end of the bridge, and upon which, when the time arrives, the vast mass, weighing perhaps hundreds of tons, is to be transported to its resting-place. Modern steam cranes, winches, and hauling gear also give facilities, which, in the early days of railroads, were quite unheard of.

KEYSTONES.

THE Parish Church of New Alresford, Hants, has been restored at a cost of £6000.

THE Bishop of Menavia has laid the foundation stone of a new Roman Catholic Church, in Conway Road, Colwyn Bay.

THE organ in St. Mary's Church, Chester, built in 1887, has been enlarged by Messrs. Gray and Davidson, of London.

IN the list of the new commission of the peace for Blackpool the name appears of Mr. Butcher Mather, architect, and also those of three local builders and contractors, Messrs. James Cardwell, Thomas Houldsworth Smith, and James Ward.

A NEW two-story building at Falkirk recently collapsed. A large portion of the building fell into a neighbouring churchyard and damaged a number of tombstones and smashed the iron railing surrounding the burial ground.

INCLUDED in an extensive estate at Muswell Hill, to be let for building purposes, is a cottage known as "Lalla Rookh," where Thomas Moore, the poet, lived, and wrote at least part of the poem of that name, which was published in 1817.

A NEW Conservative club has been erected at Barnoldswick. The premises are located in the principal street of the town, and form a notable addition to a place somewhat lacking in public buildings of any architectural pretensions. The total cost is £3000.

A NEW ward is being added to the cottage hospital at Warminster. The wing, which will be built of Frome stone with Bath stone dressings, will contain a men's ward to hold five beds, two probationers' bedrooms, servants' rooms, baths, lavatories, and other offices.

THINK of a see-saw 600ft. long, that will carry a load of passengers from the ground to a height of 100ft.! Such a machine has been invented and patented in Europe and America by Mr. Imre Kiralfy, and will be offered to New York City for erection in Central Park. The structure will consist of a central steel tower 400ft. high. Securely resting on bearings 225ft. above the ground will be poised in exact balance the giant see-saw, which will extend the enormous length of 600ft. Like the tower, the see-saw will be of steel. Below the see-saw, a little less than half-way to the ground, will be a grand promenade, and above it, half-way to the top of the tower, will be a restaurant, from which a magnificent view can be had; but for the view of views, which will surpass any now existing, the spectator must ascend to the watch tower at the extreme top of the turret. The motion will be so gentle as to be hardly perceived, and will be very readily accomplished, for the exact balance of the see-saw, with friction reduced to a minimum, will make it possible for a very small preponderance of weight at either end to raise the other. On the see-saw will be rails, carrying cars, worked either by cable or rigid wheels.

Bricks and Mortar.

EFFINGHAM HOUSE, ARUNDEL STREET,

August 24th, 1898.

"I know what it is to live in a cottage with a deal floor and roof, and a hearth of mica slat; and I know it to be in many respects healthier and happier than living between a Turkey carpet and a gilded ceiling, beside a steel grate and a polished fender. I do not say that such things have not their place and propriety; but I say this, emphatically, that the tenth part of the expense which is sacrificed in domestic vanities, if not absolutely and meaninglessly lost in domestic discomforts and incumbrances, would, if collectively offered and wisely employed, build a marble church for every town in England; such a church as it should be a joy and a blessing ever to pass near in our daily ways and walks, as it would bring the light into the eyes to see from afar, lifting its fair height above the purple crowd of humble roofs."—JOHN RUSKIN.

It is certainly full time that London paving authorities consulted together on the question of establishing uniformity of surface through the metropolis. In that respect we stand much where we did years back. Macadam and setts are now more rarely met with, but the struggle for supremacy between wood and asphalt goes on as merrily as ever, much to the injury of horses and to the exasperation of their owners and drivers. Ever and anon, a vehement protest finds its way into the papers, and equine experts explain how trying it is to horses drawing vehicles to change constantly from one surface to another. But most "authorities" are perfect Gallios for treating complaints thus made public with indifference, and those who look after the paving of London are by no means free from that little weakness. There exist, too, very unneighbourly relations between many of them, as is shown by the fact that when boundaries meet, the respective authorities appear to derive pleasure from agreeing to differ on the question of surface. Occasionally it even happens that a different material is substituted for one long in use, apparently for no better reason than that the continuous authority has adopted the latter. These eccentricities were pardonable when London had not sufficient experience with the various kinds of paving to determine which was the best. But that excuse no longer serves; the several sorts have been exhaustively tried in all parts of the metropolitan area, and there ought not to be much difficulty in arriving at a final decision if the numerous authorities only gave their minds to the matter.

The stones and ironmongery of Mazas Prison, Paris, have been sold by auction. Buyers proved considerably less keen on the proffered bargains than the authorities had expected. The 1200 prison keys for sale went for a song, the most interesting specimens fetching only 5*f.* apiece. Some purchasers bid for the doors. The authorities of the Carnavalet Museum, who possess a door of the old Bastille, thought of buying one of those at Mazas, but on reconsideration these were not thought interesting enough to figure in a collection. From rather a morbid point of view the most curious features in old Mazas were its walls. These were covered with inscriptions, some cynical, some pious, some by prisoners vowing vengeance on their keepers, others by repentant criminals praying for their sins.

It is in contemplation by the Benchers of the Inner Temple to acquire the old premises situate at the north side of Hare Court, Temple, so long known as Dick's Coffee House, for the purpose of erecting new chambers thereon. It may be recollected that the same authorities recently endeavoured to obtain the requisite permission from Parliament to erect new buildings in continuation of King's Bench Walk, near the Temple Gardens, but were not successful.

The conservatory in Sefton Park, Liverpool, has been considerably enhanced by the erection of some fine pieces of marble statuary, and there is a likelihood that ere long another example of the sculptor's art will be placed there. The Parks and Gardens Committee of the Corporation has been informed that the executors of the late Mr. James Barkeley Smith have approved of a suggestion that a statue, named "The Angel's Whisper," should be placed in the palm house in Sefton Park.

The interesting old mansion house known as Wester Livilands, near Stirling, is about to be demolished to make way for a new house to be re-erected on its site. Livilands is famous in local history as being the residence of General Monk during the siege of Stirling Castle by Cromwell. The most interesting thing about the house that has yet been discovered is a series of panels showing paintings of the Sybils, with prophetic verses of the life of Christ in a curious mixture of Gothic and Roman lettering.

ANOTHER interesting piece of Old Hampstead is about to disappear. Wentworth House, John Street, and its grounds, associated with memories of Keats, has now practically fallen into the builders' hands. It was in this house that much of "Hyperion" was written, and nearly the whole of the "Odes." In the garden attached to it Keats heard the song of the nightingale that inspired his famous poem, and it was there that he was nursed through a long illness by the girl to whom he was so passionately attached.

The London County Council has issued a circular letter to the Metropolitan Vestries and District Boards, pointing out that though the majority of the local authorities of London expressed their approval of the suggestion of their Fire Brigade Committee made recently, that the positions of fire alarms should be indicated by metal hands affixed to lamp-posts, only a few of them had actually adopted it. The Council therefore suggests as an alternative that where a street lamp is close to a fire alarm it should be painted a bright red colour, as is now done with the lamps nearest to the four-mile cab radius.

SOME ancient buildings in and near High Holborn are about to be utilised by the Birkbeck Bank for the purpose of its new offices. These comprise the houses on the west side of Staple Inn, and stand on the site of Southampton House, the town residence of the Earl of Southampton, who was Shakespeare's patron and friend. The place was also the home in her youth of that Rachel Wriothesley who was afterwards the wife of the unfortunate Lord William Russell, whom she survived for forty years, dying in 1723. Close by is the site of the Templars' first church in London.

AN effort is being made to raise funds for the rebuilding of Bolsover Church. It may be interesting to briefly sketch the history of this church. Our Saxon forefathers worshipped in a primitively constructed building, of which some parts have been preserved until the present day, and are incorporated with the new building. In 1020 a complete stone church was built, and 180 years later this building was demolished, and another—in the Early English style—was erected. For 600 years this edifice stood—the sanctuary to which men might withdraw from the clang of arms, the clatter of hoofs, and all the turmoil and internal strife which the country witnessed during the Plantagenet, Tudor, and Stuart dynasties. In the year 1878 the building was thoroughly restored at a cost of nearly £6000. The old 1020 chancel arch being, to a large extent, buried in the north wall, this was removed to its proper place, and with some other stone formed the beautiful chancel arch. As recently as 1896 £400 was expended in beautifying the interior. In the early morning of January 24th, 1897, the church was discovered to be in flames, and although everything was done that could be done, without water, to subdue the conflagration, it was only when the material that would burn was

demolished that the fire died out. Consternation prevailed amongst the worshippers, but the vicar of the parish at once set to work to raise money to rebuild the church, and others came forward with assistance, so that a building committee was formed, consisting of Mr. F. J. Turner (agent to the Duke of Portland), the vicar, the churchwardens, Messrs. Simken and Tatlow, and the work was placed in the hands of Mr. Louis Ambler. The contract was let to Messrs. Bowman and Sons.

"WITHIN the last thirty years," writes a correspondent, "many patents have been secured for making wood incombustible—many of them have been put to, and have successfully stood, the severest tests—the difficulty has been the prevention of rotting, and the influence of the agent used in attacking and corroding iron. Until the system has been tested for, say, six years, it cannot be said to be successful in preventing the serious drawbacks mentioned."

THE Bishop of Bristol recently held a conference with the vicar and churchwardens of Malmesbury and the mayor of the borough, on the subject of the Abbey Church. The unanimous opinion was that the restoration of the ancient fabric must be taken in hand without delay. The work will be to make quite sound the fabric of the six bays of the nave which form the parish church, to make the interior more dignified as a place of worship, and to protect the ruined parts as far as possible from further decay. The ruins are the result of accidents before the Reformation. The central tower fell in consequence of a lofty and heavy spire being placed upon it in the later Middle Ages, and only the west and north arches of the tower and a small part of the transept walls are now left. At the west end, the north half of the great western façade and the north side of the three western bays of the nave fell long ago. The southern half of the front and the south walls of the three western bays remain fairly complete; but decay has set in to such an extent that the ruins, it is believed, will not long remain as they are if not attended to. The bishop has undertaken to obtain a preliminary survey of the fabric from an antiquarian point of view, to be followed eventually by a complete report. It is suggested that the chancel should be rebuilt, and also the three western bays of the nave.

THE Dean of York has issued the following statement in connection with an appeal for funds for carrying out the extensive repairs needed in various parts of York Minster: "The work on the south side of the nave has been completed, and the grand pinnacles restored in all their pristine beauty. This has been most carefully carried out, all existing details have been preserved, and those which have crumbled away as far as possible accurately reproduced. The cost has been very heavy, but the additional offertories have in some degree helped to provide for the outlay. Now the scaffolding has been removed to the east end, and another equally expensive and necessary work begun. The report of the clerk of the works, which is appended, will give some idea of the extent and importance thereof, and we trust that all who value and appreciate the beauty of the Minster will not only watch the work with interest, but contribute as God has blessed them to the restoration of His House, for the ordinary funds at our disposal are quite inadequate for this severe strain upon them. The work at the east end will be completed in about twelve months; then we shall commence a similar work at the west end, where immediate attention is required to the ornamentation thereof, much of which is in a dangerous condition. Several portions having lately fallen, a rail has been fixed round the west end, and all persons are advised to go within it as little as possible."

THE report as to the repairs necessary is as follows:—"The parapet is in a very bad condition, and is leaning outward. The pinnacle over the apex of the east window is in a

dangerous condition. This pinnacle is supported partly on the outer parapet, and partly on the roof gable; the space between the parapet and gable being vaulted. The weight of this pinnacle, which is about 20 tons, has thrust the parapet out of perpendicular. In consequence of this the joints of the vaulting have opened out, allowing the keystone to drop. The pinnacle must be taken down, the parapet and roof gable must be strengthened, the vaulting restored, and the pinnacle properly bonded and refixed. There appears to have been a pierced parapet to the roof gable which has been removed at some time, and plain coping substituted. The parapet should be restored. The crocketed gables and finials and small pinnacles at the base of the spires to angle turrets are in a very bad condition, being very much decayed, and in addition to this many of them have been fixed with iron dowels which have split up the stones. These dowels should be removed, and all the finials, &c., which remain, should be properly fixed, and new finials and pinnacles added where needed."

APROPPOS the demolition of the gaol of Newgate and the Old Bailey Sessions House, it is interesting to recall that in William the Conqueror's time a gate known as "Chamberlain," or the "Chamberlain's Gate," stood across the street at a spot between Warwick Lane and the present prison. This, rebuilt in the reign of Henry II., or his successor, was in the reign of Henry III. in common use as a gaol. In the year 1400 Henry IV. committed it by charter to the care of the Corporation. Sir Richard Whittington, moved by the ruinous state of the fabric, instructed his executors to rebuild it, which was done upon the customary plan. After undergoing in addition, some repairs, and refronting, at various periods, the old buildings gave way to new ones designed by George Dance, R.A., the first stone of which was laid by Lord Mayor Beckford on May 31st, 1770. Before they were finished they were pillaged and burnt on June 6th and 7th, 1780, by the No Popery rioters, and after that a sum of £30,000 was devoted to repairing and completing the fabric, which is considered by experts to be admirable in design and character. The outer walls are nearly 4ft. thick. On the opening of Whitecross Street Prison in 1815 Newgate ceased to be used for debtors, and since 1882 it has only been utilised for those awaiting trial during sessions, and for prisoners condemned to death.

THE new Sessions House will be built from plans prepared by Mr. Andrew Murray, the City surveyor, and will be carried out at an estimated cost of £120,000. As the Corporation have to pay £40,000 to the Government for that portion of the prison which came under Government jurisdiction by the Prison Act of 1877, and belonged to the Government—viz., that at the Newgate Street end, known as the "male wing," it follows that the cost will be enormous. At present merely sketch plans have been submitted to the particular judges whose approval is necessary before any elaboration of them can be attempted. The entrances to the courts and offices will be from the Old Bailey. The site is a very difficult one to deal with, being a plot of ground with an extended frontage and no access from the rear, and very little depth from back to front; consequently the whole plan has to be spread out laterally.

AN influential movement is on foot in the City to seize the opportunity offered by the renewal of the churchyard behind St. Giles's Church, Cripplegate, necessitated by the recent disastrous fire, to add this formerly pretty and quiet spot to the list of City gardens. This churchyard is from its situation more restful and peaceful than the majority of the old graveyards, which have of late years been utilised for the benefit of the living, and it is felt that this spot would be an ideal one for the erection of a statue or other memorial of Milton, who lived in the parish, and whose body rests in the grand old church which has now twice escaped the ravages of fire. Many of the parishioners of St. Giles are actively

interesting themselves in the project, and there can be no doubt that the necessary money for a Milton memorial would be at once forthcoming.

DIRECT railway connection between the metropolis and the most attractive part of the North Cornwall coast has now been established, the London and South-Western Company having extended its Holsworthy branch line to Bude. The approach is thus made to the centre of the wild and rocky shore which lies between Hartland Point and Padstow, a district which has hitherto been accessible only by coach. By means of the improved connection it will in future be possible for a traveller to reach Bude in about five hours and a half from Waterloo. Considerable difficulty has attended the construction of the railway, but it has been completed by Messrs. John Aird and Son in little more than eighteen months. The railway was designed by Mr. W. R. Galbraith, the consulting engineer of the London and South-Western Company, and carried out under his personal supervision and that of his partner, Mr. R. F. Church. At present only a single set of rails has been laid between Holsworthy and Bude, but the general character of the line is such as to permit of the fastest speeds being attained. The lofty viaducts over the Deer and Woolston valleys have been planned with the idea of doubling the railroad when necessary.

A KIEFF paper reports some interesting archaeological discoveries recently made in that province on the estate of M. Khanenko, where there are several of the Kurgans, or turtle-backed burial mounds, so common in many parts of Russia. The chief find was a cup, in form and design identical with the unique cup from Kul'-Ob', and unique itself in that it is of gold. A well-preserved Greek vase, with scenes from the mythology, and three gold plates for decorative purposes, engraved with amongst other subjects, strange animals, similar to those found on plates dug up in the Province of Perm and in Siberia. The greater number of the kurgans proved to have been already ransacked, but the discoveries, as described by the paper, appear to have been many and important. A Greek bronze helmet with traces of gold inlaid work, was found close to the skeleton of a Scythian warrior, who lay with his bronze arrows and quiver strewn about him, and a slave lying across at his feet. Several skeletons of women were unearthed, all having ornaments of various metals about them. One lay beside a large oval slab of stone, evidently intended for sacrificial purposes. The largest of the burial places found beneath the kurgans has not been examined yet, so it is probable other finds may be made.

VANDALISM receives a well-merited check by the refusal of the Light Railway Commission to accord powers for the construction of the proposed line connecting Lynmouth with Minehead, to which we referred last week. The lovers of the beautiful had a right to be heard in the matter. Their objections to the disfigurement of Countisbury Foreland will be endorsed by everyone who has ever visited the neighbourhood; while the encouragement which the advent of a fresh railway would give to the adventures of the speculative builder is a thing to be deprecated by all those who do not wish to see the lovely woods in the valley of the Lynn cut down to make room for "eligible villa residences."

THE furniture and effects of Ridler's Hotel, Holborn, have been sold by public auction, the site being required for the extension of the premises of the Prudential Assurance Company, which has already absorbed Furnival's Inn, in which Charles Dickens lived at the time he began to write the "Pickwick Papers," and the ground on which stood the old houses in Brooke Street, in one of which the unfortunate Chatterton poisoned himself. Ridler's was one of the few remaining inns which London could show as an example of the hotel patronised by the well-to-do in the early part of the century.

THE Deal Corporation has had under consideration a serious danger which menaces the town from sea encroachments, and have decided to at once proceed with important new works of defence near Sandown Castle, at the north end of the town. The Surveyor to the Corporation stated that unless these works of defence were undertaken at once the advance of the sea will undermine the existing wall and cause it to collapse. The urgency of the matter was also emphasised by the Town Clerk, who said he had visited the spot, and the state of things so alarmed him that he had written to the Board of Trade pointing out that the whole of Deal was likely to be submerged if the wall went. The sea-wall was much damaged by the heavy gales of several months ago, which carried away the shingle to such an extent as to leave the foundations exposed.

THE ancient bridge across the Tweed at Berwick, towards the maintenance of which the Corporation of Berwick receives an annual grant from the Government of £90 9s.—a grant which evidently does not meet with the approbation of Mr. Labouchere, who objected to it in the House of Commons the other evening—has a very interesting history. The amount of the grant is really £100, but deductions for Government stamps, fees, &c., reduce it to £90 9s. Owing no doubt to the fact that the bridge spans the stream which separates England and Scotland, and provides a means of communication between the two countries, it has occupied a peculiar position. It was built by the Corporation of Berwick, by permission of King James I., the funds being chiefly supplied by the Crown. Thirteen years were spent in its erection, it having been begun in 1611 and opened in 1624, and it is said to have cost £15,000. Subsequently the Corporation presented a petition to Charles II. for a grant for its support, and on July 23rd, 1667, Charles, by letters patent under his Great Seal, "considering the usefulness and nobleness of the structure of Berwick Bridge," which had been built by his grandfather, James I., settled a revenue upon the mayor, bailiffs, and burgesses for the time being, of £100 per annum out of his Majesty's customs at Berwick, or failing Berwick, out of the customs of any other port in his kingdom of England; with the proviso, however, "that the said mayor, bailiffs, and burgesses should from time to time for ever hereafter maintain, support, and keep the bridge in good and sufficient repair, without making any addresses or pretences whatsoever to his Majesty or successors for any future repair thereof; that the whole amount of such aforesaid annuity or revenue should be applied to the support and repair of the bridge, and to no other purpose whatsoever"; and that, should any surplus income accumulate, it was to be invested in a bank, and employed wholly on repair of future breaches or casualties that might befall the bridge.

As security for the due performance of the contract the Corporation granted to the Crown a mortgage of the manor of Tweedmouth and Spittal, which the Corporation had previously purchased from the Earl of Suffolk. The yearly grant of £100 was duly paid out of the customs till 1700, when William III., by letters patent, ordered that it should be paid out of the Imperial Exchequer. The Corporation has kept the bridge in repair; but in recent years there have been many complaints with regard to its unsuitability for modern traffic. Proposals have been made to widen it, and suggestions have also been made as to the desirability of building a new bridge altogether. There is little likelihood however, of a Government in these days being so complaisant as James I. and Charles II., and as the citizens of Berwick, while anxious to have a better bridge, are reluctant to pay the bills themselves, very little practical progress has been made, although the matter has been discussed times without number. The bridge itself is remarkable in some respects, one peculiarity being that no two arches of it are exactly alike. At one time there was a gate in the middle of it, but this has long since

been removed. Naturally, the bridge has many interesting historical associations.

ALTHOUGH Gloucester was at one time famous as a bell-founding city, and has for many years been able to hold its own in the matter of campanology, it has never been able to boast of a peal of ten bells in one tower until the present time. The eight bells at St. Michael's Church have recently been increased to ten by the gift by the Corporation of an old fire-bell, formerly hung at the Tolsey, and by the generosity of the Mayor, who presented the church with a new bell. Since the demolition of the Tolsey, on the site of which stands the Wilts and Dorset Bank, the fire-bell remained in unmerited seclusion at the Guildhall until the excellent suggestion was made that it should be returned to its original and proper habitation.

ARRANGEMENTS have been made for the fixing of a number of powerful electric arc lamps in the forecourt and stable yard at Marlborough House, which are at present very indifferently lighted. The recent placing of electric lamps in Pall Mall has somewhat improved matters, but on occasions of late State ceremonies, such as the State concerts and balls, the absence of good light has caused much inconvenience. Twice within a few months there have been mishaps with the heavy dress carriages used on such occasions, and these may be attributed in part, if not wholly, to inefficient light at awkward turnings.

THE National Gallery, already rich in Rembrandts, has acquired two more portraits by the master. They are seated figures, life-size, and three-quarters length. The first represents a man of mature age, but still in the full vigour of life, with strongly marked and handsome features, and a full beard. He wears a cap with a white band, and a loose brown robe trimmed with fur, over a light under-dress. The picture was formerly supposed to be a likeness of Yan Lutma, a goldsmith of Antwerp.

THE second is a portrait of an elderly lady with sunken cheeks and eyes, and other strongly marked features. She faces the spectator, the head being in full front view. She wears a black dress trimmed with brown fur, a black coif of tissue expanded upon wire, a large white ruff, and white wrist-bands. The hands, one of which holds a white kerchief, rest upon her chair. Both portraits illustrate an advanced stage of Rembrandt's art, his firmest method, and freest touches. They come from Livermore Park, Bury St. Edmunds.

A MEMORIAL to perpetuate the memory of Caedmon, England's first Christian poet, in the form of a cross, is to be unveiled by the Poet Laureate on September 21, at Whitby. The cross, which will stand 20ft. from the ground, has been modelled after the general shape and proportion of the four great Anglian crosses that were erected in Caedmon's time, and which are wholly or in part extant to-day. The whole cross shaft, which weighs close on three tons, is richly carved with emblem and symbol on all four sides, and the famous nine lines of Caedmon's "Song of Creation"—preserved in the Moore Baeda at Cambridge—are given upon the cross in English, in Rune, and in Saxon minuscule.

THE vestry of Chelsea is at present making a much-needed improvement on the river embankment between Beaufort Street and Milman's Street, Cheyne Walk. The high sides of last November damaged the river wall seriously that it became necessary to repair it. The opportunity was considered suitable for widening the roadway, the narrowness of which at this point has caused a large number of accidents. With the consent of the Thames Conservancy, the Vestry has arranged to set back the wall such a distance into the river as will increase the width of Cheyne Walk at the end of the present embankment to 25ft., the increased width narrowing gradually westwards to 6ft. by Messrs. Lee and Jerdein's

wharf. It is a great pity that at the same time that unsightly obstruction, the coal-storing shed belonging to that firm, could not be removed from the Embankment. The estimated cost of the vestry's improvement is £2000.

THE river is very beautiful at this point. Just a little above is Turner's old house, which has recently been restored by Mr. C. Ashbee. The improvement alluded to is right in front of Lindsey House, one of Chelsea's many celebrated old houses; it is now known as Lindsey Row, having been cut up into several "tenements," as Beaver calls them. The third Earl of Lindsey lived here in the reign of Charles II., when the house was a mansion of the greatest pretensions. In 1750 it was renovated by Count Zinzendorf, and chiefly used as a pilgrim house by Moravians in London.

THE Liverpool Artists' Club entertained at supper yesterday week the Hanging Committee of the forthcoming Autumn Exhibition under municipal auspices in the Walker Art Gallery. Mr. John Finnie presided over a large company. In responding for the toast of "Our Guests," Mr. H. W. B. Davis, R.A., said he could safely predict that this year's exhibition would be of exceptional merit, and one point was the varied character of the works apart from their high standard of quality. There was hardly a phase or a mood of art that was not represented by works of very high excellence. It was the very variety of art that lent freshness to the interest they took in art. He could not conclude without reference to the very fine collection of water-colours, for which the exhibition was largely indebted to local artists. In proposing "Success to the Autumn Exhibition," Mr. Cohen said that since 1877 the net profit of those exhibitions amounted to £35,000.

SWINDON STATION is about to be rebuilt. That well-remembered junction, where all trains stopped "ten minutes for refreshments" under contract between the refreshment contractors and the Great Western Railway Company, until the railway directors bought the contractors out at a cost of some ninety thousand pounds a few years ago, is now in a somewhat dilapidated condition. Soon after the Company took over the refreshment rooms they were burned out, and so they have remained since, a roofless wreck. The platforms will be rebuilt rather more to the eastward than now. The new station will not be on a very large scale, since the fast trains between London and the West of England simply run through, and passenger traffic to and from Swindon is not very extensive, the place only bulking largely as being the headquarters of the locomotive, carriage building, and general engineering works of the Great Western.

THERE is thought to be some probability that the house of the late Lord Leighton, in Holland Park Road, will pass into the control of the Kensington Vestry, and be preserved as a permanent Art centre. The special committee appointed by the local authority consider that it might easily form the centre of a school of Art in the widest sense. Students of form and composition would have at their hands the work and methods of Lord Leighton for their careful examination, and the large studio might be used for Art lectures, musical performances, or dramatic studies.

A COMPETITIVE exhibition of metal work is to be held in Ironmonger's Hall, on October 26 and 27, under the auspices of the Worshipful Company of Founders. The competitions will be restricted to British subjects who are founders, designers, craftsmen, or apprentices engaged in foundry business within the City of London and the area of the Metropolitan Police. Prizes to the aggregate value of upwards of £100 will be offered for various subjects, and in addition to the money awards all the successful competitors will be presented with the freedom of the Founders' Company. The exhibition will be under the direction of a

committee consisting of the Master (Mr. Wm. Edward Chambers), the Wardens (Mr. M. B. Herbert and Mr. Deputy Bertram), Professor Aitchison, R.A. (President of the Royal Institute of British Architects), Mr. Alfred Gilbert R.A., Mr. Geo. J. Frampton, A.R.A., Mr. J. Willis Dixon, F.R.G.S., and Mr. R. H. Young.

THE growing town of Rushden, in Northamptonshire, furnishes a very amusing story. When the Independent Wesleyan Chapel was erected in the year 1873, the usual custom of depositing some current coins of the realm, the deeds of the chapel, and the local newspaper at the stone-laying was duly observed. Since then Rushden has grown so fast, and the congregation has increased as to make it necessary to build a new tabernacle, and the old chapel was razed to the ground. Accordingly several "elders" of the church assembled at the demolished building to remove the treasures placed in the stonework a quarter of a century ago, but when the piece of slate with which the cavity was covered was raised with all due solemnity it was found to be empty. Some writing on the piece of slate, however, afforded an explanation of the fruitless search. Scratched on one side—evidently with a nail—was the following sentence: "Oakes to the four foundation stones. We had no beer, and that made all of us feel very queer." On the reverse side of the slate was the date, 1873, and the signatures of five men who were presumably engaged in the erection of the chapel.

AT the forthcoming meeting of the American Association for the Advancement of Science—the transatlantic equivalent of our British Association—which is to open at Boston on the 22nd inst., a notable contribution is to be made by Mr. Marshall H. Saville, who will relate the result of his recent explorations among the ancient cities of Mexico. These results are said to be the most remarkable ever made in America, and "are not only likely to revolutionise some of the pet theories of archaeologists and anthropologists, but they are of great interest for the light they throw on the question of the origin of the most ancient inhabitants of the western continent." The discoveries were made at Xoxo, some five miles south of the district Oaxaca, where, in part by accident, Mr. Saville came upon the ruins of a pre-historic metropolis, the ancient capital of the Zepotecas, the most advanced nation which inhabited the American continent before its civilisation by Europe. From the investigations which have been made of this city, as well as from the hieroglyphics which have been unearthed, a very high opinion has been formed of the culture and civilisation of the people, who are placed by Mr. Saville with the ancient races of India, Chaldaea, and Egypt, and may even prove that the early inhabitants of the country were closely related to India.

THE great discovery, however, was a huge temple at the top of a steep mountain, surrounded by an imposing peristyle, that will recall the sacrificial temple to readers of Mr. Rider Haggard's "Montezuma's Daughter." It was discovered by following what looked like a terracotta drain pipe, leading from one of the mounds into the fields. The sides of the mountain, on the summit of which stood the city and temple, were artificially terraced, and the top had been fortified on all sides until it was impregnable. On the mountain were "the crumbling ruins of amphitheatres, palaces, and other public buildings. Streets and pathways were exactly as they had been during the long centuries since their desertion. Here, on this terraced mountain, overlooking a great stretch of country at its foot, was at last found the lost capital of the Zepotecan nation." Zichila is, in Mr. Saville's opinion, the ancient name of the city, for a village exists in the neighbourhood which is known by that title. The city, according to the explorer, was one of considerable size, extending over several square miles, and he inclines to the opinion that it was probably destroyed by an earthquake. One of the largest ruins was at the southern end of the city, where a mound 1000ft. long

and 300ft. wide was discovered. The slopes of its sides were regular and faced with masonry, and a stairway led to its summit, which Mr. Saville thinks may have been the site of a large temple, or of a series of public buildings. Another rectangular mound of similar kind, which was once an amphitheatre for public meetings, was also found at the other end of the city.

MR. ALFRED SCHULZ-CURTIS has for many years cherished the idea of having a theatre erected in England after the Bayreuth plan, where model performances of the best works of art (not necessarily limited to Wagner) may be given, and, being encouraged by some influential clients, he thinks that the time has come to take a step in advance towards the realisation of this scheme. The ideal site for a theatre of this description has always appeared to him to be Richmond Hill, with Richmond Park as a background and the Thames Valley spreading beneath. An amount of from £50,000 to £100,000 may be required to carry out the suggested plan.

THE suggestion that a room should be set apart at the National Gallery as a permanent memorial of the late Sir Edward Burne-Jones is viewed very favourably by an important section of the art world. It is felt that a collection of his works, which could be acquired gradually and placed at some recognised art centre, would form a memorial at once most fitting and most acceptable to the relatives of the great artist. Of such art centres the National Gallery is the most appropriate, most dignified, and most accessible. But if this should be found impracticable, it is urged that the scheme might at least be carried out at the Tate Gallery. The memorial committee might arrange with the Tate trustees for the erection of a special Burne-Jones room in connection with the buildings now being put up on the north side. So far as is known, there are very few of the paintings by the great artist in the market at present, and the holders of some of the most valuable are known to set great store by them. There are, however, some at once to be had, and the preparation of a home for the others would probably lead to their acquisition.

THE visitor to London this year, especially if he be interested in literary associations, may chance to notice the rehabilitation of Russell Square. Although the Duke of Bedford assented to the pulling down of one-half of the east side, upon which a magnificent hotel is fast nearing completion, he has insisted on preserving the general characteristics of the Square. As leases fall in, the houses are being renovated on the old lines, save that a new story is added, and that in the external decorations there is a judicious use of terra-cotta mouldings. Thus, if the Osbornes and Sedleys of "Vanity Fair" could return to their old surroundings, they would not find the place greatly changed. The new hotel is being built in a style which will offer no startling contrast with the fine old houses around, although the characteristic of the building is the extensive use of terra-cotta frontages. When the hotel is complete and the houses are all restored, the square will again be among the most dignified and imposing of places of its kind in London.

It is quite possible that the wonderful Deepdene collection of Dutch and Flemish pictures may be exhibited in London before being finally scattered. It was got together by the ancestors of Mr. Henry Hope, and has just been purchased by Mr. Asher Wertheimer for £121,550, a price which represents a fine bargain for the buyer. Mr. Wertheimer's own portrait has hung on the Academy walls through the summer—an example of Mr. Sargent's amazing cleverness, as well as his fearsome habit of carrying truthfulness to the verge of caricature.

THE historic church of Pyecombe was reopened, after re-toration, last week. The church of Pyecombe is of great antiquity: indeed its history is lost in the distant past.

It is of very considerable interest archaeologically. While the restoration has greatly improved its exterior aspect, the interior has been made dignified and impressive. In a village like Pyecombe, so near to Brighton, and yet so isolated in its own picturesque environment amid the hills, changes come slowly; but the modern spirit is breathed in the present restoration.

THE general outlines of the old building have not in any way been interfered with, the restoration having been carried out with reverent care and regard for pious and historic associations. Several ancient monuments, including what appears to be a Maltese cross in stone, and a larger incised cross of perhaps even greater antiquity, have been discovered during excavations, and these have been carefully preserved.

THERE is a double piscina in the sanctuary; it is, therefore, probable that in pre-Reformation days there were two altars in the church. In addition to the Norman work there are distinct traces of Saxon work to be found in the sacred building. The triple arch dividing the nave from the chancel, and which has been very carefully restored, is a curiously interesting feature, and the quaintly ornamented leaden font, dating, it is believed, from the twelfth century, is also of much interest, as there are very few leaden fonts to be found in England, and only two, it is understood, in the county of Sussex. The improvements which have been carried out include the re-roofing of a portion of the tower and nave, and the enlargement of the vestry, which formerly was almost amusingly small; the belfry has been restored, and windows put in throughout with fresh iron, lead, glass, and stonework; the interior walls have been painted, in places, where needed, with petrifying damp-proof solution; a new brick drain has been put round the exterior of the building, and the mounds of earth removed, there having been a huge mound to the west side of the tower; the heating apparatus is entirely new, the seating has also been improved, the tower has been strengthened with new beams—this being a considerable work in itself, and absolutely necessary, as the tower was getting into a dangerous state; the porch has been renovated and a new door supplied to it, the old inner door of oak studded with big nails having been retained; a new system of lighting has been introduced by means of hanging lamps of an ecclesiastical pattern; new choir stalls of oak have been provided, and the fine curved oak reredos is new.

A FINE statue of An-Kheft Ka, which was found at Dashisheh by Dr. Petrie, and a miniature false door from the door of the Priest of Memphis, from Sakhara, have just been acquired by the Oriental Department of the British Museum. Both works are supposed to have been in existence about B.C. 3400, and, therefore, belong to the time of the fourth and fifth dynasties. A number of early Babylonian inscriptions have also been purchased by the Museum authorities. Some of these documents relate to temple accounts, are beautifully written, bear the date of 2800 B.C., and evidently belong to the cities of South Chaldea.

THE rumours that the beautiful Ken Wood, abutting Parliament Hill and Hampstead Heath, is to be covered with bricks and mortar are without foundation. Earl Mansfield writes from Scone Palace, Perth, that it is not his intention to place the estate in the market, but that he intends to make the place his summer residence. With this object in view, the interesting old mansion is at once to be put into a thorough state of repair.

THE annual excursion in connection with the Penzance Natural History and Antiquarian Society took place on Friday week. The route taken was by Alverton, Toltoft Hill, Tremathic Cross, and Tollgate, across Skymiel Bridge, past Deadman's Grave and Trannack to Grumbla. Here the party paid a visit to the last of the round houses, built of clay, and

then walked across the country to Botrea Hill, where a barrow was opened by the Society, under the president's directions on August Bank-holiday. It was unfortunate that the president, Mr. J. B. Cornish, was unable to accompany the party, and the excavations were explained by Mr. F. Holman. Nothing was found in the cross-cuts beyond evidences of burnt wood and charred soil, but not such wood as was found at Chysauster last year, which was evidently the remains of furze branches. The presence of some stones in the barrow, which have been thrown in promiscuously, rather point to the fact that the barrow had been opened previously, but if it has not been thoroughly disturbed the Society have hopes of yet making a good discovery. From Botrea the party drove to Chapel Corn Brea, where the remains of the old chapel on the summit of the hill were visited, and the cars rejoined at Preena Smithy, and Sennen ultimately reached. The church was inspected, the Rector explaining the many interesting features of the edifice, which dates from 1441, according to the inscription on the font. St. Sennen was supposed to be an Irish saint, who came over to Cornwall at the close of the fifth or early in the sixth century, but there is no reliable information on this subject. The church possesses a sweet peal of five bells.

THE works of the Paris Exhibition are being carried out with much activity and extraordinary care and method. According to custom, exhibitions are never finished at the time of opening, and the last exhibition was no exception to the rule. On this occasion the directors have decided to break the tradition, and have resolved that everything shall be absolutely ready on May 1st, 1900. This may be possible as far as the buildings are concerned, but will it be possible to compel the various exhibitors to be in their places and have their products in order by that date? There will be so many thousands of them, and, coming from so many parts of the globe as they do, it will be difficult to look after every one of them. This, however, is of secondary importance. The great thing is that everything concerning the construction shall be finished before the great day.

WE understand that the authorities at the British Museum have in preparation a most interesting compilation dealing with the older relics which have been received from time to time from West Africa in the department of British and Mediæval antiquities and Ethnography. Among the recent additions to the collection, which will be specially dealt with, are the remarkable series of bronze plaques which were sent from Benin to Downing Street some time back by Sir Ralph Moor, the Commissioner and Consul-General for the Niger Coast Protectorate. Experts who have examined these curious objects, which were produced by what is known as *cire perdue* process, fix their date at about 1560, and all agree as to the perfection of the workmanship of which they give evidence. Many of these plaques have found their way into London auction rooms, a few may be seen in the museum of the Royal United Service Institution, but the large majority were consigned to the Foreign and Colonial Offices.

THE latest innovation is a tramway through a cathedral. Strange to say, the idea does not hail from the States, that home of *fin-de-siècle* notions, but from Utrecht, where the faithful have been much scandalised by the intrusion. The cathedral in question was built in the thirteenth century on the site of an older one founded by St. Willebrodus, Bishop of Utrecht. In 1674, after a terrible storm, a portion of the nave gave way, leaving a large space between the chancel and the tower. The tower is a beautiful piece of architecture, and is 350ft. high. A new nave has been built, but it does not stretch as far as the tower, and there is still a fairly wide street between the two, which is considered as consecrated ground. Hence the disgust of the congregation when the municipality of Utrecht established tramway lines there.

A GREAT ASYLUM SCHEME.

PROPOSED BUILDINGS AT WEST BANGOUR.

MR. HIPPOLYTE J. BLANC, R.S.A., who has been appointed architect for the new asylum at West Bangour, visited many asylum buildings in the course of maturing his scheme, among others Alt Scherbitz, near Leipsic; Dalldorf, Claybury, Hawkhead, Hortwood, Gartloch, and Murthly, Perthshire. From these institutions facts were ascertained upon the result of the working of the latest improvements in each, both in arrangement of parts and as regards appliances. The characteristic aimed at by the architect in the outward treatment of the designs is variety of expression, consistent with the internal requirements. In some instances a little more architectural style has been infused into the design, to relieve the eye as far as possible from any sense of uniformity or monotony. Having regard to the conditions of site, the position chosen on the plan for the main entrance is suggested as that affording the largest area of a uniform surface, and it is therefore most convenient for receiving and delivering all heavy goods for the colony.

THE ADMINISTRATIVE BLOCK

is placed in the middle of the medical and hospital blocks, conveniently near the localities to be served. The porter's house is placed at the back, with separate access and staircase, but with through communication to the main building. The plans of the kitchen block provide for the requirements, and show all requisite fittings and apparatus. These are of the very latest construction, and have been found to work admirably in other modern asylums where they were seen. Bedroom accommodation for cook and assistants is also provided within the block. The stores block and the kitchen block are attached, and have through private communication. An abundance of lighting is afforded by means of continuous cupolas of clerestory side-sashes, with opening frames for ventilation, under simple and easy control. By this mode of construction the heating effect produced by ordinary roof-lying lights is destroyed. The church is designed to meet the requirements of Presbyterian or Ritual service as may be desired.

THE RECREATION HALL

is placed almost in the centre of the whole site. The floor area is unobstructed by pillars, and ample provision is made for stage and dressing-room requirements. At the main entrance are two cloak rooms, and for an increase of accommodation a gallery can easily be constructed over the recess between the two vestibules to hold 130 persons. There are four doors of access, any two of which can be for males, and two for females if desired. In treating the exterior of the hall, one of the vestibules has been designed to carry a lofty tower. In that tower it is proposed to place tanks of 30,000 gallon capacity, wherein water may be stored for the general service of the several blocks or for the wash-house, and also as a supply for fire hydrants. Above these is

A CLOCK CHAMBER,

placed at such elevation as will conveniently be viewed from any part of the colony. The hall is prominent, and, consistently with the idea of giving special consideration to prominent parts, it is more decoratively treated than some other buildings. The bath-house is lighted from clerestory windows placed high. In other asylums it is recommended to have screens between each bath, and so the plan provides for screens of moderate height and rejection. Each bath spills into a continuous gutter in the floor, and so all complication of timber work is overcome. The baths are proposed to be of fireclay, glazed white inside and outside, placed upon moulded blocks raised on the floor. The mortuary block is planned on the lines of the best equipped mortuary in Scotland. A special addition shown upon the plans is a duplicate mortuary for the sexes, a dissecting room, and a refrigerator. The situation of the mortuary has been specially considered. It is comparatively near the

hospital, and from it bodies may be removed outside the precincts of the colony without observation by any inmates. The laundry block is quite close to the kitchen and store block. The fittings proposed are selected from the best of those found in use in good modern asylums. As in other blocks named, the natural lighting here is by continuous upright glazed cupolas, and the means for ventilation are of the simplest and most efficient construction—namely, opening frames by means of cords and pulleys. The boiler and engine-house block immediately adjoins the store block. The accommodation provided is considered ample for the colony. The steam heating for kitchen, &c., may be served by one or two boilers. One is required for the electric lighting, and one—a spare one—for emergencies. The boilers are of necessity placed at a lower level than the ground, and the coal store adjoining, capable of housing 400 tons, is also placed at the same level, because the coal would thereby be more easily delivered to the cellars. The dynamo room is purposely delineated of ample space to admit of an increase in the number of dynamos, and also to afford space for storage batteries, which may be found useful. The equipment can quite readily be limited to the requirements of 720 persons in the meantime. The bakery is designed to meet the requirements of 1200 people. It is planned upon the best modern models.

THE WORKSHOP BLOCK

is, for obvious reasons, attached to the engine-room block. It is virtually more than a block, forming in its complete condition three sides of a courtyard. The nurses' house, for obvious reasons, is placed at the extreme west end of the site, being at a convenient distance from the medical section. The strain of their special duties demands perfect quietness in their retreat. In the plan the effort has been to group the accommodation prescribed in the most economical and convenient manner, and yet to give a certain degree of individuality to the whole block. Special accommodation for a matron is also provided. The medical superintendent's house is placed where it can be readily accessible to visitors and inquirers—namely, within ready view and easy reach of the main entrance. The attendants' cottages are planned for varying accommodation of three and four apartments. Those of three apartments have no separate bathroom, while those of four apartments have. The series is designed

WITH A VIEW TO PICTURESQUENESS,

without unnecessary ornamentation, but with sufficient form to give them architectural interest. The infirmary and sick-room blocks complete the group fronting the high land on which the medical section is placed. The situation is selected for its comparative airiness, as well as the other advantages of convenience. The hospital block is arranged that one side or half is a counterpart of the other. The kitchen is arranged in the middle. A doctor's room is also provided. A feature of the plan is that at the ends of the wards are two single rooms, one of which is for a moribund patient, who, after death, can be removed by the outside door of the room without having to be conveyed through the ward. The arrangement has received careful consideration to secure separation of sexes, and easy communication throughout upon an economical form of construction. The asylum houses are arranged to supply the accommodation required, and variety is sought to be gained by varying the areas and consequent accommodation of dormitories in the several blocks. For the industrial or non-medical section ten separate

SCHEMES FOR VILLAS

are submitted—five for men and five for women. The aggregate number of 150 of each sex has been divided as follows:—One villa of twenty-five, one of twenty-six, one of twenty-eight, one of thirty-two, and one of forty patients. Fire hydrants and hose chambers are provided for in every block at convenient places in the corridors or in staircases. No special fireproof construction is contemplated. There is com-

parative immunity from fire risks by the isolation of the different blocks. The ventilation of the various dormitories and day-rooms is provided for by means of fresh-air inlets in the window recesses at the floor levels, under key control of the attendants. Radiators are proposed to be placed in the window recesses, so that in winter the incoming air would be warmed, while in summer the air would be admitted by the same openings in a natural state. For the release of vitiated air grated openings are proposed to be placed in the walls near the ceilings, and led in specially-constructed glazed brick flues into an outlet shaft and ventilator in the roof. A fan in the ventilating shaft driven at any time when required by an electric motor is much more satisfactory. All windows are intended to open, but by means of a small brass bracket permanently screwed to the case the extent of the opening is limited to about 7in., which is quite serviceable for all requirements. The cost of the building to accommodate 1000 patients is set down at £235,000.

A BEAUTIFUL MODERN CHURCH.

ONE of the most beautiful of modern churches near London is St. John the Evangelist's, on the Auckland Hill of Upper Norwood. Occupying as it does a commanding position near the Crystal Palace, it can be seen for miles around, and is as conspicuous a feature of the landscape of South London as Harrow Parish Church is of the north. It is a sister church to St. Augustine's, Kilburn, and it is curious to note how Mr. Pearson, the architect of both, has tried experimentally in either one or the other various devices which, if successful, he definitely adopted in each. The style of Architecture is Early English of the

PUREST AND SEVEREST TYPE,

a style which, however, lends itself to a vast amount of enrichment in details and furniture. Those who have worshipped within the walls of St. John's have amply availed themselves of this, and the whole building has been well described as a "cluster of thank-offerings," the greater number of these being anonymous. With its fittings the church has cost considerably more than £30,000, while during the incumbency of the present, who is also the first, vicar (a period extending to nearly twenty-four years), £100,000 have been gathered in for different purposes connected with the church. The interior of the building is most impressive, while the roof is vaulted, the ribs of the groining being of stone and the cells of brick. There is yet an appearance of lightness about it, which is intensified when one remembers the fact that there are no flying buttresses against the outside walls of the church. Dividing the nave from the chancel is a fine stone screen, the carvings of which have cost some £600, and is one of the anonymous "thank-offerings." The figures with which it is embellished represent the saints and doctors of the Church, and the whole makes up

AN EPILOGUE OF EARLY ECCLESIASTICAL HISTORY.

Crowning the whole are large statues of the four Evangelists. Above the screen hangs a huge gilt cross, the gift of the Guild of St. John. The reredos is probably unique in that it is the gift, design, and actual work of a lady who is an associate of the Guild. It is divided into thirteen stone panels, the centre being occupied by the "Crucifixion," with the Virgin mother and St. John on either side. The figure on the cross is not conventional, and the face is represented as gazing upwards. The altar is of cedar wood, and is enriched with much carving. On the south of the chancel is the side chapel, which is entirely of white stone, and is quietly beautiful. Here again the Guild of St. John has been at work, and the altar, which has three silver sanctuary lamps hanging before it, has been painted by one of its members. The reredos in the chapel takes the form of a triptych. The windows of this chapel are yet another anonymous offering, as are also many of the other specimens—mostly by Clayton or Kempe—of stained glass in the church.

Professional Items.

BLYTH.—A new Masonic Hall has been erected at Blyth. The building is an imposing structure, the front being ornamented with Masonic emblems. It is built of red pressed bricks, with terra-cotta facings. The large bay windows have camber arches, and are also ornamented with terra-cotta. The passage and hall are beautifully tiled. On the basement there are two rooms on each side of a heavily panelled entrance door, with smoke and club rooms in the rear. The lodge room is upstairs, and has two ante-rooms attached at the west side, being in all respects a most commodious meeting place. There is also a caretaker's house attached to the building. The whole range of the premises is heated by means of hot water pipes, and ventilated by Boyle's patent ventilators. The contractors for the building were Messrs. Jno. Goulding and Sons, Blyth; the plumbing has been done by Mr. Thomas Poulter, Blyth; the painting by Messrs. Ternent and Nicholson, and the furnishings have been supplied by Mr. Jno. Mount, Cowpen Quay.

BURLEIGH.—A new building for the Birmingham District and Counties Banking Company Limited has been opened for business. The bank is situated in Moorland Road, at the corner of Price Street. The two fronts are faced with Ruabon bricks, and have dressings of red and buff terra-cotta. The bank entrance is at the corner of the two streets; the doorway is richer than the other parts of the exterior, and is executed in red terra-cotta. There is a side entrance from Price Street, and another doorway in Moorland Road, the latter giving access to a set of offices on the upper floor. The banking-room is 30ft. in width, by 34ft. in length, and 17ft. 6in. in height. It has a dado all round of encaustic tiles, which, with the pavement of the public space, is the work of Messrs. T. and R. Boote, Limited. The builders are Messrs. C. and J. Grant, of Cobridge. The architects are Messrs. C. Whitwell and Son, of Birmingham.

CARDIFF.—The Great Western Railway Company has at last set in hand the work of erecting a new station on its line to serve the Roath and Splott end of the borough. The new station when completed will be found to be an extremely well-arranged place. Whilst the permanent officials at Paddington have prepared the plans, &c., work will be in the hands of a Cardiff firm—Messrs. Mackay and Davies—and Mr. J. C. Lloyd, resident engineer, will superintend the erection. The entrance will be from Pearl Street, where the booking office and parcel office will be erected in a separate building, which is connected with the up platform by a partially covered way. Upon the platforms, which will run 500ft. long, there will be the usual waiting-rooms and other accommodation for passengers, and a partially covered footbridge will connect the two platforms. The old Splott Road Bridge is to be rebuilt, and when this is carried out the bridge will be about 120ft. long and 75ft. wide. The contract price for the work is £15,000. The completion of the new Custom House in course of erection in Bute Street, near the Pier Head, Cardiff, will be reached about the end of September. The building, which is being erected at a cost of about £4800 by the firm of contractors, Messrs. W. Thomas and Co., of Cardiff, from the design of Mr. Tanner, architect of H.M. Office of Works, London, occupies a central and convenient situation in the heart of the business part of the Docks. It is a mixed style of classic architecture and three stories high, the front which faces Bute Street being in Portland stone, effectively relieved with carvings by Mr. Clarke, of Llandaff, while the side and rear are in white brick, partly relieved with Portland stone dressings. The entrance is from Bute Street, by means of a forecourt at the side nearest the Pier Head.

DEAL.—The South Eastern Hotel, which has been erected at Deal for the South Eastern Railway Company, has just been opened. The hotel is situated on the sea front next to Deal Castle. The hotel is a conspicuous object on the sea front. It has been built in accordance with modern ideas, and is handsomely appointed; there are lifts to all floors, and the lighting is by electricity from a private installation.

DRUMMUIR, BANFFSHIRE.—Certain alterations and extensions are about to be made on Drummuir Castle. The proposed alterations will give greater height to the west wall and to the rooms adjacent. To preserve the continuity in the external appearance of the walls, the building stones have been taken from the quarry which supplied the material half a century ago.

DUNDEE.—The erection of a new church is projected by the St. Paul's Episcopal Church, Dundee. The building is to be carried out in a combination of red brick and stone, with green slates. The architect is Mr. T. M. Cappon, Dundee.

FINGLAS.—At St. Margaret's, Finglas, the Archbishop of Dublin laid the foundation stone of a new church. The church, of which Mr. G. L. O'Connor, M.R.I.A., is the architect, is Early English Gothic in character, the nave is to be 80ft. long by 32ft. wide, with chancel, sacristies, &c., and is capable of accommodating four hundred persons. The walls will be built of limestone masonry, lined throughout with brick, strengthened by buttresses. The roof is of open timber, constructed with curved ribs, moulded principals, &c. A handsome porch will form the principal entrance at the west side of the church facing the roadway. A neat cut stone base and ornamental railings will encircle the ground.

GLASGOW.—A large new public school for the Finnieston quarter of Glasgow has just been opened. The new school has frontages to Stobcross Street, Elliot Street, and Port Street, and with large playgrounds, has opened up and greatly improved the district. The schoolrooms are on three floors, with a basement in which are placed large drill and play halls. The school will accommodate 1220 children, fully one-third of whom will be in infant classes, which occupy the whole of the ground floor. The architects employed were Messrs. H. and D. Barclay, who have had long experience in this class of work. The contractors are: For mason work, Mr. John B. McCallum; wright work, Mr. Alex. Ferguson; plumber, Robert Bowie; slater, A. and D. MacKay; iron and steel, P. and W. Macellan; paving and concrete floors, A. M. Ross and Sons; plasterer, H. S. Bathgate; heating, Hunter, McWilliam and Co.; ironmongery, Highet and Roxburgh; gasfitting, Mr. Pauling and Messrs. Stott; stair railing, William Lightbody; painter, John Watson; iron railings and gates, John Munday.

GOBOWEN.—The foundation stone of a new Vicarage for the parish of Hengoed and Gobowen, has been laid. The plans for the house, which is on the main road on the Oswestry side of Gobowen, were prepared by Messrs. Shaylor and Madoc Jones, architects, Oswestry, and the contractor is Mr. W. Felton, Oswestry. The plans, which were selected by the architect of Queen Anne's Bounty office from various plans sent in, are for a building of ample dimensions, and the external appearance will be a picturesque treatment of red brick, brown tiles and white woodwork. The cost of the building is estimated at £1500.

LEEDS.—The Cookridge Street Baths Subcommittee of the Leeds City Council has had under consideration the alterations which it is proposed to carry out at the Cookridge Street Baths, recently acquired by the Corporation, and which it is expected will cost about £5000. The Committee intend to make the gentleman's first-class bath at Cookridge Street Baths shallower, and to turn it into a ladies' bath. The large swimming bath at Cookridge

Street, which has not been used for some time, will be altered and made into a first-class gentleman's swimming bath. Its length will be shortened to 75ft.

LIVERPOOL.—St. Polycarp's School, Everton, has been reopened after extensive alterations and enlargements. The boys' school has been subdivided by means of Wilks' Climax sliding partitions, new apparatus for heating and ventilating has been supplied, and a fresh roof constructed. The accommodation has been raised to 1000 places. Mr. T. Taliesin Rees, A.R.I.B.A., 32, Hamilton Street, Birkenhead, was the architect, and Messrs. Dargue, Griffiths and Co. Limited, of Lord Street, Liverpool, were the contractors.

LUSK.—A new high altar and two side altars have been erected in the Church of St. Maccuillin, Lusk. The design and execution of the work in connection with the high altar was entrusted to Messrs. Early. The design of the high altar is elaborate, and great taste is shown both in its planning and execution. The painting of the sanctuary is exquisitely done.

MAIDSTONE.—The work of restoring and enlarging the little parish church of Allington, near Maidstone, is now in progress, Messrs. Fryer and Co. being the contractors. A transept is being added, and needed alterations are being carried out. Mr. Godfrey Gray, ecclesiastical artist of Cambridge, has begun the work of decorating the walls, &c. To him has also been intrusted the designing and painting of a carved triptych to surmount the altar, together with the treatment of the five new lancet windows for the nave and transepts. Among the special gifts promised are a stained-glass window for the west end, a font cover, and two five-light standards in iron and brass for the sanctuary.

NEWLAND.—A new bridge has been opened at Newland. The old structure was an arch bridge, built a great number of years ago, and during the course of time the level of the road on each side has gone down, with the result that the bridge formed a nasty rise in the surface. The bridge is constructed of steel girders, resting upon abutments of red sandstone, from Hawcoat Quarry, in which stone all the rest of the bridge is carried out. The girders are ten in number, of 12in. by 18in. steel, and weigh about one ton each. These are covered by road plates $\frac{1}{2}$ in. thick, and on these is a layer of 6in. of concrete, covered again by 6in. of tar macadam.

ST. HELIERS.—The Municipality have accepted the tender of the Horsfall Furnace Syndicate Ltd., for a refuse destructor, with accessories complete, for steam raising.

SHERE (Surrey).—The hall that has been erected at Shere, West Surrey, to commemorate the Queen's Diamond Jubilee, was formally opened on Friday week. The hall, built of red brick, in the Tudor style, is situated on the cricket-ground on the Netley Park estate, facing the main street. The estimated cost of the hall, with the furniture and fittings, is £1200. It has been built to the designs of Mr. Felix Clay, and Mr. Etherington, of Albury, was the contractor.

WORKSOP.—The scheme for the erection of a cottage hospital at Worksop has now taken definite shape. It has been decided to erect the hospital on the Watson Road site, and the plans have been approved. Tenders have recently been received for the erection of the buildings, and that of Mr. W. E. Shaw, of Ilkeston, at £3050, has been accepted. The committee have deemed it advisable not to complete the whole scheme at present, but to leave the completion of one ward, the operating room, and one sanitary block, to be added as soon as means warrant. Building operations will shortly be commenced, in accordance with the plans drawn by Messrs. Flockton, Gibbs, and Flockton, of Sheffield and Worksop.

Correspondence.

CRUCIFORM CHURCHES.

To the Editor of THE BUILDERS' JOURNAL.

DEAR SIR,—Your correspondent "E. R.," in his article on "Cruciform Churches," in your last number, says that he "ventures to hope that a little information" on this subject "will not be considered superfluous." But I would suggest that this information to be useful should be correct. In the list of fallen towers given (copied from Mr. Bishop's book) the dates for Winchester and Worcester (first) are wrong, and should be reversed. The failure at Chichester is well known, but when did Hereford tower fall—and since 1861? This is certainly one tower where some scientific knowledge was shown in its construction. Again, as to Peterborough. The central lantern tower of fourteenth century date had no "fliche" in recent times, and Mr. Pearson rebuilt the tower stone for stone, and did not, as your correspondent suggests, build a new Norman tower. I am glad to see Mr. Bishop's book quoted. This is one of the best books on Architecture available for students, and deserves to be better known.—I am, sir,

E. J. M.

THE R.I.B.A. AND THE GOVERNMENT.

To the Editor of THE BUILDERS' JOURNAL.

DEAR SIR,—The editorial comment on my letter in your current issue leaves me no alternative but to reply.

I fear that in my endeavour to be concise I have only succeeded in being incoherent, as your note seems to miss my main point, and to misrepresent the general drift and purpose of my letter.

I intended to lay no "charges at the door of the R.I.B.A." beyond the one charge that they did not rise to the occasion. I did not "presume that the names were not honestly chosen," because I presumed nothing at all about it. "Mr. Jemmett does not adduce a little of proof in substantiation of his suppositions," because he supposes nothing. I took certain facts which I believed to be indisputable, applied them to different hypothetical cases, and endeavoured to deduce the only logical inferences applicable to each case. To do this may possibly be uncharitable—though the term is new to me as applied to a logical process—but it certainly is not unfair. My facts may be wrong, my reasoning false; but that is another matter. If my letter can reasonably be interpreted as presuming or supposing dishonest motives on the part of the Institute, then I have expressed myself badly, and should have done well to develop my argument further. I endeavoured to point out that if the Institute was free to select the best men, and if it selected its own members, then it did so to the prejudice of better men. As the best men are not members, and as the Institute is aware of this fact, I see no escape from this conclusion myself; but I expressed no opinion as to whether they were free or not to choose the best. If anyone from his own knowledge of what actually did occur, selects this one of my alternative propositions as fitting the case, and deduces from it the conclusion that it spells dishonesty, this is a practical application of my argument, over which I have no control.

But, sir, my object in trespassing on your space was not to attack the Institute or to make general reflections on its character or intelligence. This subject in itself is not of overpowering interest or importance to anyone but its own members. I wished to place on record my protest against the arrangements for the erection of the new Government offices; to point out that the method whereby the architects were chosen was one hardly calculated to obtain the best men; and to deplore the fact that the Institute did not rise to the occasion when appealed to by the Government as a representative society. For these purposes, therefore, I referred to the notorious fact that the best men are not to be found at the Institute, and incidentally I endeavoured to show the awkward position in which any such society as the Institute is placed when

appealed to in this way as representing the whole Profession, when, as a matter of fact, it does no such thing; and now, having once placed itself in a false position by accepting the compliment, every possible line of action which it may adopt becomes open to question and possible misrepresentation.

And though, sir, this is a point on which you may quite fairly differ in opinion, yet I think in my main contention I have your sympathy and that of every architect who realises what these arrangements mean—how heavy the blow that has been struck at the dignity and prestige of Architecture—and who foresees how endless the humiliations to which it opens the door. And I fancy, sir, that when you come to think this over, you will also agree with me that the Institute did lose a great opportunity when it neglected to protest with all its might, and to appeal for the support of the whole Profession, which support would have been given by none more willingly than myself.—Faithfully yours,

A. R. JEMMETT.

[We should be sorry if we thought we had misrepresented Mr. Jemmett's attitude. To our mind, he does not come down to facts sufficiently. The foundation upon which he bases his "logical deductions" and "propositions" is as insecure and shifty as sand. Mr. Jemmett evidently is tremendously impressed with the fallability of mankind when faced with temptation, for he concludes that "it can only be inferred that the Institute yielded" in the hour of trial. The meagre facts available do not justify the inference. It is just possible, we think, that the Institute, professing some little interest in Architecture, rose above personal prejudices and sought the true advancement of the Art by honestly recommending the men best qualified, in its opinion, to erect these important national buildings. We still think that Mr. Jemmett's former letter contained a clear imputation of dishonesty—on this point readers may judge for themselves, and we therefore abstain from lengthy argument—and it was our acquiescence in this imputation we disclaimed. Outside this, we are heartily in agreement with Mr. Jemmett.—Ed. B. J.]

A NEW court-house has been formally opened at Penge.

It has been decided to enlarge Dromore Cathedral. The enlargement of the cathedral is a much needed work, and in order to make the alterations at present proposed, including the introduction of suitable heating apparatus, over £1000 will be required.

THE foundation-stone and two memorial stones of a new Wesleyan Sunday School have been laid at Portishead, Bristol. The new school is being built in a style harmonising with the architecture of the chapel, and includes a large hall and two smaller rooms.

A VILLAGE hall and library has been built by the Halkin Parish Council. Halkin is the centre of the Flintshire lead-mining industry. The village hall, which combines a reading room, library, billiard room, &c., is of local stone. It was built by Mr. A. B. Lloyd, Flint, from plans prepared by Messrs. Douglas and Minshall, Chester, the architects of the Eaton estate. The total cost has been £950.

ONE of the remaining old houses in Fleet Street, situate opposite Chancery Lane, which is said to have been formerly the palace of Cardinal Wolsey, has had to be shored up in consequence of losing the support of Gosling's Bank next door, that old building having recently been pulled down. The other side of the house, abutting on Inner Temple Lane, has also been affected, and has had to be strengthened by supports.

THE annual Blue-book about the affairs of the British Museum has just been published. Among the more important acquisitions of the year we gather from its pages is a further series of Egyptian sculptures of great antiquity, supplementing those which were purchased in 1896. The most valuable addition of literary interest is a papyrus, unfortunately much mutilated, of the first century B.C., containing poems of the Greek poet Bacchylides, the contemporary of Pindar.

Enquiry Department.

CONCERNING DRAINS.

To the Editor of THE BUILDERS' JOURNAL.

SIR,—Will you kindly answer through your valuable journal the following questions:—There are three cottages, each belonging to three different persons, joining each other, with only one 6in. drain from the sewer to the middle house, the drain of the houses on either side running into it. Can the owner of the middle house cut off the drain on each side, thus compelling the owners of the two houses to put separate drains? Also in reference to rain-water conductor as well? The houses have been built about ten years.—Yours truly,

H. P.

The owner of the middle house may not interfere. The common drain ranks as a sewer, and belongs to and is repairable by the local authority, while the drains from the houses on either side belong to those houses respectively.

BOOKS ON ARCHITECTURE.

To the Editor of THE BUILDERS' JOURNAL.

SIR,—Will you kindly inform me the best books to study for the South Kensington S. and A. subject "Architecture"? and oblige.—Yours truly,

"PUPIL."

The best books are Hamblin's "Architectural History"; Sturgis's "European Architecture," and Roger Smith's "Architecture." There are, of course, many more detailed works dealing with special periods and styles, while the measuring and sketching of good old work is essential to obtain a real mastery of detail; but the above three books will serve for general reading.

Under Discussion.

ARCHÆOLOGY IN WALES.

THE fifty-second annual session of the Cambrian Archaeological Society opened at Ludlow last week, under the presidency of the Right Hon. Lord Windsor. The association last visited the historic town, situated in what was once known as the Marshes of Wales, in the year 1852. The present meeting is a joint one, the Shropshire Archaeological Society having joined forces with the Cambrian Association. Among the places of interest visited were: Stanton Lacy, Holgate, and the prehistoric remains at Abdon Burf, the site of the Battle of Mortimer's Cross, and the ruins of Wigmore Castle; and Coxwall Knoll, the debatable site of the struggle with Caractacus.

Views and Reviews.

THE ELECTRICAL ENGINEER'S CENTRAL STATION DIRECTORY.

THE second issue of this publication has just made its appearance. It is a very useful work of reference to the practical electrician, whom it provides with the latest information on the electric supply stations in the various towns where used. The work will save much time and expense in preparing reports to municipal bodies. It also deals with the Board of Trade Regulations, Electric Tramways and Railways, a List of Members of the Municipal Electrical Association, a List of Electrical Engineers, and Biographical Notices.

"The Electrical Engineer's Central Station Directory." Biggs and Son, London. 3s. 6d.

THE church bells, chancel, and clock at Axminster will be reopened by the Lord Bishop of Exeter on Thursday, Sept. 29.

THE War Department has decided not to demolish Landguard Fort, on the Suffolk coast, at the mouth of the Orwell, opposite Harwich. The fort is, however, to be reconstructed and improved, so that it will accommodate three batteries, instead of one, as at present.

TENDERS.

ASHTAD (Surrey).—For the erection of two cottages, for Miss L. Smithers, at Barnet Wood-lane. Mr. J. Keal, architect, 23, Wells-street, Oxford-street, W. — £456
 Smith and Son ... £575 J. Death ... 450
 F. J. Shopland ... 497 J. Curwood (accepted) ... 450

AUGHACLAY (Ireland).—For improvement to Catholic chapel. Mr. J. P. McGrath, architect, Commercial-buildings, Foyles-street, Londonderry. —
 J. Gallagher and Son £266 0 D. Gillespie, London derry* ... 170 0
 W. J. Maultsail and Son ... 247 10 * Accepted.

BAKER'S END.—For additions and alterations to Gardenhurst, Baker's End, Herts. H. W. Hetherington Palmer, architect, the Outer Temple, 223, Strand, W.C. —
 Laurence ... £265 10

BARKING (Essex).—For supplying and fixing for the Urban District Council 100 flushing cisterns to water-closets. Mr. C. J. Dawson, surveyor. —
 T. J. Bissell ... £230 0 0 Esmond and Co.,
 T. C. Garbett ... 228 5 0 East Ham* ... £212 13 4
 Sharp, O'Brien ... 228 1 6 * Accepted.

BARNSELEY.—Accepted for the erection of a pair of semi-detached villas, Victoria-street. Messrs. Wade and Turner, architects, 10, Pitt-street, Barnsley. Quantities by architects. —
 Builders.—Schofield, Son, and Hampson £1,113 18 8
 Joinery.—Arthur Hawley ... 445 0 0
 Plastering.—Thomas Lindley ... 114 0 0
 Plumbing.—Samuel Rushforth ... 178 6 6
 Slating.—M. Fleming ... 68 0 0
 Painting.—Stephenson and Son ... 22 14 0
 [All of Barnsley.]

BILSDALE.—For the erection of a bridge, Ralsdale, for the Stokesley Rural District Council. Mr. W. H. Dixon, surveyor, Kirby-in-Cleveland, Stokesley. —
 Thos. Clarkson ... £395 Brotton (amended)
 Wm. Brotton, jun., Bils- tender) ... £325
 dale* ... 210 * Accepted.

BRISTOL.—For the erection of a factory, Lewin's Mead, for Messrs. Young and Humphries. Mr. Fred. Shove, architect, 8, Colston-avenue, Bristol. Quantities by the architect. —
 T. H. Brown ... £2,770 13 J. Hatherly ... £2,197 0
 J. Bastow ... 2,500 0 Hughes and Weekes ... 1,968 10
 J. Perkins ... 2,250 0 D. J. Tanner ... 1,967 0
 W. Foster ... 2,219 0 J. B. Davis ... 1,950 0
 H. A. Forse ... 2,200 0 T. Lovell and Son* ... 1,880 0
 Stephens & Bastow ... 2,198 0 * Accepted.

BURNT HOW LOUGHRIGG.—For new billiard-room, library, and other alterations, for Mr. E. Bousfield. Mr. R. Walker, architect, Windermere. —
 For the entire Work. ... £765 19 6

CORK.—For alterations to business premises, 23, Patrick-street, for Messrs. Harvey. Mr. Arthur Hill, architect, 22, George-street, Cork. —
 Dennis O'Callaghan ... £347 Antony Gaul* ... £479
 John Kearns ... 480 * Accepted.

CRAWLEY (Sussex).—For extension of sewers at Crawley, for the Horsham Rural District Council. Mr. C. H. Burstow, architect and surveyor, Horsham. —
 Steer ... £425 Easton, Crawley* ... £335
 Cook and Sons ... 345 * Accepted.

CRAWLEY (Sussex).—For erecting shops and houses at Crawley, for Mr. M. Nightingale. Mr. C. H. Burstow, architect and surveyor, Horsham. —
 Cook and Sons ... £1,699 J. Ockenden and Sons, ... £1,659
 Steer ... 1,696 Crawley (accepted) ... 1,659

CROYDON.—For additions and alterations to "Earl Russell" public-house, Gloucester-road, for Messrs. Page and Overton, Limited. Mr. A. Broad, architect, 22, George-street, Croydon. —
 W. Smith and Son ... £716 J. Smith and Sons ... £641
 E. Goulder ... 648 A. Bullock (accepted) ... 602

CROYDON.—For erecting two cottages, Waddon/Old-road. Mr. A. Broad, architect, 22, George-street, Croydon. —
 Rabbetts ... £790 W. Pearson and Co.* ... £750
 Horne and Wotton ... 775 * Accepted.

HARROW.—For the erection of a house in College-road, Harrow-on-the-Hill, for W. S. Salter, Esq. H. W. Hetherington Palmer, architect and surveyor, 222, Strand, W.C. —
 Bachelor ... £290

HULL.—For alterations, &c., to 83, Charles-street, for the Com. mittee of the Hull Blind Institution. Mr. T. Brownlow Thompson, hon. architect, 15, Parliament-street, Hull. —
 Bricklaying.—F. Bilton, 66, Mayfield-street, ... £145 10 8
 Hull ... 199 15 6
 Joinery.—A. Windass, West Dock Avenue, ... 17 17 6
 Slating.—Smith and Hunter, Ocean-place, ... 98 15 0
 Anlaby-road ... 36 0 0
 Plumbing.—J. Beal, Beverley-road ... 36 0 0
 Plumbing.—Healey, Anlaby-road ... 36 0 0

KIDDERMINSTER.—For kerbing, forming, &c., Leswell and Clarence-streets, for the Town Council. Mr. A. Comber, borough surveyor, Town Hall, Kidderminster. —
 T. Vale ... £438 10 G. Low, Kidderminster* £305
 * Accepted.

KENLEY.—Accepted for bar fittings at the "Kenley Hotel," Kenley, Surrey, for Malder and Collyer Brewery Company, Croydon. Mr. F. West, architect, Coombe-road, Croydon. —
 Simpson and Mabe, Peckham ... £456

LEEDS.—Accepted for the erection of underground conveniences, Duncan-street, for the Corporation. Mr. Thomas Hewson, C.E., Municipal Buildings, Leeds. —
 Bricklaying and Masonry.—Schofield, Son, and Co., Leeds ... £1,239 19 4
 Ornamental Iron Railing.—Walter McFarlane and Co., Glasgow ... 105 10 6
 Plumbing.—Adams and Co., Leeds ... 308 12 0
 Ventilating Fans.—J. H. Pickup and Co., Leeds ... 31 10 0
 Pavement Lights.—The St. Pancras Ironworks Company, London ... 49 10 0
 Flooring.—Diespeker and Co., London ... 51 0 0
 Electric Lighting.—W. Wharham, Leeds ... 81 17 0

LEYTONSTONE (Essex).—For alterations to the Congregational Church, Leytonstone-road. Messrs. J. T. Newman and Jacques, architects, 2 Fen-court, E.C. —
 Hearle and Farrow. £1,095 0 J. Noakes* ... £815 10
 W. Greagar and Son. ... 927 0 * Accepted.

LONDON.—For the pulling down and rebuilding of Nos. 2 & 3-299, Kentish Town-road, N.W., for Mr. Herbert Beall. Mr. Walter Bating, architect, 7, John-street, Adelphi, W.C. Quantities by Mr. C. Orlando Law, surveyor, Dacre House, Arundel-street, Strand, W.C. —
 B. Bristow and Sons ... £11,600 J. Carmichael ... £10,695
 J. Allen and Sons ... 10,823 Lawrence and Sons ... 10,580
 Patman and Fother- Gould and Brand ... 10,420
 ingham ... 10,793 A. A. Webber, London* 10,250
 * Accepted.

LONDON.—For the erection of a detached house at Wimpole Park. Mr. H. Phelps Drew, architect, 33, King-street, Covent Garden. Quantities by the architect. —
 Dickens ... £1,650 Pater and Co. ... £1,200
 Edwards and Medway ... 1,350 Burgess, Wimbledon* ... 1,180
 Norton ... 1,250 * Accepted.

LONDON.—For alterations and additions to No. 14, Sloane-street, S.W. Mr. R. G. Hammond, architect, 16, Essex-street, Strand, W.C. —
 Waring & Co., Ltd. ... £1,800 Stimpson and Co.* ... £1,560
 Garlich & Horton, Ltd. ... 1,634 * Accepted.

LONDON.—For erecting new factory on the Lea Bank, Lower Edmonton, for Messrs. W. V. Aldridge and Son, Islington Green. Mr. E. J. Harrison, architect, 38, Bow-lane, Cheapside, E.C. —
 Harman ... £2,200
 Extra for cement ... 50
 Goring ... 1,795
 Extra for cement ... 63
 E. Houghton and Son ... 1,798
 Extra for cement ... 50
 Porter ... 1,758
 Extra for cement ... 80
 18,38 0

LONDON.—For erecting a new theatre in St. Martin's-court, Charing Cross-road, London, W.C., for Mr. Charles Wyndham. Mr. W. G. R. Sprague, architect, Fitzalan House, Arundel-street, Strand, W.C. Quantities by Mr. A. R. Henderson, surveyor, 47, Pall-mall, S.W. —
 Bath ... £1,268 0
 Stone. Stage Cellar. ... 975 0
 Foster and Dicksee ... 25,805 ... 24,830
 C. Gray Hill ... 24,830 ... 24,800
 Wilkinson Bros. ... 24,800 ... 24,800
 Stimpson and Co. ... 24,800 ... 24,800
 Courtney and Fairbairn ... 24,391 ... 21,380
 Walter Wallis ... 21,380 ... 24,368
 J. Howe and Co. ... 23,731 ... 23,237
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 Kirk and Randall ... 23,032 ... 23,675
 H. and E. Lea ... 22,630 ... 22,515
 H. L. Holloway ... 22,350 ... 22,350
 H. Burman and Sons ... 21,956 ... 21,956
 Harris and Wardrop ... 21,956 ... 21,956
 W. Downs ... 21,956 ... 21,956
 Patman and Fotheringham ... 21,956 ... 21,956
 F. and H. F. Higgs ... 21,956 ... 21,956
 C. F. Kenley ... 21,956 ... 21,956
 * Amended and reduced tender accepted at £20,400.

LONDON.—For building café and private rooms for the Royal Botanic Society of London, Regent's Park. H. W. Hetherington Palmer, architect, The Outer Temple, 222, Strand, W.C. —
 Humphreys ... £3,080 Huntley Bros.* ... £2,365
 Colls and Sons ... 2,950 * Accepted.

LONDON.—Accepted for building five new houses, for the Duchy of Cornwall, in Courtenay-street, Kennington. —
 George Brittain ... £1,790

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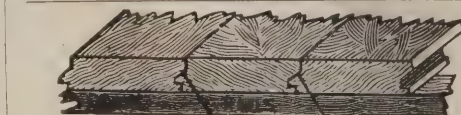
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17 1/2 x 3 x 2	8 9	7 11	11 8
17 1/2 x 3 x 1 1/2	6 9	6 0	9 1



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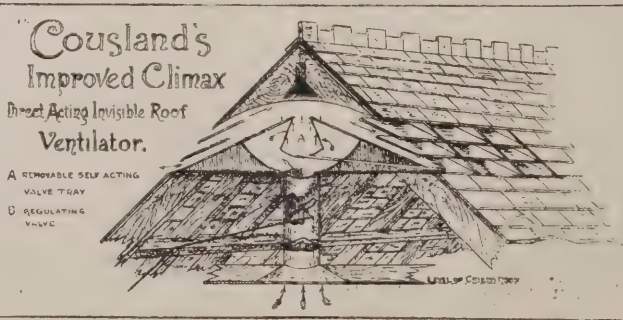
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LONDON.—Accepted for new drainage and sanitary work, north and south sections, Cleveland-street Asylum, for the Managers of the Central London Sick Asylum District. Messrs. W. S. Cross and Kekwick, architects, 15, Outer Temple, Strand:—

Love and Co., Exeter-street 6870
LONDON.—For alterations to the "Caledonian Tavern," Stoke Newington-road, London, N. Mr. Herbert Riches, architect, 3, Crooked-lane, King William-street, London, E.C. Quantities supplied:—
P. Hart ... £3,320 | Thos. Osborn and Sons £3,132
C. Dearing and Son ... 3,189 | S. Goodall ... 3,039
J. C. Richards and Co. 3,150 | Sheffield Bros.* ... 3,047
G. E. Todd and Co. ... 3,117 *Accepted.

RAWTENSTALL (Lanes).—For the execution of street works, Dean-lane, for the Corporation. Mr. A. W. Lawson, C.E., Municipal Offices, Rawten-stall. Quantities by the engineer:—

John Moore, Accrington ... £636 1 9
ROTHESAY.—For the improvement and extension of the harbour, for the Harbour Trustees. Mr. J. R. Thomson, C.E., 5, High-street, Rotherham:—
J. Adam & Co. ... £19,041 12 0 | R. Brebner & Co. £16,052 14 3
W. Farquharson 18,100 17 0 | J. Goldie & Son 13,671 3 0
Kennedy Bros. ... 16,655 19 11 | Wm. Kennedy 13,395 15 1
Gillespie Bros. 16,423 2 9 | George Halliday,
A. M. Sporrin Rotherham* ... 13,257 3 10
and Co. ... 16,227 10 5 *Accepted.

SUTTON-IN-ASHFIELD.—For the erection of free library buildings, for the Free Library Committee. Mr. J. P. Adlington, architect, High-pavement, Sutton-in-Ashfield. Quantities by the architect:—
Wilson ... £1,120 0 0 | W. Bains ... £237 10 0
J. Greenwood ... 1,025 0 0 | H. Shaw, Sutton-
J. F. Price ... 965 0 0 | in-Ashfield* ... 891 8 3
*Accepted.

WELLINGTON (Salop).—For alterations to All Saints' Parish Church. Mr. C. R. Dalgleish, architect, Wellington and Shrewsbury. Quantities by the architect:—
Treasure and Son ... £1,875 | H. Farmer
Millington Bros. ... 1,870 | A. Roper, Wellington* £1,790
*Accepted.

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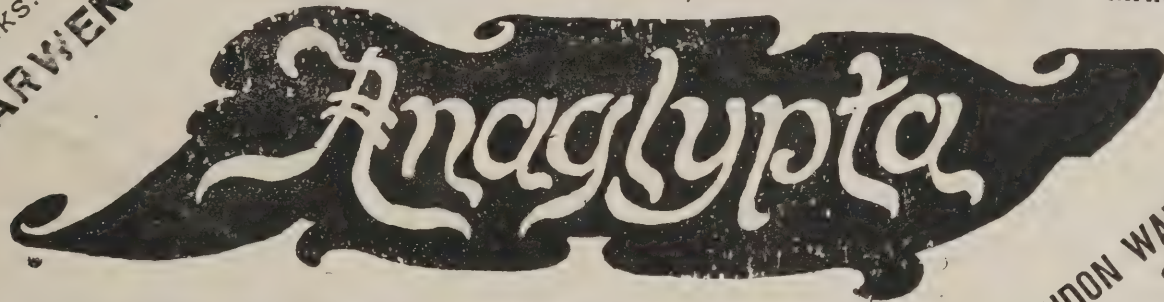
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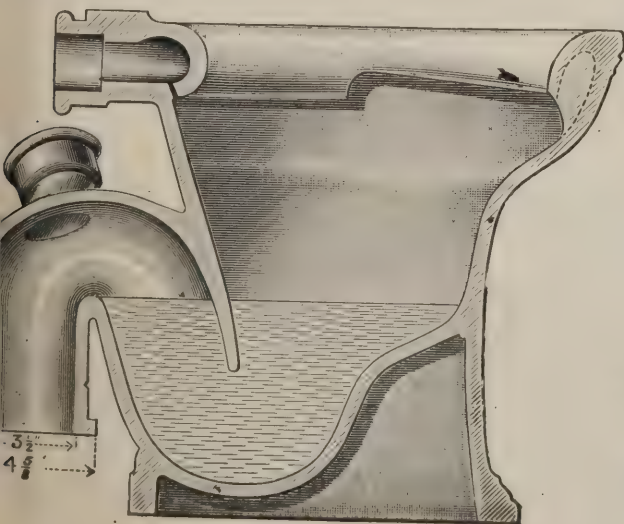
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TO BUILDERS AND CONTRACTORS.
The City Council hereby invite TENDERS for the ERECTION of NEW PUBLIC HALL and POST OFFICE BUILDINGS, on the site of the present Market Hall at Wells.

Plans may be seen, and bills of quantities and form of Tender obtained, at the office of the Architect, Mr. JOHN JOHNSON, A.R.I.B.A., 9, Queen Victoria-street, London, E.C., and of the City Surveyor, Wells, Somerset, on payment of a deposit of £3, which will be returned after receipt of bona-fide Tenders.

Tenders, on the form prepared, are to be sent to my office not later than FOUR o'clock on SATURDAY, SEPTEMBER 3rd, 1898.

The Council do not bind themselves to accept the lowest or any Tender.

The contractor will be required to enter into a bond with two approved sureties for the due performance of the contract.

REGD. L. FOSTER, Town Clerk,
Town Clerk's Office, Wells, Somerset,
August 2nd, 1898.

WALTHAMSTOW SCHOOL BOARD.

TO BUILDERS.
The Walthamstow School Board invite TENDERS for the ERECTION of NEW SCHOOL BUILDINGS in Queen's-road, Walthamstow.

Plans and specification may be seen, and bills of quantities obtained, at the Office of the Architect, Mr. W. A. LONGMORE, F.R.I.B.A., 7, Great Albion-street, E., between the hours of TEN a.m. and FOUR p.m., except on Saturdays.

A £5 note must be deposited for the quantities, and another £5 note must be enclosed with Tender, both of which will be returned to those sending in bona-fide Tenders.

Tenders to be endorsed "Tender for New Schools,"

CARL HENTSCHEL & CO.*Photo-engravers,**Electrotypers,*

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and addressed to the Clerk of the School Board, Cleve-lands, High-street, Walthamstow, and delivered not later than FOUR o'clock p.m., on TUESDAY, SEPTEMBER 13th, on which day, at SEVEN p.m., they will be opened.

The Board do not bind themselves to accept the lowest or any Tender.

T. W. LIDDIARD,
School Board Offices, Clerk to the Board,
High-street, Walthamstow,
August 17th, 1898.

N.B.—Any person or firm Tendering will be required to make a declaration that they will pay all workmen employed by them on the above Work for the Board the fully recognized London rate of wages, and will observe such hours of labour as are generally accepted as fair in their trade.

BOROUGH OF BURY ST. EDMUNDS.

BUILDINGS.
The Corporation of Bury St. Edmunds are prepared to receive TENDERS for the ERECTION of BUILDINGS, CHIMNEY SHAFT, &c., for their Electric Lighting Station.

The plans and specification may be inspected at the offices of Mr. J. CAMPBELL SMITH, C.E., Borough Surveyor, and also at the offices of Mr. F. HASTINGS MEDHURST, B.Sc., M.Inst.E.E., the Consulting Engineer to the Corporation, Westminster-chambers, 13, Victoria-street, S.W., from the latter of whom the bill of quantities can be obtained on payment of a deposit of Five Guineas, which will be returned on receipt of a bona-fide Tender.

Sealed Tenders, endorsed "Buildings," must be delivered to me on or before SEPTEMBER 10th, 1898.

The Corporation do not bind themselves to accept the lowest or any Tender.

The building is contingent upon the Corporation obtaining the consent of the Local Government Board to a loan of £20,000.

C. E. SALMON,
Bury St. Edmunds, Town Clerk.
August 12th, 1898.

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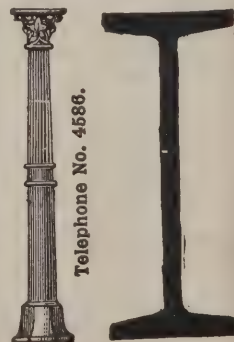
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See Large Advertisement, Back Page, Monthly.

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Address all applications to the General Manager,

BRITISH NON-FLAMMABLE WOOD CO. Limited,

2, Army and Navy Mansions, Victoria Street, London, S.W.

SANITARY CONGRESS.

THE annual congress of the Royal Institute of Public Health was opened last week in the Examination Hall of Trinity College, Dublin. Sir Charles Cameron, M.D., Medical Officer of Health for Dublin, president of the Congress, was introduced to the delegates in a brief speech by Professor W. R. Smith, M.D., president of the Institute. Sir Charles Cameron then delivered the presidential address. In the course of it he said: My first duty is to express my warmest thanks to the Royal Institute of Public Health for the honour which they have conferred upon me in selecting me to preside at this important hygienic congress. It is by no means the only compliment which the Institute have paid me, for I gratefully bear in mind that four years in succession they unanimously elected me to be their president. I esteem this action of the Institute all the more from the circumstance that their headquarters are situated in London, whilst I am a resident in Dublin. I rejoice to know that under the leadership of my distinguished successors, Sir Henry Littlejohn and Professor Smith, the career of the Institute has been one of uninterrupted success, and that at this moment they occupy a high position among the many useful organizations in these countries which are supported by voluntary efforts and are without State aid. My next duty is the pleasant one of welcoming most warmly, on behalf of the reception committee of the congress—and I may indeed say on the part of the citizens of Dublin—the visitors who have come to this city from England, Scotland, Wales, and the Irish provinces to take a part in the proceedings of this congress.

HIGH DEATH-RATES IN TOWNS.

The aggregation of a large number of people upon a limited area operates injuriously upon their health and lessens the mean duration of their lives. Many years ago Dr.—now Sir William—Gairdner, of Glasgow, pointed out that whilst the death-rate in England was 15 per 1000 persons living on every square mile, it rose as the density of population increased until it became 27 and upwards when the population came to be 2900 per square mile. The death-rates in purely rural districts have not been very largely reduced since the beginning of the present century; in the towns the case has been different. Before the system of national registration of deaths was adopted there existed the means of closely approximating the death-rates in towns. From the "Bills of Mortality" of London we learn that the death-rate in that city during the period of 1728 to 1780 was about 50 per 1000 persons living. The deaths, therefore, greatly exceeded the births, and were it not for the great immigration into the city from the country its population would have become extinct, as the mean age at death of the citizens was only 20 years. According to Sir William Petty, the deaths in London in six years of the seventeenth century exceeded the births by about five-eighths. He showed that at the same period the same relative proportions between births and deaths existed in Dublin. For centuries the urban death-rates greatly exceeded the rural rates, in many cases by from 20 to 50 per cent.; but during the last forty years they have been approximating, although a gap far too wide still divides them. In 1896 the estimated population of England and Wales amounted to 30,717,355, of whom 14,883,806 resided in 110 town districts, each containing more than 35,000 inhabitants, and 15,833,549 in country districts and towns and villages having a smaller population than 35,000. The death-rate in the urban districts was 18, and in the rural districts 15·3 per 1000, the difference being 2·7 per 1000. The mean rates in the previous ten years were 19·7 and 17·2, a difference of 2·5. Let us compare these figures with the statistics of the decade ended in 1860; in that period the urban rate was 24·7 and the rural 19·9, the difference being 4·8. Gratifying as it is to find the gulf between the urban and country death-rates narrowing, it is unsatisfactory to

observe that the rate of mortality should be so much greater in some towns than in others. In 1897 the rate in Eastbourne was 8·2, in Bournemouth 10·1, Croydon 13·62, and even in the manufacturing town of Darlington 15, whilst in Liverpool it was 26·76, and in Salford 26·88. Brighton, a most fashionable town with a well-to-do population, has a death-rate of 15·23; but Wakefield, Stockton-on-Tees, and Jarrow—all manufacturing towns—had almost the same rate.

CAUSES OF THE HIGH URBAN DEATH-RATES.

The causes which raise the urban death-rates so much above the rural ones are numerous, and, perhaps, not fully discovered. The causes of the enormous difference between the bills of mortality of the healthiest and least healthy of the towns have not been fully investigated. The contagion of the fevers must clearly be more readily conveyed from the sick to the sound in towns owing to the closer contact of the people. The town atmosphere is less pure than the air of the country; its soils are generally contaminated with filth. In its narrow streets and courts the direct sunlight—so necessary to maintain the purity of the air—and thorough ventilation are wanting. The effete matter from dwellings and workshops, and the sweepings of the streets, are sometimes allowed to accumulate and to pollute the air by their noisome exhalations. Many of the occupations of townspeople are of a more or less unhealthy nature, and the majority of them are sedentary. The outdoor life of a farmer and agricultural labourer is obviously more healthy than that of the town bakers, shoemakers, tailors, and millworkers. The cabin of the peasant may be, and, indeed, too often is, a wretched dwelling, but it is at least surrounded by the pure and open atmosphere. In the towns a dozen families often occupy as many rooms in the same house, whilst hundreds of similar houses invest it on all sides. We can hardly expect to make the conditions of infantile life so healthful in town as they are in the country, but much can be done to brighten the life of the children of our great towns, to give a roseate tinge to their pale cheeks, and to strengthen and develop their muscles. Their dwellings should be improved and places for their recreation in the open air liberally provided. The Earl of Meath has generously established in Dublin two gymnasia and playgrounds for children, and the corporation are providing a gymnasium on the open space formed by the removal of an old prison in Green Street. Gymnasia for children are, however, required in all parts of this city and of other cities. As the child is in one sense the father of the man, every effort should be made in favour of the physical, moral, and intellectual culture of those who are to form the future men and women of the nation.

THE SANITARY CONDITION OF TOWNS IMPROVING.

The appallingly high death-rates in towns which continued for many centuries have greatly decreased in the present one. The improvement is partly due to greater attention to personal hygiene and a higher standard of comfort, partly and chiefly to improved public sanitation. The "masses" are now on the whole better fed than they were formerly, their hours of labour are less, and they enjoy more holidays. The causes which rendered so many of the handicrafts unhealthy and even dangerous have been removed, or their effects lessened. During the ten years ended in 1850 the mean annual death-rate in London was 24·8 per 1000 persons living; in the decade ended in 1896 the rate was 19·9, or 4·9 per 1000 less than in the former period. In 1897 the rate was only 17·7, including the deaths of strangers in London. In Glasgow, where vast sums have been expended in the clearing of unhealthy areas and the erection of improved dwellings for the working classes, a great decrease has taken place in the general and zymotic death-rates. In the ten years ended in 1866 the deaths from all causes were in the ratio of 30·2 per 1000 of the population; in the five years ended in 1897 the rate was only 21·8. The death-rate in Liverpool in the years 1866 to 1875 was 31·3 per 1000; in the years

1887 to 1896 it was 25·7, and in 1897, 24·4. The Manchester death-rate was 31 in 1866, 1875; in 1887-1896, 25·3; and in 1897, 23·1. Similar statistics could be quoted in reference to almost every other large town. In all parts of the world the mean duration of human life is decidedly less in the towns than in the country. In comparing the vital and mortal statistics of countries the relative proportion of their urban and rural populations is a factor of considerable importance. Notwithstanding the fact that an increase in the density of a population is unfavourable to health, the rapid increase in the English urban population has not sensibly counteracted the good effects produced by improved public and private hygiene. The density of the population of London has been doubled since 1851. It is truly wonderful that its vast population of 6,291,637, located on only 693 square miles, should have in 1897 so low a death-rate as 17·7 per 1000. This rate is not greater than that of a fairly healthy rural district. England well deserves the name she has received as the birthplace and home of sanitary science and practice. In the period 1851-1870 the deaths in the towns were 25 per cent. greater than the deaths in the country for equal numbers of the people; in the period 1871-1896 the excess was reduced to 13·5 per cent., or nearly one-half. The death-rate is much lower amongst females than males. It may interest intending benedicts and strengthen their resolution to learn that the mean duration of life is greater amongst married men than is the case with celibates. No doubt the former are taken better care of.

VITAL STATISTICS OF IRELAND.

The death-rate in Ireland is for the whole country very low. In the ten years ended in 1896 it was only 18. In the same period the rate in Hungary was 35·6, and in Austria 30. The low rate in Ireland is largely due to the circumstance that by far the larger portion of the population reside in the open country. The urban bills of mortality are very high. In the decade ended in 1897 the death-rate was 24·65 per 1000 in the 23 largest towns. Their zymotic death-rate was 2·64. There is, therefore a great difference between town and country death-rates in Ireland.

HOUSING OF THE VERY POOR.

The improvement in the viability of the working classes which has taken place within the last 30 years is to some extent due to the better dwellings provided for them. Owing to the benevolence of the late Mr. Peabody, Lord Iveagh, and other philanthropists, a considerable number of healthful dwellings have been built for artisans and labourers. A still larger number have been erected by companies, some of which have been founded on semi-philanthropic, semi-commercial lines. In this city and its suburbs the Dublin Artisans' Dwellings Company own dwellings occupied by 2194 families who pay from 1s. 9d. to 12s. per week. This Company is now constructing 188 additional dwellings. The City and Suburban Artisans' Dwellings Company have provided dwellings for 284 families, who pay from 2s. 6d. to 6s. per week; The Industrial Tenement Company own a block of buildings in which there are 46 separate tenements, let at from 2s. to 4s. per week. Many employers of labour, such as railway companies, brewers, distillers, &c., have erected improved dwellings for their employes. Although so much has been done in providing improved dwellings for the working classes, the vast majority of them are still lodged in wretched tenements. A few years ago I had a kind of census taken of the city, and found that 32,000 families were located in about 7000 houses, affording 1½ rooms per family. On the other hand, the remaining 22,000 families of the city occupied 17,000 houses. Whilst much has been accomplished in the way of providing proper dwellings for artisans and the better class of unskilled workers, practically nothing has been done to improve the miserable state of the homes of the very poor. In every large town there are, exclusive of beggars, thieves, and vagrants, &c., many honest people whose precarious earnings barely suffice to keep body and soul together. Amongst this class are to be found small

dealers, pedlars, hawkers, charwomen, rag-pickers, night-watchmen, the inferior class of amstresses, porters, and labourers, the miserable creatures carrying placards, termed "sandwichmen," and men and women engaged in many other poorly remunerative employments. Besides these, there are the dull-witted and the physically feeble people, who are incapable of earning the merest pittance. It is in the wretched homes of these poorest of the poor that the seeds of fever are developed in a hotbed. Their dwellings are a peril to the whole community, for their inmates carry contagious matter into the streets, shops, theatres, and other places. The effluvia from them taints the atmosphere, in the purity of which all are interested. It is the dwellings of the very poor that demand nearly all the attention of the sanitary inspector. He finds almost an impossibility to get their owners—who are often nearly as poor as their tenants—to keep them in even moderately good condition. Since 1879 more than 3000 houses have been re-tenanted and closed in Dublin on account of their insanitary condition; of these not one half have been rebuilt or rendered fit for human occupation. The closing of insanitary houses and the clearing of unhealthy areas have, however, been of little benefit to the poorest of the poor. The people who lived on these unhealthy areas have not returned to occupy the neat dwellings which replaced their wretched tenements. The rents of the new dwellings were beyond their means. The unhealthy areas have been cleared, but the condition of the people who dwelt on them has remained unchanged. They have sought on other areas low-rented tenements as insanitary as those from which they had been ejected. All the lowest-rented and consequently least sanitary of the Dublin tenement houses were compulsorily closed, where, save in the workhouse, could their inmates obtain shelter? I feel convinced that the ordinary landlords of tenement houses, the majority of whom are freeholders only or yearly tenants, cannot provide proper dwellings at from 1s. to 2s. per week, the rent which the very poor can only afford. Dwellings so low-rented can only be provided by the municipality or by philanthropic societies and individuals. They will pay every little, if any, interest on the money expended on their erection and maintenance, but the very unhealthy dwelling which they replace will be a distinct gain to the whole community. The replacement of unhealthy and unhealthy habitations means less illness, longer duration of life, and diminished pauperism. The municipal authorities should be encouraged to provide workpeople's dwellings.

OUR DAYS BETTER THAN THE OLD TIMES.

The belief that former ages were happier than the one we live in does not rest upon a foundation of fact. During many centuries Europe was periodically devastated by pestilences. In the fourteenth century the terrible "black death" carried off 25 millions of its inhabitants. Population stagnated; that of England remained stationary for three centuries, not so much owing to war as to pestilence and famine. In 1664-65 the Plague most depopulated London. In that long and gloomy period, so truly named the "dark ages," the towns were the hotbeds of disease, from which their poisonous seeds were spread throughout the land. Although a great improvement has taken place in the state of public health in these countries and most parts of Europe, a further improvement is required and is attainable. We require, perhaps, some additions to and amendments of our sanitary laws, but what is most required is the thorough enforcement of the laws such as they are—and they confer great powers upon the sanitary authorities. The notification of infective diseases and the laws relating to disinfection should be strictly enforced. Healthy dwellings and cheap baths and wash-houses for the most dependent classes of the community should be multiplied. The unhealthy occupations should be rendered innocuous, or, at least, less unhealthy. The insidious emanations from certain kinds of works could be prevented or reduced to a minimum.

Surveying and Sanitary Notes.

At the Town Hall, Westminster, Mr. Troutbeck and a special jury heard the case of "The Aerated Bread Company Limited v. Her Majesty's Office of Works," a claim for about £20,000 compensation in respect of their leasehold and trade interest in Nos. 31 and 32, Parliament Street, and No. 17B, Great George Street, Westminster, used as a refreshment depot on the ground floor and basement.—The first witness, Mr. Edward Tewson (Messrs. Debenham, Tewson, Farmer, and Bridgewater), stated that the premises in question were let on lease for a term of which ten years was still unexpired, at a rental of £950, and that they were now worth £1600 a year, showing a profit rental of £650 a year. He capitalised that on the five per cent. table (7·7 years' purchase) £5005, and added the customary ten per cent. for compulsory sale, £500, making together £5505. The net profits of the depot were £3260 per annum, and, after deducting the profit rent, £650, and adding £300 for under-lettings of the upper part of the premises, he arrived at a profit of £2910, which should be capitalised at five years' purchase, £14,550, to compensate the company for loss of the business. His total was thus £20,055, to which he added an agreed sum of £410 in respect of the fixtures, making altogether £20,465.—Mr. Henry Charles Trollope (Messrs. Trollope and Sons) confirmed Mr. Tewson's evidence.—Mr. James Harris, chartered accountant (Mr. James Harris, Sons, and Co.), proved that the net profit of the depot in question was £3260 last year, and he was of opinion that five years' purchase should be given.—The jury awarded £9490 compensation.

Work has now been commenced in earnest on the dock extension at Middlesbrough. The dock there was opened so long ago as May, 1842; it was leased to the Stockton and Darlington Railway in 1849; and became the property of the North-Eastern Railway on the amalgamation of the two undertakings named. Since then two enlargements have been made, and by this time the area will be increased from 16 to 26 acres. In the first half of this year, the North-Eastern Railway spent £3717 on the dock extension works, largely in preparation for the more rapid progress that is now anticipated. At the western side of the dock, where operations have been commenced, steam "navvies" and a considerable number of men are engaged in preliminary excavation. It is officially anticipated that in the current six months there will be expended no less than £62,000; whilst the further expenditure after the end of 1898 is stated at £319,320; so that the estimate brings the cost up to the large total of £385,000. From the Tees there is the entrance channel about 1200ft. long, which will be deepened and widened, while the "batter," or slope of the walls, will be removed. The extension of the area of the dock has already been indicated; the depth will be increased; and there will be a considerable increase of the quays in the dock, and also by the making of the two additional "arms" from the western quay, so that there will be an addition of not much short of 3000 linear feet of wharfage. The work is one that will take a considerable time to carry out, but it will give to Middlesbrough one of the finest docks on the east coast.

The new central sanitary depot, upon which the Leeds Corporation is spending over £30,000, is nearing completion, and will be formally opened early next month. The situation of the premises is very convenient. The site is in Dock Street, to the south of Leeds Bridge. Stabling accommodation is here provided for 168 horses. Commodious offices, store-rooms, and sheds for the many vehicles that are used in the scavenging and water-cleansing department are also being built. At present the only stables the Sanitary Committee can call their own are a few wooden structures in Black

Bull Street. Over 100 of the 150 horses belonging to the department have therefore to be sent to private stables. The land on which the new depot is built has cost about £20,000, whilst the buildings will necessitate an expenditure of about £13,000. The whole of the land, however, is not being used for the purposes of the depot. About 1000 yards are being utilised to widen Dock Street and the other thoroughfares bounding the site. The Sanitary Committee are also credited with £8000 for their old site at Crown Point, which has been demolished to make room for the electrical generating-station. In addition, the Committee have received £1000 for their old buildings and appliances. It may be taken, therefore, that the net cost of the new depot and of the land which is being used for the widening of the adjoining streets does not greatly exceed £20,000. For this sum the Committee obtain commodious offices for their officials, stables for their horses, shelter for their vehicles, and a capital centre for carrying on the important work which devolves upon the street-cleansing and scavenging departments.

DURING recent years the need of a better supply of water to the populous parishes within the Hemsworth Rural District has on frequent occasions occupied the attention both of the old sanitary authority and of the present District Council. Schemes had been promulgated for obtaining water in turn from Dewsbury, Wakefield, Thorpe-in-Balne, and Pontefract, and each was found impracticable. At length the Council decided to support the Barnsley Corporation in an endeavour to pass a bill through Parliament, with an undertaking to supply the townships in their district. The work has since been pushed forward in every possible way, and, although it is but twelve months since the tenders were opened, that of Messrs. Young, contractors, Wakefield and Bradford, being accepted, last week saw the practical completion of the work so far as concerned the supply of the eight townships which joined in the scheme. The water has to traverse seventeen miles of mains from Ing-birchworth and Midhope before reaching the Ringstone Hill reservoir, about two miles to the south of Hemsworth.

New waterworks have been opened at Barton-on-Humber. The original works were built in 1888. The works consist of boiler, engine, and filtering houses, manager's house, and storage tank, capable of holding 120,000 gallons. The well is 120ft. deep, with a bore 25ft. deeper. There is a set of double pumps, capable of raising 23,000 gallons of water per hour.

At a private meeting of the Llanelly Commissioners a day or two ago the contractor of the new dock reported that progress had been somewhat slow, because he had to cope with a tremendous quantity of hard clay and rock. He had now, however, arranged for a special steam navy to be sent down for the contract, and once this was in operation they would be able to work more quickly. With regard to the purchase of a bucket dredger, the Commissioners decided to give a trial to one of 400 tons, the price asked being £7500. Tenders for the dock gates were also received, and that of the Thames Iron Company at £3000 was accepted.

NEXT Session a bill will be promoted by the towns of Leicester, Derby, Belper, Nottingham, and Sheffield, for the acquisition of the whole of the rights of the waters of the upper Derwent, which will secure a minimum water supply of more than fourteen million gallons per day. The estimated cost of the entire scheme is between three and four millions, and the water will have to be conveyed a distance of sixty-six miles. Liverpool, Manchester, and Birmingham have all sought fresh sources of water supply in Wales, and the population of Leicester is increasing so rapidly that the Corporation fears the supply will not be equal to the demand of a few years hence. Hence the need of seeking fresh fields.

PARIS ABATTOIRS.*

By R. STEPHEN AYLING, A.R.I.B.A.

(Continued from page xiii.)

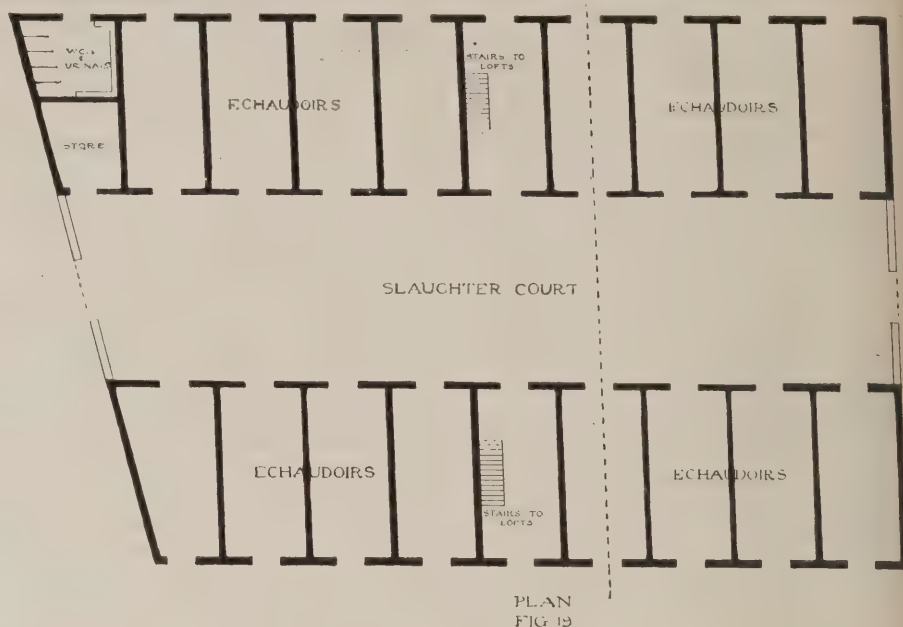
BETWEEN each range of stables are placed the killing courts, with "Echaudoirs" (carcase scalding and cutting up rooms) on either side, E E (Figs. 19, 20, 21, 22). The animals are brought into this court from the "Bouveries" and "Burgeries," are then killed, and the carcasses skinned and prepared for transferring to the "Echaudoirs."

This work is carried on at each side of the court, and constitutes a very weak point in the arrangements of these abattoirs, owing to the fact that several animals are necessarily standing near whilst their companions are being killed. There is no doubt that they are fully aware of their fate, and often become terrified and unmanageable. This obviously faulty arrangement has been avoided at "La Rive Gauche," described in a future article.

Sliding iron gates are provided at each end of the "Killing Courts," being stronger than the wooden ones. This precaution is necessary in case the animals become refractory.

The floor of the courts slope towards the centre, in which there is a channel to receive the drainage. It is noticeable how slightly this drainage is charged with blood, as during the process of killing this is all collected, and used as hereafter described.

The "Echaudoirs" on each side of the court are separated by brick walls, the upper portions being in perforated brick panels.



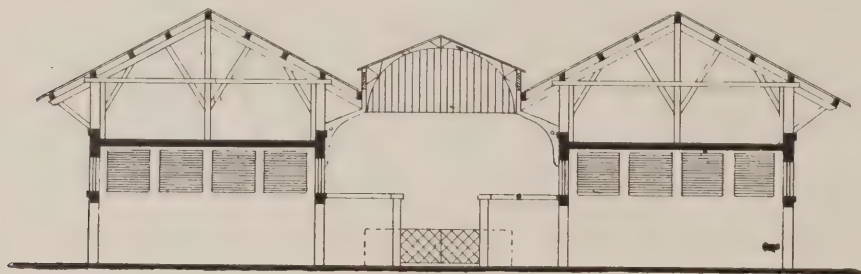
PROPOSED PUBLIC ABATTOIRS FOR LONDON.

THE Public Health Committee of the London County Council have issued a report, in which they deal with the desirability of the establishment of public slaughter-houses throughout London. The Health Committee

Builders' Notes.

IN connection with the termination of the Bristol building trade dispute, a specially convened meeting of the Master Builders' Association was held a few days ago, at which the recommendations of a committee of the association were considered. Mr. C. A. Hayes presided, and, on the motion of Mr. E. Walters, seconded by Mr. George Wilkins, the following resolution was agreed to:—"That, as the Bricklayers' Society has eventually accepted the mediation of his Honour Judge Austin, the members of the Bristol Master Builders' Association are prepared to act upon his Honour's suggestion—viz., to give the rise in wages forthwith, and as the federated trades and the Masons' Society have honourably stood by the award of the Board of Trade arbitrator (Mr. A. A. Hudson), the committee of this association is prepared, as an act of grace, to recommend its members to grant a similar concession to those trades after next pay day."

The temporary bridge over the Thames at Vauxhall is now open to passengers and vehicles, and this week the familiar and cramped old bridge is to be closed, and preparations for reconstruction commenced. The temporary bridge, which stands on nine wooden piles, has a centre span of 160ft. There are in all ten spans, the river being here about 700ft. wide. At first the centre span was 80ft., but it was found that barges and other large vessels using this part of the river fouled the piles, and hence the expansion. The spans are constructed of steel girders,

SECTION AB
FIG 20

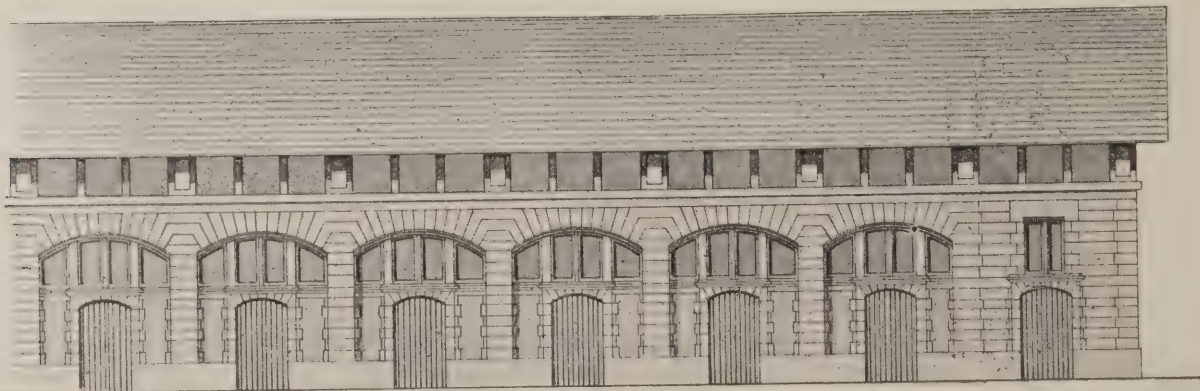
Large double doors are provided to facilitate the work of carting the meat.

* This series deals with the construction of the Cattle Markets and Abattoirs of La Villette and La Rive Gauche, Paris.

(To be continued.)

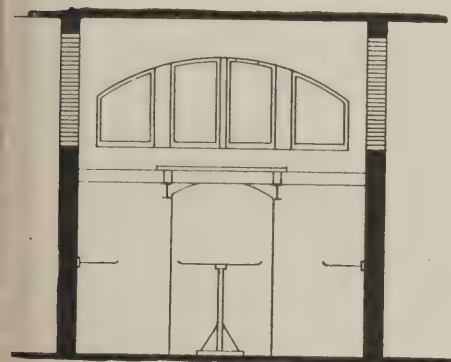
A TOWER has been added to the Thoraby-on-Tees parish church. The church was built in 1858, at a cost of £3000, and a tower has now been added at a cost of £1400.

propose to submit their opinions to the Local Government Board, together with an intimation that the Council are prepared to accept such responsibilities as may be necessary to give effect in London to the recommendation of the Royal Commission on Tuberculosis, and to ask the Local Government Board whether they will include in any legislation introduced by them in connection with the Commission's report the provisions that will be necessary for that purpose.

PART ELEVATION OF
ECHAUDOIRS FIG. 21.

which, in the centre arch, are latticed. The roadway is 22ft. wide, and two 6ft. pathways are carried at the sides on cantilevers. Gas lamps have been erected at convenient intervals. At first it was proposed that electricity should be used, but only one bridge over the Thames—Waterloo—is thus lighted, and there it is found that the glare tends to dazzle. Bargemen, who occasionally foul the buttresses, say the excessive light is to blame rather than their powers as helmsmen.

THE demolition of the present bridge will be commenced at the end of this month, and everything will be ready for the work of reconstruction early in September. The new bridge will have five arches—in number four less than in the structure to be replaced. The centre one will be about 155ft. across, the remaining four being only a few feet less. The piers will be of concrete, faced with stone, and the arches will be constructed of the same material. This is the first bridge with such a large span ever built in England of concrete. It will cover the same site as the old one, and in width will equal Westminster Bridge, which is 80ft.—that is, almost double the capacity of the superseded bridge and of any other crossing the river, save the beautiful structure at the Houses of Parliament. Besides widening the



TRANSVERSE SECTION
OF ONE ECHAUDROIR
FIG. 22

bridge the London County Council have decided to enlarge the approaches very considerably. The cost of the bridge alone is estimated at about a quarter of a million sterling, which is, roughly speaking, £50,000 less than the sum expended in the erection of the one to be removed. Three years will be required for the completion of the work. When Vauxhall Bridge is ready for traffic again Lambeth Bridge will be demolished and reconstructed. The temporary structure, which has been built to last at least ten years, will be left standing until the second undertaking is completed.

THE annual outing of the Exeter and District Master Builders' Association was held on Friday week. The party, numbering about forty, took train for Otterham, North Cornwall, leaving Queen Street Station at 7.7 a.m. Arriving at Otterham Station, breaks were in waiting to convey the party to the Wellington Hotel, Boscastle, where breakfast was served. Boscastle having been explored, the breaks were ready again at 12.30 for a drive to Tintagel. King Arthur's Castle and other places of interest having been visited, the party again returned to the Wellington Inn, Boscastle, where dinner was served at 5 p.m. Mr. H. Passmore took the chair and was supported by Messrs. Sampson and Bayley. The members afterwards drove to Camelford, and thence proceeded home to Exeter by train.

THE greater part of a three-story tenement at 77, Nicolson Street, Edinburgh, collapsed a

few days ago. The premises consisted of a shop on the ground floor and two flats and attics of dwelling-houses. The tenement immediately to the south of the building had recently been demolished, and for some time workmen had been engaged making excavations with a view to laying down the foundations of new business premises. For the purpose of constructing cellars excavations to the depth of about 10ft. had been made, and as the result of these operations the foundations of the adjoining building had been affected. Indications of this had shown themselves for a day or two, and while workmen were engaged shoring the building, and while some of the Burgh Engineer's men were making an inspection of the premises and overlooking the work of shoring, the gable wall sank on its own foundation, and the entire south half of the building collapsed, carrying everything with it from the attic to the ground floor, but without injuring any of the workmen employed outside. They had observed the dangerous condition of the wall, and had only time to escape before the crash came. Part of the mansard roof, which was left overhanging, was subsequently removed.

Trade and Craft.

MESSRS. BRAUN AND CO.

Messrs. F. Braun and Co. are carrying out the art metal work in connection with the Orwell Hotel at Felixstowe; the work includes gas fittings throughout the building, saloon bar grilles, outside bracket and pillar lamps; and grilles and signs. All these fittings are receiving an artistic treatment, which will give finish and feeling to a sumptuous interior. The architect is Mr. T. S. Cosden, of Ipswich.

MESSRS. LUMBY, SON, AND WOOD, LTD.

We have before us the supplementary catalogues of Messrs. Lumby, Son, and Wood, of Halifax, in three sections, dealing respectively with safes, boilers, and copper boilers. In place of the list of successes with which one is familiar in the safe lists, as a rule, this firm is able to state that the safes made at the Halifax works have never failed, and this is a statement that is bound to have no small weight when the question of a safe or strong room is under consideration. The list of pioneer boilers, in addition to the information upon the articles themselves, is a specially useful feature in the series of memorandum pages at the end—and this indicates the shrewdness of the designer, who takes care that the catalogue shall not be thrown away when first looked at, and then forgotten. Nobody can now afford to despise any medium for making a hasty note, and here the note and the article of manufacture are found together. By way of practical preface to the list we find the following:—"Lumby, Son, and Wood, Limited, are specialists in the manufacture of welded work of every description, and the oldest and largest makers in the world of wrought-welded boilers, and have always received the highest awards wherever exhibited, including two gold medals and one silver medal at Paris, 1878 and 1879, and Grand Prix and silver medal at Brussels, 1897."

MESSRS. E. F. BLAKELEY AND CO.

Messrs. E. F. Blakeley and Co., of Liverpool, inform us that they have removed to more extensive premises in Vauxhall Road and Banastre Street, where they now undertake the supply and erection of any description of galvanized corrugated iron roofs, buildings, churches, bungalows, steel and iron principals, girders, &c. They are at present supplying three large schools for Liverpool and Salford School Boards; a mammoth iron riding school for Mr. C. Arthur Pearson, at Farnham, Surrey; roofing for silk mills at Leek, &c.

The Story of an Appointment.

MR. A. H. JENNINGS, surveyor to the Carlisle Urban District Council, writes:—"I am reluctantly compelled to draw your attention to the result of an appointment which is deserving of publicity through your valuable paper. The advertisement ran as follows: 'The Urban District Council of Erith require an inspector to superintend the laying of private drains and connections to the sewers of the Council, and to inspect the construction of new buildings, and generally assist the surveyor. He must have a practical knowledge of works of drainage, the construction of buildings, the preparation of plans, and be fully competent to keep all books and accounts connected with the office of surveyor. Salary, £140.' The applicants, I understood, numbered nearly 150, and a selection of six was made to interview the Council, and to 'produce original testimonials, with specimens of plans and draining work.' Being a selected candidate, I made my appearance at the appointed time, and found my chances more favourable than expected, two being absent. Meeting my fellow-candidates, I soon found, to my surprise, that their respective callings were as follows: (1) Bricklayers' foreman, (2) bricklayer, (3) carpenter (a former member of the Council), but, unfortunately, out of work. The monotony of waiting an hour and a half was broken by mutual conversation, chiefly on the laws of sanitation, but when an attempt of mine to advance the cause of smoke, air, and water for the testing of drains was derided, I held my tongue and spoke nothing. At last we were summoned before the Council. I produced my qualifications, original testimonials, and specimen drawings of street work, sewers and drains; also copy regulations for private house connections to main sewers in this district (the supervision of which has been one of my chief duties), when I was catechised by the apparent supporters of the local man on such questions as these: Had I ever used a trowel? Could I lay bricks? Had I experience with jerry builders? And similar questions. On the local carpenter being called a second time my hopes vanished, for it was soon announced that he had been successful, although I was informed the voting between him and myself were equal, the chairman giving his casting vote in the carpenter's favour because he was a local man. My cause for complaint is the misleading advertisement, which tempts so many experienced and qualified men to waste their valuable time in applying for an appointment when the result is practically known beforehand. Why should not the Council of Erith advertise locally if a local man, even if devoid of experience, is intended to be appointed against all comers, of whatever qualifications they may possess. If the Erith Council had been wise they would have left the appointment to the engineer of their sewerage scheme, or even the surveyor. This scheme, I understood, costs nearly £100,000, and its success depends largely upon the manner in which the private house drains are connected. Time will prove the folly of such a procedure. Yet this is a council, I presume, pledged to study the interests of their ratepayers and uninterested devotion to the public service. I enclose herewith the local paper, marked, giving particulars of the appointment, and editorial comments in stronger and more eloquent terms than words of mine have described."

BURY ST. EDMUND'S Town Council have accepted tenders for electric light works, amounting in the aggregate to £22,500, subject to the approval of the loan by the Local Government Board.

THE contractors for the construction of the Central London Railway line from Shepherd's Bush to the Mansion House have just commenced the construction of an air-lock at the Davies Street Station, near Oxford Street.

MR. W. H. TRESIDDER has prepared a plan showing proposed alterations at the Town Quay, Falmouth, including an extension of the southern pier 100ft. seaward. It is roughly estimated that the scheme will cost £2000.

COMPLETE LIST OF CONTRACTS OPEN.

DATE OF DELIVERY.	WORK TO BE EXECUTED.	FOR WHOM.	FROM WHOM FORMS OF TENDER MAY BE OBTAINED.
BUILDINGS—			
Aug. 27	Kielkeel—House	Council	G. L. W. Blount, Waring-street, Belfast.
" 29	Devoport—Convenience	"	J. F. Barns, Ker-street, Devoport.
" 29	Donaghadee—Masonic Hall	"	J. J. Phillips and Son, 61, Royal-avenue, Belfast.
" 29	Kendal—House	R. F. Chorley	J. Stalker, Kendal.
" 29	Kendal—Villa	R. F. Chorley	J. Stalker, Kendal.
" 29	Londonderry—Two House	J. P. Bou'ston	W. E. Pinkerton, 8, Diamond, Londonderry.
" 29	St. Austell—Chapel	"	F. C. Jury, Alma villas, Tregonissey-road, St. Austell.
" 29	Leeds—Twenty-eight Trough-Water Closets	"	City Engineer's Office, Municipal-buildings, Leeds.
" 29	Thornaby-on-Tees—Church, &c.	"	S. W. T. Richardson, Stockton-on-Tees.
" 29	Sheffield—Destructor Buildings	Health Committee	C. F. Wike, Town Hall, Sheffield.
" 31	Belfast—Church	"	W. H. Stephens, Donagall-square, North Belfast.
" 31	Elgin—Steam Laundry	Morayshire Steam Laundry Ltd.	C. C. Doig, Elgin.
" 31	London, S.E.—Sorting Office	Commissioners H.M. Works	Mr. Wager, H.M. Office of Works, Storey's-gate, S.W.
" 31	Millisle—School House	"	Old School House, Millisle.
" 31	Lee, S.E.—Sorting Office	Commissioners H.M. Works	O. Rice, Storey's-gate, S.W.
" 31	Birmingham—Covered Way	Workhouse Guardians	W. H. Ward, Paradise-street, Birmingham.
" 31	Consett—Institute Buildings	Technical Institute Committee	C. E. Oliver, Consett Iron Co.'s Office, Blackhill, Durham.
" 31	Lancaster—Alterations to Chapel	"	N. Lloyd, Bwlchgwyn Quarries, Wrexham.
" 31	Esh—Chapel, &c.	"	G. Rhymer, Tudhoe Colliery.
" 31	Hastings—Board School Additions	School Board	A. Wells, Queen's-chambers, Hastings.
" 31	London, E.C.—Parcel Depot	Commissioners H.M. Works	H. Tanner, H.M. Office of Works, Storey's-gate, S.W.
" 31	Northumberland—Chapel and School	"	G. Rhymer, Tudhoe Colliery, Tudhoe.
Sept. 1	Llannon—Class-room	School Board	W. Griffiths, Llanelly.
" 1	Romford—Cottage, &c.	Urban District Council	Surveyor, Market-place, Romford.
" 1	West Ham—Museum	City Borough	Gibson and Russell, 11, Gray's Inn-square, W.C.
" 1	Burley-in-Wharfedale—Retreat	West Riding Asylums Committee	County Surveyor, County Hall, Wakefield.
" 3	Tonbridge—Technical Institute	Urban District Council	A. H. Neve, 63, High-street, Tonbridge.
" 3	Wells—Public Hall, &c.	"	J. Johnson, 9, Queen Victoria street, E.C.
" 5	Barry—Schools	School Board	Jonas, Richards, and Bidges, 18, St. Mary-street, Cardiff.
" 5	Woolston—School	School Board	W. H. Mitchell and Co., 9, Portland-street, Northampton.
" 7	Edinburgh—Public Baths	Corporation	Public Works Office, City-chambers, Edinburgh.
" 8	Birmingham—Aqueduct	Corporation	J. Mansergh, 5, Victoria-street, S.W.
" 10	Ramsgate—Office Buildings	Corporation	W. A. McI. Valon, Town Hall, Ramsgate.
" 13	Walthamstow—School Buildings	School Board	W. A. Longmore, 7, Great Alie-street, E.
" 14	Epping—Hospital Ward	Rural District Council	E. Egan, Holmdale, Loughton.
" 19	Swadsea—Board School	School Board	G. E. T. Laurence, 131, Queen Victoria-street, E.C.
Oct. 3	Westbury-on-Trent—Workhouse Additions	"	W. F. Jones, 21, George-street, Gloucester.
" 12	London, W.—Laundry at Workhouse	Guardians	E. T. Hall, 57, Moor-gate-street, E.C.
No date.	Abergavenny—Villa	"	E. A. Johnson, Abergavenny.
"	Hereford—Additions to Laundry	"	W. W. Robinson, King-street, Hereford.
"	London—Plastering	"	W. H. Gibbs and Co., 5, West Kensington-terrace, W.
"	Micklefield—Cottages	Coal and Lims Co.	Colliery Offices, Micklefield.
ENGINEERING—			
Aug. 27	Blackpool—Gasholder, &c.	Gas Committee	J. Chew, Gas Office, Princess street, Blackpool.
" 27	Halifax—Retort House Fittings	Corporation	T. Holgate, Gas Engineer, Halifax.
" 29	Wimbledon—Pipe-work	Urban District Council	A. H. Freece, 39, Victoria street, Westminster.
Sept. 31	Burton-upon-Trent—Retort Setting	Corporation	F. L. Ramsden, Gas Works, Burton-upon-Trent.
" 1	London, E.C.—Refrigerating Plants	Transvaalse Koelkamers Beperkt	National Bank of South Africa Republic, 73, Cornhill, E.C.
" 3	Cirencester—Water Drains	Urban District Council	T. Hibbert, Surveyor, Cirencester.
" 3	Hargrave—Sinking Well, &c.	Parish Council	Clerk of the Council, Hargrave.
" 5	Devoport—Culvert	County Borough	Surveyor, Ker-street, Devoport.
" 5	Littleover—Reservoir	Corporation	Borough Surveyor, Babbington-lane, Derby.
" 6	Alde-ot—Sewerage	Urban District Council	Council's Surveyor, Alde-ot.
" 8	Swansea—Dock Works	Harbour Trustees	A. C. Sykes, Harbour Office, Swansea.
Oct. 17	Edinburgh—Gasholder Tank, &c.	Gas Commissioner	Gas Engineer, New-street, Edinburgh.
IRON AND STEEL—			
Aug. 27	Nelson—Wrought-iron Fencing	Corporation	B. Bal. Borough Engineer, Nelson.
" 30	London, E.C.—Girder Work	"	Managing Director, His Highness the Nizam's Guaranteed, State Railways Company Limited, Winchester House, E.C.
Sept. 5	Sheffield—Ironwork, &c.	Tramway Committee	C. F. Wike, Town Hall, Sheffield.
ROADS—			
Aug. 27	Colne—Carting	Gas Committee	F. Thorpe, Gasworks, Colne.
" 27	Sunderland—Materials	Rural District Council	T. Young, Surveyor, Sunderland.
" 23	Cleator Moor—Asphalting	Urban District Council	R. Robertson, Surveyor, Cleator Moor.
" 29	East Preston—Carting	Rural District Council	A. Shelley, Council Clerk, Littlehampton.
" 29	Southport—Granite Cubes	Corporation	R. F. Hirs, Borough Surveyor, Southport.
" 30	Farnham—Carting	Urban District Council	R. W. Cass, Surveyor, Farnham.
" 31	Birkenhead—Passage Flagging	Corporation	C. Browridge, Town Hall, Birkenhead.
" 31	Littlehampton—Supply Flint	Urban District Council	A. Shelley, Town Offices, Littlehampton.
" 31	Middleton—Street Work	Corporation	Mr. Welburn, Town Hall, Middleton.
" 31	Rochdale—Supply of Sfts	Gas Committee	J. Leach, Town Hall, Rochdale.
" 31	New Malden—Materials	Urban District Council	T. V. H. Davison, Glebe Side, New Malden.
Sept. 3	Norwich—Street Works	Corporation	A. E. Collins, Guildhall, Norwich.
" 5	Bishop Auckland—Road Works	Rural District Council	C. Johnson, Surveyor, 1, Cradock-st., Bishop Auckland.
" 6	Aldershot—Supply Granite	Urban District Council	Council's Surveyor, Aldershot.
" 6	Aldershot—Gravel	Urban District Council	G. Gledhill, High-road, Balby, Doncaster.
" 6	Hexthorpe—Street Works	Urban District Council	Surveyor, 125, Victoria road, Aldershot.
" 7	Aldershot—Metalling, &c.	Urban District Council	"
SANITARY—			
Aug. 29	Longridge—Sewerage	Urban District Council	T. S. McCallum, 4, Chapel Walks, Manchester.
" 31	Barnet—Sewers	Urban District Council	W. H. Mansbridge, 40, High-street, Barnet.
" 31	King's Lynn—Sewers	Corporation	E. J. Silcock, 10, Park-row, Leeds.
No date.	Bradford—Sewer Manholes, &c.	"	J. Smith and Sons, 14, Tanfield-chambers, Bradford.
"	Newbury—Sewers	Drainage Committee	S. J. L. Vincent, Borough Surveyor, Newbury.
"	Swanage—Sewage Works	"	Francis Newman and Cocks, 5, St. Thomas-street, Ryde.
PAINTING AND PLUMBING—			
Aug. 27	Burnley—Painting Police Stations	Watch Committee	Borough Surveyor, Town Hall, Burnley.
" 27	Stanbury—Painting, &c.	"	Judson and Moor, Boghthora, near Keighley.
" 29	Hove—Painting	"	Town Surveyor, Town Hall, Hove.

COMPETITIONS.

DATE DESIGNS TO BE SENT IN.	DESIGNS REQUIRED.	AMOUNT OF PREMIUM.	BY WHOM ADVERTISED.
Aug. 31	Glasgow—City Improvements	£100, £50, £25	Glasgow Corporation.
" 31	Glasgow—City Improvements between King-street, City, and the New-Wynd	£100, £50, £25	J. D. Mackenzie, Town Clerk, City-chambers, Glasgow.
Sept. 31	Stockholm—City Railway Stations and Junctions	£353, £433, £219	Consulting General, 27, Great Winchester-street, E.C.
Sept. 24	Plymouth—Shops, &c.	£250	Plymouth Town Council.
Oct. 23	Wivenhoe—Water Supply and Drainage Schemes	"	Wivenhoe Urban District Council.
Oct. 3	Liverpool—New Buildings for Royal Institution	£12 10s., £21	Harold Waterhouse, Hon. Sec., 3, Cook-street, Liverpool.
" 3	Goalmington—Football Stand (150 seats—£150 limit)	£3 3s.	Secretary, Recreation Club, Godalming.
" 3	Leamington—Free Library and Technical Institute	£105 (merged), £52 10s.	H. Consett Passman, Town Clerk, Leamington.
" 3	Rotherham—Extension Baptist Schoolroom (£600 limit)	"	A. Crowcroft, Clifton-crescent, South Rotherham.
No date.	Plymouth—Tavistock-street Buildings (no Assessor)	£250	J. H. Ellis, Town Clerk, Plymouth.

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BERKEENSHIRE (24,158).—An excellent SHOOTING BOX, very nicely furnished, modern sanitation. The accommodation includes eleven bed rooms (making up fifteen beds), large library, bath room, w.c.'s and lavatory, and four reception rooms. Complete domestic offices. Three-stall stable, coach-house, harness room, loft and rooms over. Well laid out grounds, with two tennis lawns. Greenhouses and kitchen garden. September and October, 100 guineas inclusive.

BERKSHIRE (3122).—In lovely scenery, looking on the Downs and extensive Commons close at hand. In 3 acres of grounds, well timbered on all sides except the south, to which the house fronts. Contains dining room, drawing room, kitchen, three large bedrooms, one smaller; store cupboards, larder, &c. Stabling for three horses. Trout fishing in River Embourne, also good winter fishing. Shooting to be had in the neighbourhood. Plots and lines nearly new. Comfortably furnished. —Terms and full particulars as above.

ESSEX (3186).—To be let from October 1st till January, 1899, a most comfortable MANSION, with Shooting over 3500 acres. The Residence, which is situated within easy access of the Metropolis, contains five reception rooms, twenty-two bedrooms, dressing and bath rooms, &c. Stabling for ten horses. The estimated bag will be about 2500 pheasants, 1000 partridges, 100 hares, a few wildfowl, &c. Terms and full particulars as above.

LINCOLNSHIRE (3100).—A most important RESIDENTIAL ESTATE of 9000 acres. The Mansion is of great antiquity, and contains five reception rooms, thirty-five bedrooms, &c., and stabling accommodation for thirty horses. Terms for hunting and shooting season, 500 guineas. Tenant to keep up mowing gardeners, gamekeepers, &c.

SUFFOLK (315).—A first-class FAMILY MANSION, standing in a park of 200 acres, with shooting over 5000 acres. Contains five reception rooms and billiard room, thirty-five bed, dressing, and bath rooms, and fourteen servants' rooms; stabling for twenty-two horses. Rent 850 guineas per annum. Tenant to keep up.

BEDFORDSHIRE (25,191).—An excellent HUNTING BOX, standing in its own grounds, and within a few minutes' walk of Leighton Buzzard. Contains four bedrooms, fitted bath, two sitting rooms, capital domestic offices. Freehold to be sold, or would be let on long lease.

BERKSHIRE (25,213).—A splendid ESTATE with MANSION, standing in beautiful park of 50 acres. The house contains twenty-three bed and dressing rooms, bath room, double dining and drawing rooms, morning and smoking rooms, billiard room, and chapel. Stabling for twelve horses. With woods, farms, &c., making up a total of 780 acres. —Price and full particulars as above.

BUCKINGHAMSHIRE (344).—A most charming FREEHOLD PROPERTY, standing on its own well laid out grounds of 32 acres. The mansion contains five reception rooms of lofty and noble proportions, sixteen bedrooms, dressing rooms, &c.; stabling for five horses. Would be sold or let for a term of years. —Apply as above.

CANADA (3437). on the Canadian Pacific Railway, and within 80 miles of Montreal. —A RESIDENTIAL ESTATE, situated on the banks of a lake, with unrivalled shooting, fishing, and boating facilities. Contains ten bedrooms, two bath rooms, lavatory, store room, five excellent reception rooms, stabling, &c. The Freehold to be sold. —Apply as above.

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1898.

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SMALL SPORTING ESTATES, 13 FARMS, FULLY LICENSED INN, RICH MARSHES, WOODLANDS, ACCOMMODATION AND BUILDING LAND, COTTAGES, &c., being the outlying portions of the Sussex Estates of Sir James Duke, Bart., and extending to about 2750 acres, divided into numerous lots. They comprise:

Magham Down and Cottages in Hailsham and Hurstmonceux.

Amberstone Farm, Accommodation and Building Land in Hailsham.

Hempstead Farm and Building Land in Hellingly.

The Whyte Estate, East Hoathly, a capital sporting property, with grand coverts.

Squire and Tuett's Farms, Framfield.

The Merry Harriers Inn and 16 acres, Cowbeech.

Cowbeech House and Farm.

Beech Hill Estate, about 390 acres, of which 81 are wood. One of the most complete little sporting properties in the county.

Clippingham Farm, Hurstmonceux.

Straight Ditch Marshes in Pevensey Level.

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Holmbush Farm, Hellingly, 83 acres.

Carter's Corner or Cowbeech Hill Farm, 46 acres.

Strood and Gatchhouse Farms and Woodlands at Chiddingfold.

Swansbrook Wood.

West-street Farm, Hellingly.

All the lands are let at fair rentals and mostly to tenants of long standing, and offer a good opportunity for the sound investment of capital in an improving security.

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The estate is laid out with a 45ft. road, planted with trees this autumn, sewer and kerbed and channelled; and house connections being laid up to the edge of the footpath.

The sites facing the High-street are eminently suitable for the erection of good class shops, whilst those facing the Lady Margaret-road are intended for villas with rentals of from £30 to £40 per annum, for which there is a great demand.

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Particulars of sale may be obtained of Messrs. FRESHFIELDS and WILLIAMS, Solicitors, 31, Old Jewry, E.C.; or of the AUCTIONEERS, at their offices, 10, Mount-street, Grosvenor-square, London, W.

OLD OAK FRAMING from an Old Tithe Barn FOR SALE.—Apply, TAYLOR, East Isley, Berks.

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R. I. B. A. EXAMS. PREPARATION, personally or by correspondence, in three, six, nine, or twelve months' courses. Architectural Lending Library. Special three months' finishing courses. —For full particulars apply to Mr. W. CHURCH HOWGATE, A.R.I.B.A., Perchard House, 70, Gower-street, W.C. (close to the British Museum).

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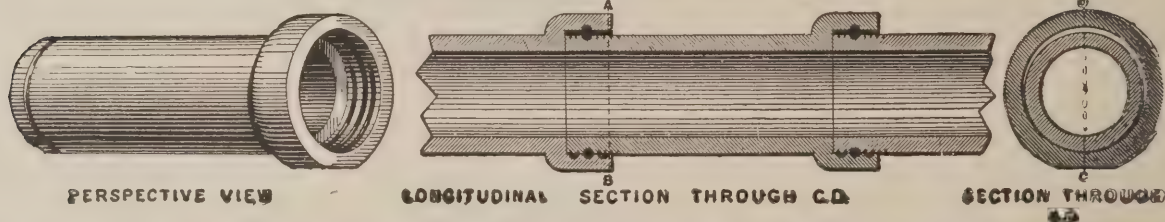
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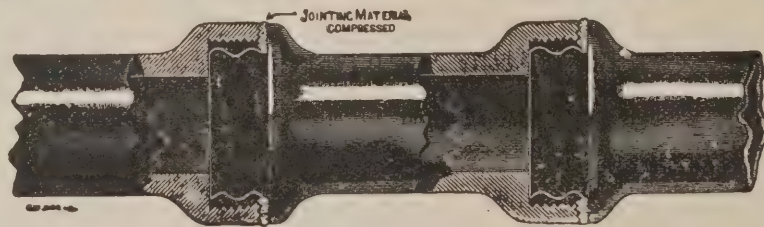
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MADE WITH THESE
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ARCHITECTURAL RECORD
WITH SURVEYING AND SANITARY SUPPLEMENTS

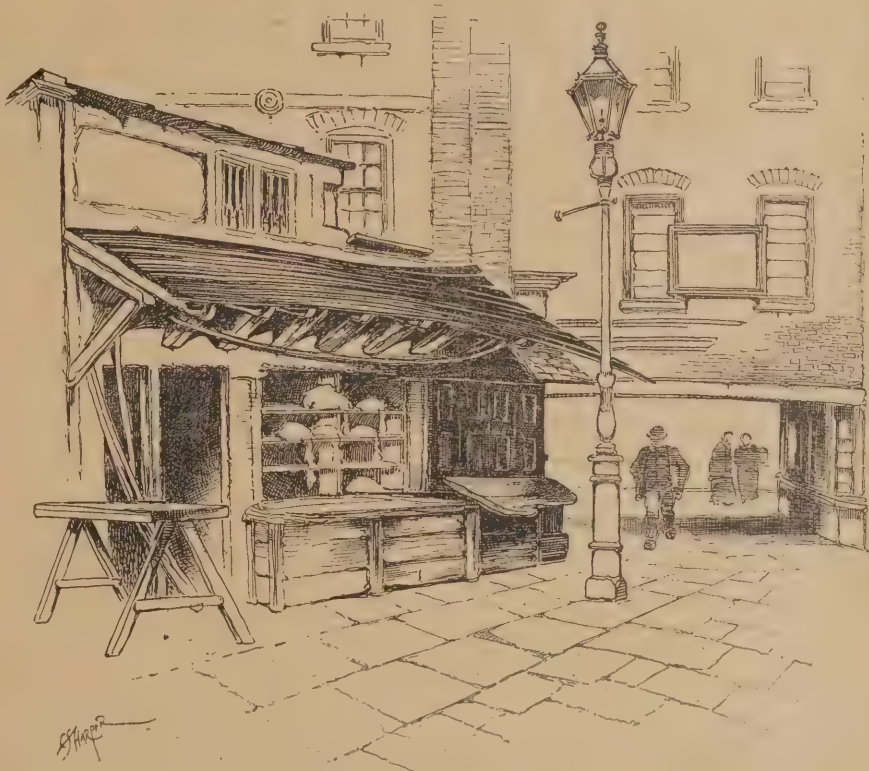
An Architectural Causerie.

Old London Shops. THE clearances in Clare Market are sweeping away a great number of crazy tenements that too long have cumbered the ground in what has now become the central part of London. Little of interest is disappearing with them, save, indeed, a relic of old-time shopkeeping—the last of the old “bulk-shops,” once upon a time the usual type of shop in London. This particular sample was (for now that these lines have been written it has been demolished) a venerable old place in Gilbert’s Passage, occupied by a poulterer. The “bulk” which gave these shops their distinctive name was a fixed projecting board or bench running along the frontage, outside the shutters. This bench was almost always accompanied by an overhanging pent, as seen in the illustration herewith. The old bulk-shops afforded a nightly resting-place in the “good old times” to men whose names have become famous, for on these hard and unpliant beds were wont to sleep the authors, the poets, and the analysts of that era when the Grub Street corks were the aristocrats of their profession, and the ancestor of the modern reporter presented the deepest depths. Genius was a stranger to the bulk as a bed, for Richard Savage was used often to couch on one for the night, to be rudely awakened by indignant shopkeepers in the early morn and named for a dissolute rogue; and Nat Lee, pressed from a drunken sleep to death on a plank in Clare Market—perhaps even on this very spot. He and his fellows caroused till closing time in the taverns of their day, and, when they were thrust forth into the streets, snored upon bulks till morning came and woke them to their hard and workaday world. From these semi-erary references we may turn to a notice of the shops that succeeded the bulk-shops of the seventeenth century. We all know the eighteenth century to have been a time of the utmost desolation so far as Architecture is concerned; but to this general rule, as all others, some exceptions may be urged. There was a notable time for the designing of shop-fronts, and until quite recent years there were excellent examples of design in this kind of artistic effort to be met with in the Soho quarter of London in particular. There are some few in that neighbourhood even now, but the really delightful instances were swept away at about that time (now somewhere about ten years ago), when Shaftesbury Avenue and Charing Cross Road were driven through the old streets of that district, and records of them are only now to be found among the very fine series of photographs issued from fifteen to twenty years since by the Society for Photographing Relics of Old London. It is quite worth the while of architectural students to look up the list of the Society’s photographs, which, by the way, may readily be referred to in the Corporation Library, Guildhall.

C. G. H.

The Extension of Flatland. TIME was, and that not so long since, when it was one of the most implicitly believed-in maxims of the building trade that “flats” could not be made to pay for their construction anywhere out of the four-mile radius. This dictum was supported by two arguments—that of the exorbitant cab fares liable to be levied outside that radius on suburban residents, which, by themselves, it was held, would hinder the popularity of the new dwellings; while the second argument was the double-barrelled one that the very *raison d’être* of flats was their provision of centrally-placed residences, at a reasonable inclusive price, for business people to whom a suburban home, with the waste of time incurred by daily journeys to and from London would be altogether too irksome. Such people, it was argued, to whom time was valuable, would not inhabit “barracks” in the debateable land, half country and half town, with which London

from their own doorstep, which everyone desires in these days. These are factors which have made, and are still actively making, building land within a ten-mile radius of town exceedingly valuable in these latter days. Nor must we omit to mention the new era of subterranean railways which is dawning, and bringing with it exceedingly cheap and rapid transit. It is largely owing to these that flats will, in the very near future, be erected on the best sites round London. The cab-fare outside the radius will then be a disestablished bogey. Already we begin to see this new order of things. The healthy heights of Hampstead have numerous examples of well-appointed flats, of very pleasing elevations, while on Richmond Hill the first block of flats was opened last year. It is here, in this hillside town, overlooking the lovely wooded valley of the Thames, that suburban flats will find their best reasons for existence, and here they must in the near future be multiplied amazingly. There will, without doubt, be those who will raise an outcry against it, but an increased and increasing population must



THE LAST OF THE OLD BULK SHOPS, GILBERT'S PASSAGE, CLARE MARKET, W.C.

is surrounded; for if they could endure the daily journeys they would assuredly require a recompense for that inconvenience in retired suburban villas, where they could enjoy the rustic delights of lawns and gardens of their own. But Suburbia has changed wonderfully since flats began to be built in London, twenty years or so ago. The rustic villages within easy reach of the Metropolis have nearly all grown into townships, and the suburban villa commands a very high rent nowadays, supposing it to have a garden worthy the name. At the same time, the appreciation of country scenery, or so much of it as the surroundings of London have to show, has grown wonderfully, and a very large proportion of business and professional men live by preference eight or ten miles out. Not all these folks, although ardently desiring these semi-rural surroundings, are of that Cincinnatus-like disposition which delights in gardening work, and a residence in pure air and quieter surroundings suffices for them, together with that immediate access to the veritable country

be housed, and it is better, for the preservation of rurality, that such building that is to be done should be done perpendicularly instead of laterally; while at the same time it should be noted that the speculator who invests huge sums in flat-building is better able to command and to afford good elevations than the builder of the ordinary-sized villa. Kensington has, of course, become a classic example of how the value of land has gone up since flats were introduced. Following the great boom in building operations that took place in all that district after the exhibitions of 1851 and 1862 had run their appointed course, when the Cubitts had considerably overbuilt, there was actually a very serious drop in rents; and it will be very well within the memory of our readers that some fifteen years ago many of the large and expensive houses in the Cromwell Road were “To be let” for long periods. Then the happy thought took the landlord of them to convert these redundant or too highly rented houses into flats, since when they have been prosperous enough.

C. G. H.

ARCHITECTS WE KNOW.

MR. ARTHUR B. PLUMMER, F.R.I.B.A.

IT is apt all too readily to be forgotten that in the Profession of Architecture the major portion of the striving is of a quite unromantic, if not prosaic, order; and that it is only an artificial convention that accords such importance to the small field of "design." Even in those arts whose sole *raison d'être* is to please, it will be recognised that but a few of their votaries can find occupation in the highest flights of their art, and that for each one who would aspire to the lofty ideal methods of Mr. Watts, let us say, several score will perform find employment in those crude presentments of the comely, the dramatic, and the pathetic, which delight the generality of the people; so that in Architecture, whose first claim is necessity, and whose vital principle is utility, coupled with the most complete fulfilment of needs, and economy of means to ends, it is apparent that a very large percentage of its practitioners will need to be men whose minds must be almost exclusively applied to the structural and economic needs of Architecture, and whose hours must be in chief absorbed in the huge business processes connected with the affair of raising buildings.

It must be remembered that the great bulk of the buildings raised in this country are necessarily quite removed from any serious æsthetic intention in their designs, and that even of those that require the direction and supervision of an able and experienced architect, by far the larger number have their design held completely subservient to the needs of plan, and section, and to those of durability and cheapness; and all these considerations have to be so neatly and exactly balanced one with another, that the margin for selection and arrangement is reduced to a minimum, and forbids any real attempt at "design."

Under the artificial estimate obtaining in the field of Architecture, which has been above indicated, it has grown the custom somewhat to overlook those men who by ability and hard work have won for themselves positions of power and importance in the practice of the less romantic phases of Architecture; and the hurry of activity which seizes and proclaims a new æsthetic departure, let us suppose, in the proportioning of a half-timbered gable, often quite overlooks more solid and more real benefits to the raising of buildings. In these days of much architectural cry, and no considerable amount of architectural wool—when, we are to believe, young architects yearn not so much to considerable building as to the immortalising of their own individuality in some knack of inverted proportion, or other innovation in the shaping of architectural forms, or application of material—it is interesting to be reminded of a man who, although in his student days he exemplified his ability for the rôle of the æsthetic architect, has yet been content to take the fat with the lean, as the saying is, and satisfied to cull success from the practice of the wider aspects of Architecture, rather than among the pale, æsthetic joys of the all art architect to whom a drain-pipe seems almost an impropriety; and such a man do we find in Mr. Arthur B. Plummer, the subject of this article.

Mr. Plummer, whose professional career is associated with our northern counties, his business centre being situated in Newcastle-on-Tyne, with an auxiliary office in Durham, also owes his early education and the first stages of his professional training to these cities, for he was born in Newcastle, of which his father was an alderman, and it was from Durham School that he entered the office of Mr. Mathew Thompson, of Newcastle, as an articled pupil. Nor was there, in his case, much doubt or indecision on the momentous matter of choosing his profession. At school he had already shown an aptitude for drawing, in which he had taken a first prize, and he had further classed as "excellent" in freehand drawing in the Second Grade

Examination of the School of Art. After remaining with Mr. Thompson for four years, during which time he had a varied and wide experience, which included the designing and building of such diverse and opposed subjects as churches and breweries, mansions and work-houses, Mr. Plummer left Newcastle for the purpose of enlarging his experience and availing himself of the educational advantages offered to a young architect in London. Here he worked for six years in the offices of various architects, notably that of Messrs. Hammack and Lambert, where he had opportunities of gaining intimate knowledge in valuations, light and air cases, arbitrations, estate management, and all the ramifications incidental to a large architectural practice. Nor in those days did he neglect the other aspects of the Profession, for he found time to attend Professors Barry and Streets' lectures at the Royal Academy, and others delivered at the Royal Institute of British Architects (of which he himself was elected an Associate in 1880), besides attending sundry of the classes at the Architectural Association, and obtaining, for a set of measured drawings of Waltham Abbey, the annual prize given by the Architectural Union Company; so that, when in 1882 he returned to Newcastle, he was entitled to feel some confidence in opening an office of his own as an architect and surveyor, and, as events proved, to initiate that large and important practice with which his name is now associated.

Like his earliest master, Mr. Thompson, and, indeed, like the heads of other large architectural practices outside London, Mr. Plummer is professionally omnivorous. Any consideration of the long tally of the works of the firm of Messrs. Plummer and Burrell reveals that apparently there is no class of building to which it has not subscribed, and no phase of work incidental to building or surveying of which it has not had experience. Churches restored, churches built, board schools, lunatic asylums, workshops, mansions, villas, homes, and parochial buildings are by no means all the fish that come to Mr. Plummer's net. Nor does this afford him sufficient scope, for he adds to these duties of architect and surveyor those of diocesan surveyor and secretary to the Northern Architectural Association, a post he has filled for several years, albeit the work and responsibility devolving upon the holder are by no means inconsiderable.

Mr. Plummer's name will be also remembered in connection with several interesting papers which he has read before various societies on different occasions, and which were published in the professional journals. Of these we may mention that read before the Northern Architectural Association upon the subject of "The Planting of Trees in Streets and the Different Effects Obtainable," which attracted a good deal of attention otherwise than locally, calling forth a leader on the subject in the Daily News, and prompting the "English Arboricultural Society" to elect Mr. Plummer into its membership; and in particular, a valuable paper read before the Sanitary Congress at Newcastle last year upon the subject of "Flush Tests," embodying the result of a number of original experiments in the flushing of drain-pipes, instituted and carried out by Mr. Plummer in conjunction with the Newcastle Water Company. By these experiments, Mr. Plummer established yet again the supremacy of the small pipe over the large, and was able to satisfy himself that, in all but very exceptional cases, a two-gallon flush is sufficient. After a series of experiments, occupying several days and covering many different conditions, and various types of sanitary fittings, it was found that the 4in. and 3in. glass lined metal pipes gave the best results. As a result of these experiments, Mr. Plummer suggested the use of a pipe which, while retaining the circular shape which is important for the handling of drain-pipes, yet showed in section an interior shaped so as to perfectly fulfil all the useful functions that are attributed to the oval-shaped drain; the bottom of the pipe being shaped in the form of a channel of such small dimensions as would assume the thorough

clearing of the drain with a small flush, while the upper portion was widened to cover the needs of a much larger pipe, and secure that any heavy charging of the drain, by flood water or otherwise, would be speedily relieved. We have not yet heard whether this suggestion has yet actually been availed of, and the pipe been tested in practice. The shoulder which occurs when the lower channel breaks back into the wider pipe is, no doubt, a slight drawback, but it seems to us that this might be modified as actual experience would show to be necessary, and any tendency for solid portions of sewage to accumulate and harden there might easily be corrected.

Mr. Plummer also, in March, 1894, read, before the Northern Architectural Association, an interesting paper on "Zinc and Zinc Roofing," in which he entered minutely and at length into his subject, and adduced some valuable information and notes. This paper was published in the building papers soon after, and is a useful contribution to a subject upon which too little attention is bestowed. Mr. Plummer compared zinc with lead in all their various aspects as roof coverings, and dwelt upon the merits and demerits of each and the place and manner in which zinc might fitly be used. He showed that zinc roofing might be regarded with much more confidence than was customary. Nor is this the only work of an educational character that Mr. Plummer has undertaken. He has been active in instituting and organising the students' classes at the Northern Architectural Association, and he has taken upon himself a share of the duties of delivering lectures to those classes. In connection with the Cambridge Extension Architectural Lectures he has also busied himself, on several occasions having conducted parties of students over churches and buildings of architectural value in the northern counties.

THE GLASGOW SCHOOL OF ART.

WE have received a copy of the prospectus of this institution for 1898-99, which discloses a most ambitious programme in Architectural classes. This section, which is under the direction of Mr. William J. Anderson, A.R.I.B.A., will embrace lectures on Building Construction (elementary, advanced and honours), Specifications and Quantities, Architectural Drawing and class-work, Sketching class, Measurement class, Principles of Ornament and Colour Decoration, Architectural Design, Historic Ornament, Perspective, and Sciography and Geometry. To this comprehensive list must be added a course of instruction on the Historic Development of Architecture, the special subjects being a history of the Renaissance in France, and a general history of Architecture. The curriculum has been arranged to meet the requirements of the R.I.B.A. examinations. There are other classes on Decorative Art subjects and Applied Art. As an instance of the good results accruing from these lectures, a list of appointments that have been secured by the students during the last session is given. The Glasgow School of Art also holds the proud position of first place in the National Competition Returns for 1898, with a total of thirty-one medals (two gold, nine silver, and twenty bronze). New Cross (London) comes next with twenty-six (two gold, eight silver, and sixteen bronze). It is strange to see such big cities as Manchester with only seven medals, Edinburgh with two, and Liverpool three. This is probably a greater triumph for Glasgow, and an instance of how diligently our friends over the border apply themselves to the study of Applied Art. Altogether, the future of the schools seems full of promise.

At a recent meeting of the Hampstead Vestry a memorial was received from the Hampstead Art Society, signed by several prominent artists, urging the erection of an Art Gallery as an addition to the Central Public Library in the Finchley Road. The matter was referred to the Public Libraries Committee.



HALL ROOF AT HAMPTON COURT.

MEDIAEVAL TIMBER ROOFS.*

By D. M'LEOD CRAIK.

OF the beauties which Mediæval Architecture presents to the architectural student there are few more striking than the open timber roofs which adorn so many churches and ancient halls, and testify to the constructional skill and artistic feeling displayed by the carpenters of that age.

The effect of these roofs, with their bold receding arches, massive, richly moulded and carved timbers, spandrels filled with intricate tracery, profusely ornamented cornices, and exquisitely carved bosses, must rivet the attention of every spectator, and must prove to the enthusiastic Goth a realisation of the most sublime beauty.

When we add to this the blaze of rich colouring of which nearly all the roofs bear traces, the result attained would be a degree of splendour which it is difficult to imagine in these days of sombreness and gloom, unenlivened by the least spark of brilliancy, although it must be admitted that this lack of colour is admirably suited to the lifeless and wearisome farce which goes by the name of present day religion.

There is an absence of open timber roofs during the early period of Gothic Architecture, which appears very unaccountable at first, because one would naturally suppose that as timber roofs of a necessity preceded stone vaulting, the most beautiful and elaborate forms of roofs would also occur prior to the magnificent examples of groined vaults, which still remain in all our cathedrals as monuments to the constructive skill and genius of the masons of the Gothic period.

But the reason for this deviation from the usual course of events is not far to seek, when we remember the serious fires which destroyed Canterbury, and other cathedrals about this time, and the builders finding that it was possible to use stone for roofing purposes, soon became so proficient in the use of this material that the mason seems to have excluded the carpenter almost altogether both from constructional and ornamental work.

The best and most numerous examples of timber roofs occur in the beautiful parish churches, scattered all over the country, and a few old palaces and halls, which still remain, relics of kingly and baronial magnificence. They are, as a rule, acutely pitched, although not invariably so. An angle of 90 degrees was the ordinary elevation of Norman roofs, the Early English generally acutely pointed, but rarely an equilateral triangle, or 60 degrees; in fact, in both the Decorated and this style

there are some so low as to rival the Perpendicular. For example, the Early English church at Warmington, and the decorated roof over the larger south aisle of St. Martin's Church, Leicester, has a span of 21ft., and a rise of only 4ft. In Norfolk and Suffolk there are many beautiful examples of high-pitched roofs.

The timber used was chiefly oak or chestnut, and the different parts were always mortised and tenoned together, and fixed with wooden pins, no iron ties, straps, or even nails being used in any part.

The scantlings were of stouter proportion than those in present use, and give a feeling of robustness and security to the roof, as well as providing an insurance against the ravages of time, which seems to have left very little impression on the enduring oak, most of the damage being the result of neglect, or the ruthless vandalism of the Reformation in defacing and removing the carved work, which offended the pious susceptibilities of its adherents, though in this respect the roofs, owing to their inaccessibility, and the fear of consequences if the construction were meddled with, have fortunately come off lightly. But of course there was nothing to hinder the abundant use of that most effective weapon and safe cure in the hands of a fanatic or ignoramus, the whitewash brush.

In describing the construction of the roofs, I have divided them into the usual five varieties, namely:—Roofs with tie-beams; trussed-rafter or single-framed roofs; roofs framed with hammer-beams and braces; roofs constructed with collars and braces, or braces only; and aisle roofs. The four last are peculiar to England. As will be seen, they differ greatly from the forms of roofs in use to-day—king-post, queen-post, &c., &c. This is chiefly attributed to the shortness of the spans, about 15ft. to 20ft., 36ft. being a very wide instance; and to the desire to make the roof an ornamental feature, which it would be well for all architects to bear in mind when the opportunity occurs, because with modern scientific and constructional capabilities it cannot be said that the open timber roofs of this age excel those of mediæval times.

Tie-beam roofs occur in Norman, Early English, Decorated, and Perpendicular buildings. In the Norman they were the only description of roof in use, but, as before mentioned, very few examples remain, and these display very little either of beauty or construction. The tie-beam was sometimes used quite apart from its usual function of serving as a tie to the ends of the rafters; it was laid across from wall to wall, and pinned to the wall plates. Examples occur in Clymington Church, Sussex, and in the south chapel of Bredon Church, Worcestershire.

Some tie-beams are beautifully moulded, as in Southfleet Church, Kent, but others are left quite plain, for instance, the chancel, Northfleet, Kent, where they are in a state of

natural roughness, while the roof is panelled, and has moulded ribs with carved bosses.

Various methods were resorted to at different periods to make these beams harmonise with the general style of the Architecture, but at the best it was never a decided success.

In roofs of a low pitch, which occur at an early period, the beam was made to bear the whole weight of the roof, as in the one over the larger south aisle, St. Martin's Church, Leicester; in this instance it is supported by moulded curved braces, the whole forming an almost semi-circular arch, the crown of the arch being cut out of the solid beam, which is of enormous scantling. Some of the expedients employed to retain this arched form and the tie-beam in roofs of higher pitch result in very unsatisfactory effects; for instance, Morton Church, Lincolnshire, where the beam divides the arch into two, but there is a very fine example of an unbroken arch at Adderbury Church, Oxfordshire, where arched tie-beam braces span the nave, and foliated ridge braces each bay of the roof, springing from the tie-beams, and framed into the ridge, the timbers being all moulded and cusped.

A perfectly horizontal tie-beam is very rare, it is almost invariably cambered, as are also the collar-beams, and even hammer-beams incline slightly upwards. The effect of the straight line presented by the underside of the beam is counteracted by curved braces framed into it, and connecting it with the wall pieces.

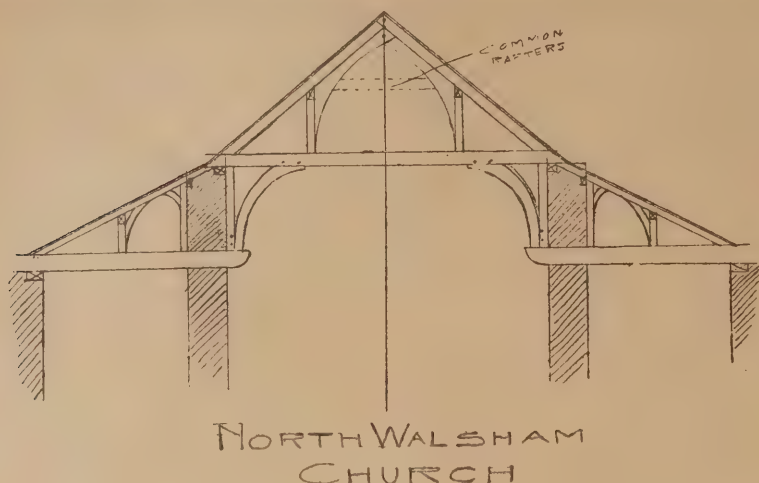
A common variety of roof in Kent and Sussex, which excites admiration, consists of a tie-beam, with or without wall pieces, supported on corbels with curved braces to the underside of the beam. From the centre of the beam rises a king-post, sometimes octagonal, with cap and base, from its four sides spring curved braces, supporting the principals and ridge. In this case the king-post is put to a different use altogether from that which it possesses now, in so much as it is entirely supported by the tie-beam instead of the latter being suspended from it.

Examples occur at Swardstone Church, Norfolk; a disused church at Horton, Canterbury, and Penshurst. An instance of a rude but very secure roof is shown at North Walsham Church, Norfolk. The ties of the aisle roof pass through the walls, and form corbels for the wall pieces of the nave roof, intermediate trusses of double rafters are used, and the common rafters have collars.

Towards the end of the Perpendicular style tie-beam roofs of very low pitch occur, often with no more rise to throw off the rain than the camber of the beams provided. These roofs were profusely ornamented, as in the north chapel, Wellingborough Church, North Hants, where the eastern bay is panelled, the rest open rafters; there is another beautiful example at Rushden.

The tie-beam class of roof is more general,

* A paper read before the Edinburgh Architectural Society.



and better treated in France, where the use of high pitched roofs led to purlins being discarded, but the racking motion to which large roofs were liable owing to this, necessitated the employment of a kind of trussed partition under the ridge, as at Auxerre.

The king-post, A, stands upon the tie-beam, which rides in queen stirrups, B, which are hung from the principals at three-quarters of the height of the roof, the collar, D, is tenoned into the king-post and rafter, the brace, C, supports the collar, and with it the stirrup, B, and with them the tie-beam, E.

The framing of cradle roofs with king-posts carried upon tie-beams, became a general practice in France from the latter part of the twelfth century until the end of the sixteenth; the above method of construction being followed as at the Episcopal Palace, Auxerre.

Trussed rafter or cradle roofs were most probably chosen for the purpose of gaining head room, or because of the difficulty in roofing over vaulting, this form of roof avoiding the necessity and expense of raising the wall head to the level of the apex of the vault in order to introduce a tie-beam. Its superiority both constructionally and in point of beauty over the tie-beam necessarily led to its being preferred and generally used.

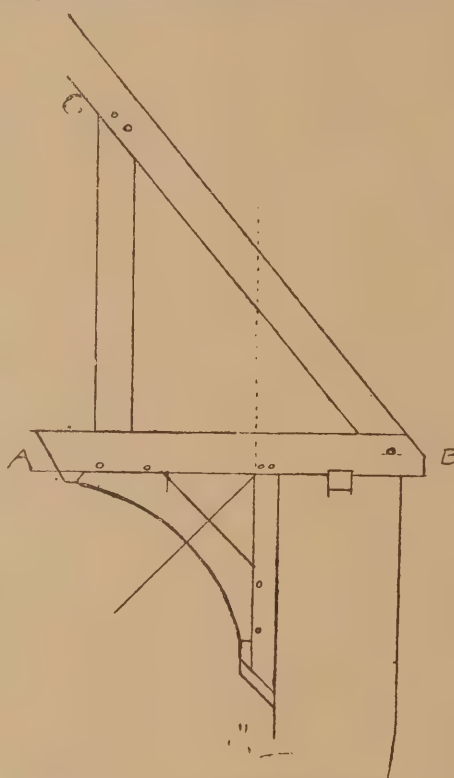
In roofs of wide span each pair of rafters had a collar, and braces sometimes crossing above the collar, and at others tenoned into its underside.

The roof of Ely Cathedral is a good example each pair of rafters is trussed, which gives the appearance of an arched ceiling, pentagonal in form; the two lower inclined sides being formed by the lower part of the rafters; the two next by braces running obliquely from one rafter to its opposite neighbour; and the upper side by the collar which intersects the braces; all the timbers are halved and pinned together with wooden pins.

The rafters generally extended to the outside of the walls, and formed the eaves, the walls being of great thickness, and never carried up higher than the wall plates, a large space was left between the wall head and the rafters on the inside of the church. Instead of placing the wall plate near the outer edge of the wall, where it would have been very insecure, the carpenters filled up the space with upright pieces of timber, called struts, flush with the line of the wall, and framed and pinned to the underside of the rafters, the foot being connected with the foot of each rafter by a horizontal piece of timber equal in length to the thickness of the wall, which was notched on to the wall plates, which were placed either centrally or at the inner and outer edges of the wall; this formed a triangle, which provided a wide footing for the truss, and obviated the danger of spreading. Purlins were discarded altogether in this style of roof. These roofs are frequently lined, and often lathed and plastered, although it is open to grave doubt whether their beauty was augmented by either process, certainly not by the latter.

The form of the arch was often perfected by the addition of curved braces to the underside

of the trusses, and the roof was generally formed into panels by ribs running horizontally, with carved bosses at the intersections.



The panels in Somersetshire are mostly plastered.

The trussed roof was a favourite style in the Early English and Decorated periods. It was necessarily of high pitch, as this, by diminishing the thrust on the walls, required neither a great footing nor large timbers, and is, perhaps, a more satisfactory reason than the climatic one for the use of steep roofs.

The tie-beam was retained for a long time, being inserted at intervals of twelve rafters, which were 1ft. 2in. to 1ft. 8in. centres. The internal wall plate was often moulded and ornamented as a cornice.

In the example given of the roof over the nave, Wimbotsham Church, Norfolk, the roof is boarded under the timbers, and divided into panels by small moulded ribs, with well carved bosses at the intersections, and is further ornamented by a small, embattled cornice, span 21ft. 9in.; scantlings, rafters, collars, &c., 4½in. by 4in., rafters 1ft. 9in. apart. It is thought to belong to the Decorated period.

The origin of hammer-beam roofs is often supposed to be that of the tie-beam which has been cut off, merely leaving the ends supported by braces, but the more likely theory is that derived from the mode of securing the feet of trussed rafters.

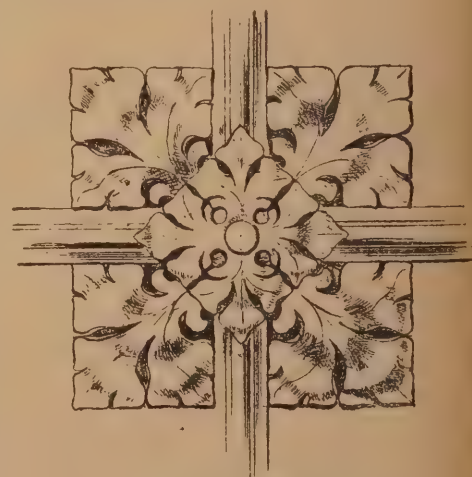
The similarity strikes one at the first glance; the connecting piece A B is lengthened, so as to project into the building, the strut A C, instead of being flush with the wall, is placed further out, and a brace is introduced underneath the hammer-beam to strengthen it and carry the weight of the roof lower down on to a wall-piece, which rests on a corbel in the usual manner, its head being tenoned into the under side of the beam. It is almost impossible for this kind of roof to spread, owing to the stiffening action of the braces, and it would require a very strong force to push out the walls.

The collar-beam is retained, but instead of cross timbers, thin curved braces are used connecting the collar, principals, and struts together, and into which they are tenoned, forming an arch which is not only important as binding the roof together, but greatly enhances its beauty.

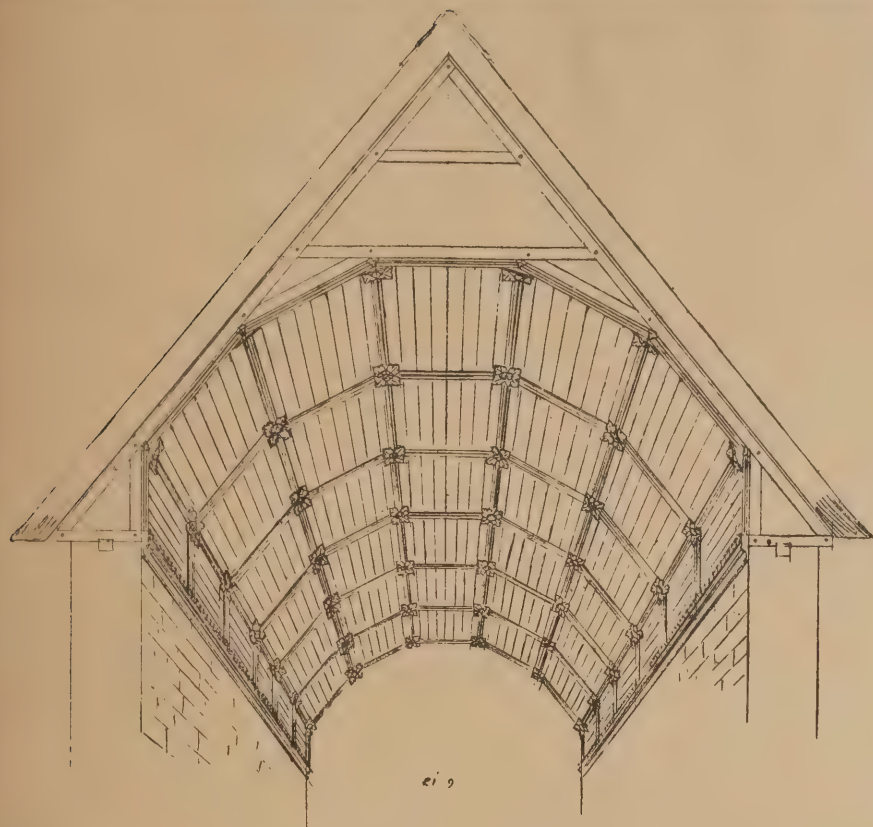
(To be continued.)

VANISHING LONDON.

NOT long ago we duly chronicled the disappearance of an old Fleet Street landmark, the sign of the "Three Squirrels," where Messrs. Goslings and Sharpe's banking business was conducted. The big gap then left in Fleet Street will soon be filled up by the new building in which that ancient business, now merged in Messrs. Barclays', will be resumed, and the famous "Three Squirrels" will reappear in a new home. Now another landmark close by is to vanish. In the course of a few months "Butterworth's" and "Dick's Coffee House" will no more be among the institutions of Fleet Street. "Dick's," indeed, has practically been dead for a long time. The old house stands, still, behind Butterworth's, but its glories departed towards the middle of the present century. Then, in the fifties, it was still the resort of barristers and men of letters, and in it the old Fleet Street tavern life survived, if not in the full tide of the days of Ben Jonson, and Steele, and Dr. Johnson, at least in a green old age. Since then the narrow passage leading to the quaint old place has been less and less frequented, until, finally, the poor old coffee tavern wherein the mightiest wits of England foregathered for two centuries became a "café restaurant" under Italian management! And now even the foreigner has abandoned it; the passage is closed, and "Dick's" can only be seen from the back windows of Messrs. Butterworth's—one of the most picturesque survivals of old London now to be seen anywhere.



ST. MARY'S, WIMBOTSHAM.



NAVE OF ST. MARY'S CHURCH, WIMBOTSHAM, NORFOLK.

RUINS OF MEDIÆVAL ENGLAND.*

BY CHARLES HADFIELD.

THOUGH a craftsman myself, whose life has been spent in the study and practice of Architecture, I must own to having little to say that can throw new light on the venerable structures which thickly stud the hills, valleys, and plains of this realm of England—precious gems from the dower of Mary, an earnest of the love of olden days for God's dwelling place with men. I have no intention, even had I the time at disposal, to embark in an archæological essay on English Mediæval Architecture, but I propose to try and unfold to you somewhat of the spirit and methods of that wonderful period—of those halcyon days, when art inspired by religion filled men's minds with noble and lofty methods of procedure, enabling them to realise ideals rich in imagination and poetry that are still powerful influences on the masses in our own day. The puritan Milton, in his "Il Penseroso," well voiced this sentiment in his day:

But let my due feet never fail,
To walk the studious cloister's pale,
And love the high embowed roof,
With antique pillars massy proof,
And storied windows richly dight,
Casting a dim, religious light;
There let the pealing organ blow
To the full-voiced quire below,
In service high and anthems clear,
As may with sweetness thro' mine ear
Dissolve me into extasies,
And bring all Heaven before mine eyes.

It has been said by a distinguished writer that the history of a people may be read in its monuments. This, while true of the Egyptians, Greeks, Romans, and other nations of antiquity, is especially true of the monuments of Catholic England. They were the outcome of a faith that permeated the whole nation—clergy and people, in Christ's church and His Vicar, the Blessed Peter and his successors. All classes of the community, king and noble,

as well as the poorest peasant, vied in love, self-sacrifice and veneration for the cathedrals, churches, and monastic establishments of the land, and gave of their best to adorn and to enrich them. In the earlier centuries, but especially from the seventh to the close of the twelfth century, the great monasteries were the centres of art and technical training throughout Europe, the best schools for Architecture, sculpture, painting, and the decorative arts. Within their precincts groups of skilled craftsmen, monks and laymen, worked side by side under strict discipline, and young apprentices were taught. Art was thus popularised, and became matter of common interest. The Pointed or Gothic style of Architecture developed in France about the middle of the twelfth century, simultaneously

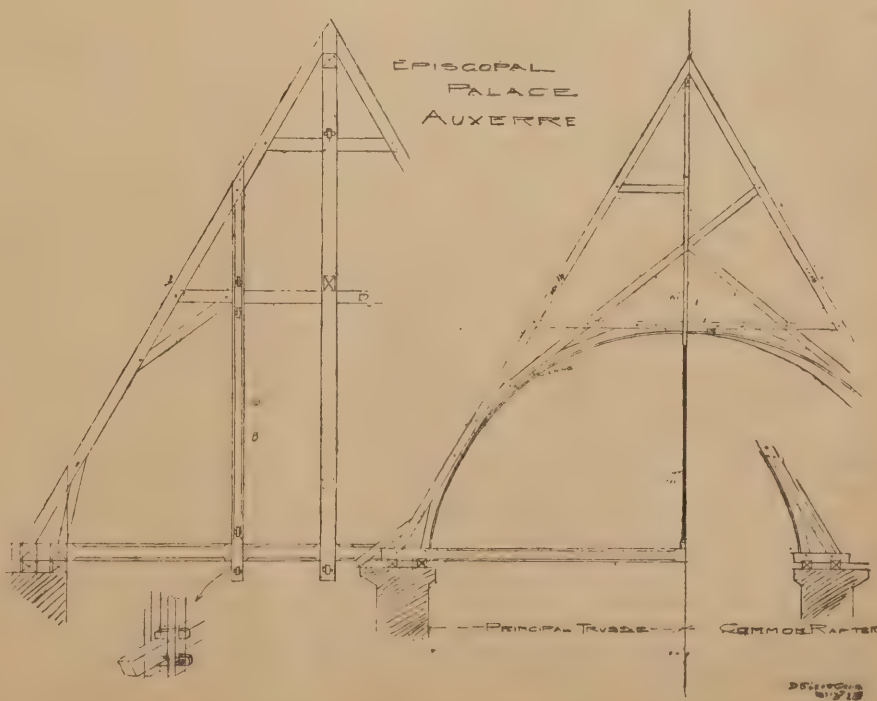
with the great popular movement known as the Enfranchisement of the Communes, which was a successful resistance on the part of the mercantile classes against the tyranny and exactions of the Feudal Lords. With the commencement of the thirteenth century

THE TRADE GUILDS,

under the guidance of the Church, took up the good work, and there is no doubt that the average craftsman then was, in consequence, far better equipped than the craftsman of to-day; when, I venture to submit, art and technical education throughout the British Empire (and, for that matter, in the United States) are, in spite of all the professions one hears, little better than a sham, and for all practical purposes of small avail to men whose lives and best energies are spent in ministering to the meannesses and exactions of a sordid and grasping commercialism, which seeks to crush out the individual, and to make the toiler a mere atom of a huge industrial machine. A distinguished Belgian priest, the Rev. L. J. Lalieu, D.D., parish priest of S. Nicholas, Mons, addressing a recent gathering of the Society of S. Vincent de Paul in Hainault, pointed out that in the middle ages the Church had almost solved the problem of pauperism by means of the old trade guilds and other corporate bodies, and he added "that the pauperism of to-day, which might be called the modern form of ancient slavery, owes its original source and primary cause to the attempt made to bring back society to pagan customs. Industrialism, and the introduction of machinery, heartless and without conscience, have driven the masses of the labouring population

INTO THE DEPTHS OF INDIGENCE.

We must positively get out of those swamps, which are infected with pagan egotism—for which the toiler is only a machine from which the owner draws the greatest amount of profit he can, with the least expense possible—and we must bend our steps energetically and prudently, courageously and gradually, in the direction of those brilliant heights of the Christian ideal which greets in the toiler, however humble he may be, a man and a brother who has a right, as a general rule, to derive from his work and toil the amount of money required to supply his own wants and those of his family." You cannot expect "to gather grapes from thorns or figs from thistles," and it is impossible for artistic culture to thrive in the conditions of poverty, dirt, and utter degradation as to surroundings, of the toiling populations in so many of our large manufacturing centres at the close of this nineteenth century. On this subject a fellow



* A Paper read before the Catholic Young Men's Societies of Great Britain at Sheffield last month, entitled "The Cathedrals, Churches, and Ruins of Mediæval England, as Witnesses to the Faith of our Fathers."

craftsman, W. R. Lethaby, who is doing yeoman service, "Ore et Manu," towards the popularising of art in London, writes to me: "I quite agree with what you say, but it is a part of a very big whole—the whole of modern England—and where we are

TO LOOK FOR AN IDEAL

to lay hold of the people I do not know. Nothing less than 'tidying up' of London and Sheffield, and all England, and an enthusiasm to get them once again, at least, clean, and bright, and decent—Can it be?" I have spoken of the popularity of art, and the large share of interest accorded to it by all classes during the days that England was Catholic. A glance at the fragmentary accounts which have come down to our time of the building of the cathedrals and parish churches, monasteries and colleges, with the inventories of their furniture and belongings, will convey the best idea of the share taken by the whole nation in the erection and embellishment of those monuments of piety and practical religion which were then the uppermost ideas in the everyday life of the people. Gervase, a monk of Canterbury, who was an eye witness of the martyrdom of S. Thomas à Becket, and of the great conflagration which destroyed the choir of the cathedral, soon after that event gives an interesting account of the rebuilding in a manuscript (Vespasian B. XIX. of the Cottonian MSS.) preserved in the British Museum, where I had the pleasure of perusing it some years ago. After a graphic description of the fire and the grief in which the monks were cast by the disaster, he details the steps taken for repairing the mischief, the arrangements for carrying on the services, raising money, &c. The manuscript covers a period of ten years from 1174 to 1184, when this portion of the cathedral was completed very much as we see it to-day. A French engineer, Master William, of Sens, who had been employed by the Archbishop of that see, a friend of S. Thomas, was employed by the monks, "and to him and to the Providence of God was the execution of the work committed." The destruction and survey of the damaged halls, and the rebuilding of the new work, are all described;

THE MAGNIFICENCE OF THE NEW

contrasted with the old, and at the end of the third year, by which date rapid progress had been made, the historian observes: "All those things appeared to us, and to all who saw them, incomparable, and most worthy of praise, and at so glorious a beginning we rejoiced and conceived good hopes of the end, and provided for the acceleration of the work with diligence and spirit." During the fourth year the master was injured by a collapse of the scaffolding, and, tenderly cared for by the community, directed the work from his sick bed, leaving the active supervision to a certain ingenious and industrious monk, who was foreman of the masons. He being a lay brother, and unpaid, was taken exception to by the wage-earning skilled craftsmen, but the friction was judiciously allayed by the master, who put all things in due order and every man in his place. Master William eventually gave up the work and returned to France, having been hopelessly crippled by the accident, and was succeeded by another master craftsman—"William by name, English by nation, small in body, but, in workmanship of many kinds, acute and honest." One of his first tasks appears to have been the preparation for the foundations of the chapel in which the shrine of the B. martyr was subsequently erected. The shrine of S. Thomas was one of the glories of Catholic England. Stow, the antiquary, says it was covered with plates of gold,

DAMASKED AND EMBOSSED WITH WIRES OF GOLD,

garnished with brooches, images, chains, precious stones, and great orient pearls, the riches of which shrine, at the spoilation in 1533, filled two great iron chests, each one a heavy load for six men. At Easter Eve, 1180, the monks took possession of the new choir before the eastern portions of the sacred building were completed.

(To be continued.)

The R.I.B.A. and the Government.

To the Editor of THE BUILDERS' JOURNAL.

SIR,—I have read Mr. A. R. Jemmett's letters upon this subject, addressed to you, and also your editorial comment.

I took considerable interest in this matter at the Institute, and on one occasion expressed the hope that a member of that body would be employed by the Government.

I find Mr. Jemmett stating—*inter alia*—in his letter, which appears in your issue of the 24th inst., thusly: "As the best men are not members [of the Institute], and as the Institute is aware of this fact, I see no escape from this conclusion myself."

I am a member of the Institute, and I hold an opinion the very reverse of Mr. Jemmett's, and if he will be good enough to name the gentlemen who are not members of the Institute (and their respective works), whom he considers to be the "best men," I shall be very glad to break a lance with him on a matter to which I have more than once referred at No. 9, Conduit Street.—I am, yours obediently,

WILLIAM WOODWARD.

13, Southampton Street, Strand,
August 24th, 1898.

THE NEW TECHNICAL SCHOOL AT BOOTLE.

LOCAL GOVERNMENT BOARD INQUIRY.

COLONEL W. R. SLACKE, R.E., an inspector of the Local Government Board, held an inquiry recently at the Town Hall concerning the application of the Bootle Town Council for sanction to borrow £15,351 for the erection of a technical school. The Town Clerk, at the outset, said that there was no opposition to the scheme. There were no other technical schools existing in the borough than that carried on under the Corporation. The site of the new technical school was purchased in 1897 with the sanction of the Local Government Board. The plot of land, which stood at the back of the Town Hall, was bought for three different purposes, and the portion allocated for the school comprised 3106 square yards. Accommodation would be provided for about double the number of students (including males and females) than there were at present. The plans of the building were selected on competition. Twenty-two sets were sent in, and Messrs. Best and Callon, Westminster, proved to be the successful architects. The sum fixed upon as the amount of expenditure to be incurred for buildings, fixtures, and furniture was £20,000, but the Council did not want to borrow the whole of that sum. The committee had in hand, or estimated they would have by the end of the year, £4649, and that amount deducted from £20,000 would leave a balance of £15,351 to be borrowed. The arrangements adopted for the heating, lighting, and ventilation of the building were in every respect most satisfactory.—At the close of the inquiry Colonel Slacke inspected the site of the school.

ST. GEORGE'S CHAPEL, Windsor Castle, which has been closed for nearly a fortnight for cleaning and repairs, has been reopened for Divine service.

Two blocks for infantry are to be built at Hounslow at a cost of about £12,000, besides two large mobilisation stores, estimated to cost about £4000. Only recently considerably over £6000 has been expended upon the drainage of the barracks there, besides other lesser sums on improvements, &c.

It is hoped to have the installation of electricity in the courtyard of Marlborough House completed before any members of the Prince of Wales's family resume residence. Workmen have commenced making the trenches for the main from which the arc lamps will obtain their supply.

THE NEW THEATRE AT BLACKPOOL.

AT a recent vacation sitting of the Chancery Court of Lancashire, the Deputy Vice-Chancellor, Mr. W. F. Taylor, had before him an application in connection with a new theatre which is being erected at Blackpool. The plaintiffs were Messrs. William Rhodes and Sons, and Messrs. Young and Rhodes, and they asked for an interim injunction restraining the defendants, the Alhambra (Blackpool) Limited, from erecting their theatre to such a height as to interfere with the plaintiffs' ancient lights.—Mr. Mansfield said the plaintiffs asked that the defendants be restrained from continuing the erection of the building further than what it was at the date of the writ. The plaintiffs were lessees of premises in Bank Hey Street, which was a very narrow thoroughfare. The defendants were erecting a new theatre called the Alhambra, and the back of the building ran into Bank Hey Street, opposite the shops occupied by the plaintiffs, who carried on business as drapers and silk mercers, and as ironmongers. Prior to the erection of the theatre the site was occupied by the Prince of Wales' Baths, and these only went to a height of about 44ft., but the new building had been already carried to a height of about 77ft., and interfered materially with the plaintiffs' lights. The plaintiffs could not interfere with the building so far as it had gone, but the defendants were increasing the height, and the theatre was apparently to go very much higher. Since the issue of the writ the defendants had gone on, and he thought they had even worked overtime.—Mr. Roby said the site on which the new theatre was being erected was cleared by the end of last year, and the defendant Company commenced the building in 1898 with a great flourish of trumpets and a prospectus issued to the public. It was known that it was going to be a very extensive and costly building, and although it had been proceeded with regularly up to the present time, there had been no complaint by any one of the plaintiffs.—Mr. Mansfield: Oh, yes, there is an affidavit stating that complaint was made.—Mr. Roby said the only possible object the plaintiffs could have in commencing this action the day after the beginning of the long vacation was to make the defendants come to terms with them at once, or otherwise an injunction might be granted which would prevent them putting the roof on, and thus save this costly building from being entirely destroyed. It seemed perfectly hopeless that this action could succeed.—The Deputy Vice-Chancellor said he would make an order that the motion stand over till the trial of the action. It was well known that the defendant Company were going to build a theatre on the site in question, and the building was commenced in January last. Some time in April, it was stated, complaint was made that the building was likely to damage the plaintiffs' ancient lights. He should have thought that the first thing people would have done when they did make a complaint would have been to examine the plans. If they had done so they would have seen exactly what was going to be done, and then was the time to take any proceedings if they thought fit to do so. It was clear that the trial of the action could not take place during the vacation, and a mandatory injunction could not be granted on an interlocutory application to compel them to pull down the building which was already up at the date of the writ. Therefore the only effect of issuing a writ on the first day of the vacation was to prevent anything being done until the sitting of the court in October or November. He did not intend to refuse the motion that day, as it would prejudice the plaintiffs in any future application. The proper course was to let the motion stand till the trial of the action, when everything would be open to both parties. Anything done between now and the trial would be done by the defendants at their own risk.

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NEW WESLEYAN COLLEGE, SCARBOROUGH, YORKS. HALL, COOPER, AND DAVIS, ARCHITECTS. (See p. 55.)



HOUSE AT BRUSSELS: THE FIREPLACE UNDER THE STAIRS. M. H. BAILLIE-SCOTT, ARCHITECT. (See "Professional Items.")

BRADFORD PARISH CHURCH RESTORATION.

THE workmen employed upon the restoration of the Bradford Parish Church are continuing to work overtime, and, though the work is such as cannot safely be hurried, very good progress is being made. The gallery on the south of the church has now been completely demolished, and the piers which were sadly cut into to support the timbers of the gallery have been repaired and strengthened. The timbers for the roof of the north aisle are being got into position, and, during the five weeks which will elapse before the meeting of the Church Congress in Bradford, this aisle will be roofed in and the north transept will be completed. The fabric of this transept is already nearly finished. The south transept will not be proceeded with until after the Congress. The oak seating of the church will not be put back into place for these services, but the church will be seated with chairs hired for the occasion. The new choir stalls, which are to be presented to the church by Mr. F. C. Foster, of Queensbury, at a cost of about £300, are already nearly

WESLEYAN COLLEGE AT SCARBOROUGH.

THE foundation-stone has been laid of the Scarborough Wesleyan College, of which we give an illustration. The building, as described by the architects, Messrs. Hall, Cooper, and Davis, is to be constructed of Scarborough stone, faced with local red pressed bricks and stone dressings, the roofs being covered with red Ruabon tiles. The main entrance has a southern aspect, and the main roads to the college are planned from Filey Road and Jackson's Lane, with a back entrance from the north corner of Filey Road. Care has been taken to arrange the block so as to sever the master's house from the school and dormitories, and yet make the whole one building, the connecting link between the two being the kitchen. The arrangement of rooms on the south of the building

COMPRISE THE MAIN ENTRANCE,

with inquiry office and entrance hall. To the east of this is the master's common room and boarders' recreation and reading room, which is 29ft. by 17ft., and is fitted up with book

It is to be heated with hot water radiators, and the plans show two large open fireplaces at each end in addition. To the west and south are arranged three class-rooms, properly lighted, fitted with dual desks, heated with radiators and open fires, and arranged to accommodate ninety-six boys, in addition to which classes could be taught in the schoolroom and lecture hall. To the north and east of the schoolroom is arranged the day scholars' entrance with vestibule porch. The chemical laboratory is planned to accommodate twelve boys at practical work at the same time, and is to be fitted with the

LATEST CHEMICAL ARRANGEMENTS,

working tables, &c., in accordance with the regulations of the Science and Art Department. The lecture hall is to be fitted with desks, seats, and a demonstration table. To the west of the school arrangements are made for lavatories, clothes, drying room, and boarder's locker room, fitted with a separate locker for each boarder, and provided with a lobby entrance from the grounds, by which the boys can reach their lockers and drying-rooms after football and other sports without using the main entrance. The first floor is



WADHURST JUBILEE MEMORIAL HALL AND INSTITUTE. A. G. BOND, B.A., A.R.I.B.A., AND H. HEATHMAN, ARCHITECTS.

complete, but it is probable that these also will not be placed in the church until after the Congress. The chancel itself is eventually to be floored in coloured marbles, and the steps at the chancel arch and in front of the altar will be of marble. The chancel walls have been plastered to admit of painted decorations. The nature of both these works makes it desirable that they should be among the last completed, and the new choir stalls will probably not be placed in position till the work in the chancel is taken in hand as a whole. The pulpit is to be improved by the insertion at the angles of niches containing figures of saints. This work is estimated to cost £90. A new marble base, agreeing in character with the chancel flooring, will have to be provided. Arrangements have been made for the church to be temporarily lighted with electricity during the Congress services, but the permanent fittings for the electric lighting of the church will be erected subsequently. The vicar has received promises of four or five new windows of stained glass, and one of these is already in hand, the design representing four Northern Churchmen—SS. Columba, Aidan, Bede, and Wilfrid. The cost of the structural restoration of the church will exceed £7000. It has been definitely decided that the old organ, which was quite unworthy of its position, shall not be replaced.

shelves and specially arranged so that the pupils may have its advantages for night study in lieu of the schoolroom. To the west of the entrance is the secretary's office and board room, the latter being adaptable to other requirements, and master's study, which is carefully arranged in order that the master may have access to the school apart from his residence.

THE DINING HALL

is to the north of the principal staircase on the first floor, and is capable of dining one hundred scholars, the tables being arranged so that all the boys face the centre of the table. The plans show the room to have two spacious bay windows overlooking the sea. To the west of the dining hall is the servants' room, and adjoining is the kitchen and scullery. The servants' hall, china closet, &c., adjoin the kitchen. The master's house is at the south-west angle of the building, having a separate entrance, with convenient dining room and drawing room overlooking the south front, and adjoining the study. The schoolroom is entered from the main entrance corridor, which corridor runs the whole block of school buildings, and could be extended with

ANY FUTURE EXTENSION

of class-rooms. The schoolroom is 52ft. by 24ft., and is capable of assembling 200 boys.

reached right and left of the main staircase and

A SPACIOUS LANDING

is planned with head assistant-master's room overlooking it, to the right of which are the dormitories. Two dormitories have seventeen beds each, and one dormitory nine. Each dormitory is overlooked by an assistant-master from his bedroom. In the master's house there are five bedrooms, bathroom, &c., and the servants' bedrooms are immediately over the master's house, and completely cut off from the other part of the building. On the third floor is the nurses' bedroom, sick day ward and a sick night ward, specially

ISOLATING ANY SICKNESS

from the other rooms. Here also is an extensive boxroom fitted with box racks and connected with a lift from the main hall. The whole building is to be warmed by open fires and steam radiators under low pressure, and where it is possible the radiators are to be built into recesses in the outside walls, so that fresh air may pass through them before entering the room. Contracts to the amount of £7818 2s. 3d. have been accepted by the Company. These do not include heating, boundary fences, permanent fittings, playgrounds, &c., and it is expected that by the time the college is completed £10,000 will be spent.

WHITEHALL.

KING CHARLES II.—so the Marquis of Normanby told Evelyn—had once designed to buy up all King Street and rebuild it nobly. King Street, be it remembered, originally extended from Charing Cross to Palace Yard. The Merry Monarch's plans were not carried out; probably there was no money, for pretty Nell Gwynne, languishing Moll Davis, the imperious Duchess of Castlemaine, the baby-faced Duchess de Mazarine, and the rest of them had too many costly whims and fancies to leave much for architectural projects. Similarly Charles I. had intended to erect here a palace on a sumptuous scale, and Inigo Jones's magnificent plans for it are still extant; but nothing was actually done except the Banqueting Hall, which is yet standing. What these well-meaning monarchs intended to do has been in course of piecemeal progress ever since. The great Whitehall Fire of 1697 wiped out a large portion of the congeries of Royal apartments and offices, and caused the removal of the Court to St. James's or Kensington. William III. intended, like his predecessors, to rebuild on a grander scale, but this intention also came to nothing. A thoroughfare was cut through the Privy Garden, and Whitehall became "a common street," as Sir Roger de Coverley said when displaying to the Spectator the portrait of that ancestor of his who did such doughty deeds in the Tilt Yard, where the Paymaster-General's Office now stands. Dover House, Gwydir House, and Whitehall Gardens now occupy sites on the old Privy Garden. The common street that Sir Roger spoke so contemptuously of was, in fact, one of the most interesting thoroughfares in the world, and, at one time, one of the most picturesque. Two gates crossed it at the ends of the Privy Garden. That called Holbein's Gate stood near the Banqueting Hall, and is well shown in a print by Samuel Wale, one of our earliest Academicians, as well as in the more elaborate print by Vertue. Canaletto painted it in his view of Whitehall (now in the collection of the Duke of Richmond) just previous to its destruction in 1759. Not many yards off had stood another gate, less interesting architecturally, called the King's Street Gate, which was pulled down in 1723. Nothing remains of this, but two medallions from Holbein's Gate are still preserved at Hampton Court. Both these gates are shown in an earlier print, by Israel Souvestre, about 1650. By comparing this with the prints of Wale and Maurer, and others of the eighteenth century, we can form a clear idea of the great changes that had taken place in the course of a century. There was a third gate, called the Hall Gate, opposite the south end of King Street, giving entrance to Palace Yard. This street will soon be erased from the map of London; it has long been greatly curtailed and reduced to a mere by-way. Now the east side of what remained is almost all down; the west side is to follow. Parliament Street is to be widened, and on the cleared site new Government offices are to be built.

ROLLESTON CHURCH, Notts., has just been reopened after restoration. Mr. Hodgson Fowler was the architect.

MR. W. H. BIDLAKE, of Birmingham, is the architect for the new Church of St. Agatha, Sparkbrook, Worcestershire. The estimated cost is £10,000.

THE scaffolding which surrounds the tower of the pro-cathedral in Church Street, Liverpool, has been completed, so far at least as the eye can discern. Let it be hoped that the artificers in the course of their work will, while adding to the stability of the structure, contrive to confer some degree of architectural grace upon it.

THE curfew tower bells at Windsor Castle, which are usually rung upon the Queen's birthday and other Royal anniversaries, have been re-arranged, and are now ready for pealing when necessary. The set has been silent for a time owing to an accident to the big tenor, and the discovery of a crack in the fifth bell, which had to be re-cast.

WORSTEAD CHURCH.

PROPOSED RESTORATION.

A FUND has been opened for the restoration of Worstead Church. Worstead Church is a fine example of the Ecclesiastical Architecture of the fourteenth and fifteenth centuries, and is well worth preserving. Sir Arthur Blomfield, who has presented plans for the restoration, reports that the work immediately necessary or desirable in the future may be divided into two main sections—first, structural works needed to put the whole building into a thorough state of repair, and, as far as possible, to arrest the progress of decay which is now going on with ever-increasing rapidity; secondly, to carry out works which will have for their object the permanent

IMPROVEMENT OF THE INTERIOR

of the building. In the first section, the first thing to be done is to put the roofs throughout into a thorough state of repair. Over the nave is a very good example of the hammer-beam roof of the date. It appears to have thrust out the side walls, especially the south one. There are no wall plates to this roof, rafters and principals resting directly on the walls; the ends of many of the timbers are rotten. The eaves are all more or less open, leaving free entrance for birds and bats, as well as for wind from all quarters. Under present circumstances it is impossible either to warm the church or to keep it free from the dirt and filth inseparable from the presence of birds and bats all over the building. The bells are badly hung in a frame too light for the purpose. They should be re-hung in a new frame of oak or iron. The south porch is

IN A RUINOUS STATE.

As to the tower, the newel staircase, the parapet, and battlements on the east, west, and south sides, and the south-west buttress—a portion of which has fallen—are in a ruinous and dangerous condition. The whole of the flint facing, originally beautifully executed, has long called for reparation and careful pointing to preserve it from much more rapid and extensive ruin. This work should no longer be delayed. The glazing of the windows, although to a large extent modern, is not at all satisfactory. When the building has been made structurally secure, and weather and wind proof, the consideration of the various items which belong to Section 2 may be properly undertaken. Nearly every trace of the ancient seats of the church has disappeared, the whole having been refitted with high pews of oak some time in the last century.

THE DISFIGUREMENT OF THE PROPORTIONS OF THE CHURCH

by the great height of the pews was enhanced by their being mounted on a wholly unnecessary step, thus completely spoiling the fine proportions of the nave. Nothing but an entire re-arrangement and lowering of the pews can remedy this defect. The floor of the church should by degrees be re-laid by good stone paving. The reredos and all the details of the modern stonework generally at the east end are of the most objectionable description, and rob that part of the church of all the simple impressiveness and dignity which it would have if unencumbered by such thoroughly bad work. Hitherto the church has not been warmed in any way during the winter months. It seems now a necessity to do so. With regard to the work as a whole, the best plan will be to take it in the order already given, and to complete one part first, in the best and most substantial manner before beginning another. The one exception to this general rule would be the improvement and brightening of the east end, which might be undertaken as soon as possible. It will require a sum of not less than £3000, says Sir Arthur Blomfield, to restore to the church some faint reflection of its former glories.

THE LATE LORD LEIGHTON'S HOUSE.

KENSINGTON is the goal of more than one artistic pilgrimage, though the pilgrims are usually natives of another country than ours. Until very lately many Americans used to travel there to visit the house of Mr. G. F. Watts, and during the past few months there have been many strangers to see the splendid collection of studies, drawings, and paintings which Lord Leighton left upon the walls of the house where so much of his great work was done. What is to become of this beautiful, informing, and valuable work? It may, perhaps, be dispersed among galleries and private collections—to be overlooked, or only seen by those who, besides the taste to appreciate it, have the knowledge where to look for it. On the other hand, the desirability of keeping it all in one place, of keeping it especially in the appropriate setting of the workshop where it was created, is so obvious as not to need enforcing. But Lord Leighton's house is as much one of his works as the frescoes in the South Kensington Museum. It was built to his designs; it has a suite of ideal studios; it is protected by a sufficient and pleasant garden; its floors are coloured with the tiles, its staircases and its walls are rich with the marbles and the paintings which appealed to his taste; it is in itself a record, a vivid memento of the artist. By what means then can the house and the sketches be preserved together for the public benefit. Shortly after Lord Leighton's death a committee was formed to induce the nation to buy the house and its pictures; but in the rush of a year when people were anticipating many calls on their purse in the way of subscriptions, the project fell through. Since then Lord Leighton's sisters, to whom the house was bequeathed, have, with distinguished munificence, presented the property to the representatives of the Lord Leighton committee. More than this (says the Daily Graphic), they have given many of the pictures which now adorn the house, and were followed in this generosity by the Prince of Wales and many other admirers, who have bought sketches and presented them to the house. But these evidences of private generosity are not sufficient. The house is not a freehold, but is held under a substantial ground rent; and lighting, water supply, repair and maintenance, rent and taxes—to say nothing of the provision of proper caretaking—represent a large and very appreciable annual expenditure. It is for Kensington first, and for the nation in general, to say whether it will subscribe a sum sufficient to maintain this unique museum of art for the benefit of the art-lover, the student, and the public generally.

THE Glasgow Corporation are considering a proposal to restrict the height of new buildings under their jurisdiction to 85ft.

THE City churches of St. Alphage, London Wall, St. Albans, Wood Street, and St. Andrew, Holborn, are now closed for repairs and cleaning.

AN inquiry was held recently at the Manchester Town Hall to consider the application of the Corporation for power to borrow £27,500 for the alteration and enlargement of Mosaic Hospital.

THE Gaiety Theatre, London, has been fitted with electric ventilators, which keep a current of cold air playing through the house all day, the result being that in the evening the temperature is desirably low.

RUSHTON Roman Catholic Church was on Monday afternoon re-opened by the Bishop of Shrewsbury, after restoration and renovation. The church is one of the most ancient in Cheshire, the original foundation dating back about 600 years.

THE foundation stone has been laid of a new mission room, which is to be erected for the locality of Halfway and Holbrook. The plans for the building were prepared by Mr. J. D. Webster, architect, of Sheffield, and the contract given to Messrs. Kirkby and Drabble.

Bricks and Mortar.

EFFINGHAM HOUSE, ARUNDEL STREET,

August 31st, 1898.

"I know what it is to live in a cottage with a deal floor and roof, and a hearth of mica slabs; and I know it to be in many respects healthier and happier than living between a Turkey carpet and a gilded ceiling, beside a steel grate and a polished fender. I do not say that such things have not their place and propriety; but I say this, emphatically, that the tenth part of the expense which is sacrificed in domestic vanities, if not absolutely and meaninglessly lost in domestic discomforts and incumbrances, would, if collectively offered and wisely employed, build a marble church for every town in England; such a church as it should be a joy and a blessing ever to pass near in our daily ways and walks, as it would bring the light into the eyes to see from afar, lifting its fair height above the purple crowd of humble roofs."—JOHN RUSKIN.

THE Daily Chronicle has been recently calling attention to the unsatisfactory state of the Thames steamboats, which are inefficient, small, and greatly in need of paint and general cleaning. Attention might well be directed to the dirty little hovels which are designated "piers" by the Conservancy Board. These eyesores, are blots against the fair face of the Embankment. We have never been able to understand the absolute necessity of building these little huts upon a floating platform. It is needless to point out how much better the offices would have looked had they been erected on the high level, and in a style in keeping with the rest of the work. Recently, we notice, some improvements have been effected at Westminster Pier, but the general character of the thing is still the same.

THE New York correspondent of the Standard states that Mr. Charles Brush has made a preliminary announcement of the discovery of a new gas, a constituent of the atmosphere and absorbed in many instances. Its chief characteristics are low tension, and conductivity of heat surpassing those qualities in hydrogen one hundred times when impure, and, theoretically, a thousand times if pure. The discovery resulted from a search for secluded hydrogen. Mr. Brush calls his new gas Etherion. He thinks it analysable into several gases, forming a periodic group of new elements.

By way of commemorating the Knightsbridge Exhibition of International Art, which has recently closed, an illustrated souvenir catalogue of the show will shortly be issued by Messrs. Carl Hentschel and Co. It is to be a work of some importance, with over a hundred reproductions of the principal works in painting and sculpture which were gathered in the gallery. Among the artists represented in the souvenir will be Messrs. Whistler, Lavery, J. W. Alexander, Clausen, Puvis de Chavannes, Degas, C. W. Furse, J. Guthrie, T. Stirling Lee, Manet, J. Maris, Rodin, Segantini, J. J. Shannon, Fitz Thaulow, and E. A. Walton.

THE serious sea encroachments which have been reported from Deal and Walton-on-the-Naze during the last few days have revived the discussion as to obtaining Parliamentary aid in the protection of the foreshore at vulnerable points on the east coast. When the subject was raised last autumn, on Mr. R. F. Grantham's paper before the Society of Engineers, there was a general consensus of opinion that some steps ought to be taken for protection by the system of either embankment, groine, or upright wall. Holland is sufficiently protected by the first method, but it is doubtful if the same plan would answer here. Yet it might be tested on a small scale at some exposed part of the country, such as Lincolnshire or Yorkshire. The front slopes should not be made at too acute an angle, and,

as in Holland, should be protected by fagotting or by stone. The utility of groines is beyond dispute, and there are probably few points of the coast where well-constructed groines would not be found to give all the protection needed. The sea-wall is, of course, an excellent protection if properly constructed, but it is often built either upright or with a very high slope that in a heavy sea the waves undermine the base of the wall. Even a well-built wall is much protected if a groine is placed near, as it arrests and retains the shingle, which is of itself a great protection. Any one of these systems is too great an expense for a local authority to bear unassisted. The difficulty is how to adjust the cost between local and national interests and between the owners of frontages and those immediately in the rear.

IN view of the alarm which has doubtless been created in some quarters, it may be interesting to note that the sea gives something although it takes so much. There are parts of Lincolnshire where the frontage is some miles further seawards than in historic times. Much land, too, has been reclaimed. Mr. H. Wheeler, one of the best authorities on the fens of Lincolnshire, says that "some five hundred thousand acres are below the level of spring tides, and only protected from inundation by artificial earthen embankments." In the neighbourhood of Long Sutton there is much reclaimed land, and the Wash, it is well known, at one time extended from the North Sea to Ely and Cambridge on the south, and on the west over the low-lying country now called the Fens, and so up to Lincoln. It is said to have been six times as large as it is. These are facts which should be a stimulus to the undertaking of protective works.

RICHMOND people are much concerned at the announcement that Glover's Island, which lies in the middle of the Thames, opposite Petersham Meadows, and in the foreground of the celebrated view from Richmond Hill, is about to be offered for sale by auction. For many years the island has been used for storing boats, but the auctioneer's advertisement states that it would afford "a splendid site for the erection of a first-class club or hotel." The dismay of the inhabitants has been intensified by the owner having declared his intention, should the island not be purchased for building purposes, to permit it to be used as a huge advertising station.

A CORRESPONDENT of the City Press thus writes concerning the proposal to pull down the old house in Leicester Square, once the residence of Sir Joshua Reynolds: "Once again, because a house in which Sir Joshua Reynolds once lived is to be pulled down, the sentimentalist is on the trail bewailing the degeneracy of the Londoner and the apathy of the Government because they do not dip into their pockets to preserve what are, as a rule, ugly structures. Take Sir Joshua's house. What is there either outside or inside that should cause it to be preserved? It has no beauty. It may have been considered handsome in its day, but that day is long since past. Its retention would add nothing to the artist's reputation. He has his statue in the nation's great cathedral. His memory is perpetuated there. His genius is seen on the walls of our National Gallery, and few care a button where he lived. These mawkish mournings over dead men's houses are sickening, and remind one more than anything of the superstitious fetish worship of the barbarian."

THERE are other famous houses in Leicester Square besides that of Sir Joshua Reynolds. John Hunter, by far the greatest anatomist of his day, lived at No. 28, next door to the Alhambra. He was one of those fearsome men who used—in the days of what Matthew Arnold was wont to call Mrs. Gooch's gospel—to be held up before ambitious youths as a shining example of industry. Hogarth's house was on the site of what is now No. 30. Afterwards it was occupied by Kosciusko, the Polish patriot and exile, and later still by the

Countess Guiccioli—Byron's Countess—when ever she visited London. From 1720 to 1725 Sir Isaac Newton lived at No. 35. There is another of Newton's houses in St. Martin's Street, hard by. It is in a deplorably bad condition now. His last residence was Bullingham House, Pitt Street, close to Sir Richard Webster's house at Campden Hill.

It is odd how little the dwellers in picturesque country districts appreciate the commercial value of charming scenery. If they really understood how much of their prosperity depends upon the attractiveness of the locality in which they live, we might hear less of the schemes for running railways through well-known beauty spots. Such a line as that projected at Lynmouth, or as that more recently planned to disfigure the Pass of Aberglaslyn, in North Wales, would in all probability prove a most expensive convenience to the district opened up. The better class of tourist, who is a source of considerable income to the country folk, is by no means ready to revisit a place which can only show the bare remnants of its former beauty, and prefers to betake himself abroad, or to more remote parts in search of satisfaction for his æsthetic instincts; and in his place there comes the horde of cheap trippers for whom the new railway, in its own interests, especially caters.

In some respects the havoc which would be wrought by this projected railway in North Wales would be greater than that with which Lynmouth is threatened. The line would actually run through a considerable part of the Pass, and would enter it at what is perhaps the most picturesque part. The professed object of the promoters is to develop certain slate quarries, so that the line would do double harm by its own unpicturesqueness en route and by encouraging a horrible disfigurement at Beddgelert where the slate is to be dug out. Happily, the scheme is exciting vigorous opposition, but lovers of North Wales will have to bestir themselves if the district is to be saved from destruction.

THE majority of the members of the Finance and Estate Committee of the Liverpool Corporation have recently thrown cold water on the new south library scheme. The sub-committee charged with the arrangements for the erection of the building courteously approached the money-lending committee with the request that it should erect the new library at the corner of Windsor Street and Upper Parliament Street, the Library Committee paying 3½ per cent. interest per annum on the outlay, as had already been done in connection with the Kensington establishment. The financiers, however, rejected the request by seven votes to two. The increase in the number of readers at the existing branches in other parts of the city makes the building absolutely necessary. Besides, there are new features being introduced which make it still more imperative that greater room should be immediately provided.

A most interesting old timepiece is the clock standing in William the Fourth's bedroom at Hampton Court, and which Messrs. Gaydon and Sons, of Kingston, were recently commissioned to repair. The clock was made by Dan Quare about the year 1660, and is one of the most remarkable pieces of automatic mechanism in existence. It is what is commonly known as a "grandfather's clock," standing in a very tall oak case, with heavy ormolu mounts. There are several particulars in which this clock is almost, if not quite unique. In the first place it goes for twelve months at a time without winding. But more remarkable than this is its ingenious mechanism. It is what is known as a "calendar" clock, and besides recording the days of the month and the months of the year, it also automatically shows the time of sunrise and sunset. The last time the clock was overhauled was early in the present century. For the last forty years, however, the clock has not been wound up. It speaks well for the splendid workmanship of our ancestors that, with slight exceptions, Messrs. Gaydon found

the works in as perfect a condition as when the clock was originally made, and there is no reason why it should not last for another 200 years.

SOME consternation has been caused at New York by a rumour that the safety of the Brooklyn Bridge is imperilled by the tremendously increased strain that it has had to bear since the trolley cars have been permitted to cross it. A careful examination shows that owing to the buckling of a steel truss, the bridge has sagged sufficiently to justify some anxiety. The accident has caused the huge structure to groan and vibrate unpleasantly, but it is believed that there is no actual danger.

CONSIDERABLE advance has been made with the movement for building a permanent Art gallery in Whitechapel. A donation of £5000 has been made to the building fund by Mr. Passmore Edwards, and only £2000 more is needed to provide an adequate gallery. The Charity Commissioners would undertake the control of the place, and would arrange periodical loan exhibitions of modern pictures, and of work in various branches of applied Art. Canon Barnett, who has successfully organised the annual Art exhibitions in St. Jude's Schools, is one of the most active promoters of the scheme, which seems to deserve all success.

FROM Paris comes the news that the Cernuschi Museum, with its wonderful display of Oriental objects, is to be opened in October. This collection, which was formed by M. Henri Cernuschi during his travels in China and Japan, includes several thousand examples, and is one of the most complete representations in the world of the Art of these countries. It was lately bequeathed to the French nation, together with the house in which it is arranged. Among recent additions to the Louvre are a series of plaster casts and terra-cotta sketches by Carpeaux, a bust of a young girl by Houdon, and a collection of statues in wood and stone belonging to the early years of the sixteenth century.

THE halls in connection with Cherryfield Mission, Dundee, have just undergone a complete overhaul, while a substantial addition has been made to the accommodation by the taking in of a property to the north. Cherryfield Mission is one of the oldest established in the city, and is very popular in the district in which it is situated. Recently it was found necessary to extend the buildings, and with this object the directors purchased the property referred to. Tradesmen have been busily engaged for several weeks, and the result of their operations is that the suite of halls will now rank as perhaps the best equipped of their kind in Dundee. The main hall as reconstructed will be capable of seating comfortably 400 persons; and a smaller hall and class and ante-rooms have been fitted up in a very complete manner. A feature of the decorations in the large hall is a beautiful picture by Mr. J. M. Pratt, of Glasgow, representing Christ and the woman of Samaria at the well. This picture occupies the whole of the further end of the hall between the windows, and is a striking work of Art. The outside of the mission buildings has been renewed, and the entire premises present a very attractive appearance.

THE great hall of the Merchant Venturers' Training College at Bristol is never more worthily employed than when used for the purpose of an exhibition of work in different branches. A large number of specimens sent in have been on view for the inspection of visitors during the last week. The departments include designing and modelling, machine drawing, metal working, plumbing, carpentry and joinery, boot and shoe manufacture, and painters' and decorators' efforts. To plumbers' work great attention has been paid, and it is well to know that in sanitary appliances a great many students have made satisfactory progress, lead bends, jointing, bossing, and other details being satisfactorily

exemplified. Carpentry and joinery are illustrated by double-hung sash and frame, a teak case containing specimens of timber and other exhibits, arranged on the platform in the hall. Of designs in painters' and decorators' work, a sign, with the word "College," in ornamental characters, affords a creditable feature in lettering in colour. The collection of appliances in metal working evinces ingenuity and aptitude; and a one-horse power launch engine and pumps, machine vice for milling machine, lifting jack, and drilling machine vice, may be referred to as excellent specimens. Some carefully executed examples of machine drawing also deserve attention. The exhibition is altogether so eloquent of the thoroughness of technical instruction at the college that Bristolians may well regard the different classes of work with considerable interest.

AN interesting discovery has just been made on the banks of the Clyde at a spot between Dumbarton Rock and Dunglass. Through the efforts chiefly of Mr. Donnelly, artist, at Bowling, what is supposed to be a lake dwelling, or "crannog," has been found there. It is thought that the remains belong to the same period as the occupation of the neighbouring hill fort of Dunbine, discovered a couple of years ago, and regarded by archaeological experts as among the most valuable finds of recent years. The officials of the Helensburgh Antiquarian Society, who carried through the Dunbine excavations so creditably and so successfully, have undertaken to make a thorough investigation of the supposed "crannog."

AT a special meeting of the Berwick Town Council, the Town Clerk stated that a Government inquiry would be held to consider the proposed loan of £8000 for a new police station, the plans for which are in the hands of a Newcastle firm. A reply to the Council's request for railway station accommodation stated that the directors of the North British Company would carefully consider the subject, Mr. Conacher having visited Berwick.

THE Black Swan, Holborn, is famous among City signs. It has recently been partly demolished and reconstructed by the present owners of the distillery. The old house, fronting Holborn and backing on to Barnard's Inn, possesses title-deeds which go back to the time of James I. Down almost to the date of the Gordon riots it was used as a hostelry and coaching-house. The Mr. Langdale who figures as the jolly owner in Dickens's story turned the place into a distillery, which character it has retained down to the present day.

THROUGHOUT the world there are hundreds of lighthouses dotted along the coast, but a lighthouse in the midst of a cemetery is a rare thing. Such an one, however, has just been erected in the cemetery at Ulverston, Lancashire. The structure, which is 23ft. in height, with a spreading base 25ft. in circumference, and 8ft. in diameter, is constructed of white Carrara marble. The tower proper bears a striking resemblance to Sir John Barrow's monument on the Hill of Hoad, which, again, is like the Eddystone lighthouse. It is surmounted with a small dome and ball, supported on four pillars, and between these is a chamber, ornamented with a moulded cornice, and containing the radiating lantern. The light is forty candle-power, and the lamp has a burning capacity of about 13ft. of gas per hour. On the fine "die block" immediately beneath the entrance door is cut in bold relief a large and beautifully carved anchor, bearing across it the words, "An Anchor for the Hope of Sorrow through all Time." The chain finishes with a broken link, the other end being buried in the rock. The whole of the base of the lighthouse is skilfully carved to represent waves breaking against the rocks, and a coping covered with sea-sand is going to be erected around this, in order to give the whole a thoroughly realistic appearance.

SLOWLY but surely the old Leeds Grammar

School is disappearing to make room for the widening of North Street. The porch and belfry are practically all that remain in position, and they, too, will be razed to the ground. What the ultimate destination of the building will be is not known even to the gentlemen whose interest in the preservation of the historic edifice prompted them to purchase it. As the disintegration of the fabric gradually proceeds, however, every stone is being carefully removed and stored away in the hope of re-erection on some convenient site, much on the same principle as that which governed the demolition and reconstruction of Temple Bar many years ago. Two or three proposals have already been made, one being to utilise the material in building "head-quarters" for the Leeds Boys' Brigade—if only a suitable site can be found—and another to set it up as a mission church for Buslingthorpe. Yet another proposition would let the old school occupy a position on one of the several open spaces which the trustees of Wade's Charity are providing in different parts of the city.

THE work of constructing the tunnel through the Simplon has just been inaugurated both on the Italian and Swiss sides. It will be the longest in the world, and one of the most important, as it will put the Mediterranean (through the port of Genoa) in direct communication with West and Central Switzerland and with Central Europe. It is likely to be a great rival of the Mont Cenis and St. Gothard routes. The Simplon tunnel will be 12½ miles long, while the Mont Cenis is only about eight miles, and the St. Gothard a little over nine. The opening of the tunnel on the Swiss side will be near Brigue, at 680 metres above the level of the sea, and on the Italian side, near Iselle, at 750 metres above datum. This great engineering feat will, in reality, consist of tunnels, one for the railway and one for ventilation, connected by galleries. The work is being conducted at the expense of the Italian and Swiss Governments, and will cost about £3,000,000. It will take nearly five and a half years to complete. The hydraulic power for this gigantic undertaking will be obtained on the Swiss side from the Rhone, which will supply from 1180 to 2360 horse-power, and on the Italian side from the Cairasca river, which will give 2260 horse-power. The hygienic precautions for the benefit of the great number of working men to be employed are practically perfect. Each man, before being engaged, will be required to "pass the doctor," and there will be periodical examinations to ensure that no one is suffering from contagious disease. The huts of the employés will also be carefully inspected with a view to their proper sanitation. Each workman will wear a special dress in working hours, after which he will be obliged to take a bath. Thus, it is hoped, that the perfect health of the operating staff will be secured.

THE exquisite tapestry in the Queen's Gallery at Hampton Court Palace has just been cleaned and renovated under the supervision of Mr. Brown, curator at the palace. The tapestry was discovered by a lucky accident more than thirty years ago by the present superintendent, Mr. W. H. Pleasants. A picture having been removed, a defect in the woodwork behind made it apparent that some material was hidden at the back. Mr. Pleasants reported his suspicions to the late Lord Mount Temple, who at once sent word that he would make an inspection of the spot. His lordship ordered some of the woodwork to be removed, when the tapestry, which now adorns the walls of the Queen's Gallery, was discovered, and although dust and cobwebs abounded, and a regiment of the huge and notable Hampton Court spiders marched forth, the material was found to be in good condition, and after being brushed looked quite fresh. It is surmised that it was covered in by Queen Caroline in 1735, for in "Hervey's Memoirs" it is stated that her Majesty was very fond of pictures, and hung the walls of the palace with a number which she brought from Kensington Palace.

ARCHÆOLOGISTS AFIELD.

V.—IN EAST ANGLIA.

AN excursion of members of the Norfolk and Norwich Archaeological Society took place a few days ago, when North Elmham, Brisley, Gressenhall, Scarning, East Dereham, and Elsing were visited.

NORTH ELMHAM CHURCH.

North Elmham is a source of inexhaustible interest to the antiquarian. The church, dedicated to the Virgin Mary, is a handsome structure of mixed Architecture, comprising nave with aisles and clerestory, south and west porches, transept chapels, chancel and square west tower. The Rev. A. G. Legge, in the course of a most interesting paper, said: Everyone must be agreed that North Elmham Church is a most magnificent building. As one stands upon the top of the steps leading down into the nave its full glories seems to burst upon the eye. What a height, what a length, what a breadth. For years I have studied it, admired it, gloried in it. Those steps with their downward descent into the church are, I believe, unique—at least, I have never, so far as I can remember, seen anything of the kind in any churches into which I have entered.

THE MASSIVE OAKEN SCREEN

which shuts in the tower from the nave was the handiwork of one Francis Fluid, or Floyd, parish clerk. By an entry in the churchwardens' accounts he is paid 20s. in 1623 "for his work about the partition between the steeple and the church," and in 1625 a further sum of 10s. for "working the frame between the church and the steeple." Just inside the tower are three Early English miserere seats, originally belonging to the chancel. As they were too dilapidated to admit of repairs, the late Mr. Phipson, of Norwich, the architect who presided over the restoration of 1882, was good enough to have them copied for me for use in the choir. Passing into the nave, the door to the south is Early English, with a plain decorated porch. On the outer side of the north door, which is of the same date, is

A SINGULAR COBBEL TABLE,

supporting a horizontal projection. The late Mr. Carthew expressed himself as puzzled by it. It is composed of ornamental stones from another building, and I have no doubt myself that the fragments originally came from Walsingham Abbey, whence, as the early churchwardens' account book states, stones were conveyed for the repairs of the church. All lovers of the beautiful will have their attention specially drawn to the exquisitely carved bench ends in the nave. They date, I believe, from the thirteenth century. On one or other of them is represented a dog of a species which I have been informed is now extinct. I cannot quite call him a pre-historic dog, but since he was carved here he has left the haunts of man for ever. On a bench end abutting on the south aisle at the upper end is a head attired in a Roman helmet. The Elmham tradition is that it represents the head of Pontius Pilate. At the restoration of 1882 unsightly pews were removed from the upper end of the nave and aisles, and replaced by the

MODERN CARVED BENCHES

wrought by Messrs. Cornish and Gaymer, of North Walsham, and I think you will agree are no mean companions to the older ones. The choir stalls, benches, and screen were added at the same period, and I would especially draw your attention to the carving, which will bear a very close inspection. I mentioned just now Francis Floyd, parish clerk, in connection with the lower screen. Let me tell you that that was perhaps the least of the works which he wrought in the church. He was a man of some consideration and of no little ability. Besides his church work, he repaired all the bridges in the parish—several in number, as you cannot leave Elmham, north, south, east, or west, unless you pass over one of them. A note in the Register Book says he "began to be clarke ye 24 of June, 1605." He

held his office for forty-six years, and, if remarkable in his lifetime, he certainly was as remarkable in his death, for the Register Book further accounts that he was "four score & tooe years of age"—not the day he died, but "the day he was buried." The beautiful Jacobean pulpit from which I am now reading was his handiwork. An exquisite piece of it, originally supporting a sounding-board, forms the door of a cupboard in the vestry, and has cut upon it, "Francis Floyd, me fecit, A.D. 1626." In the churchwardens' accounts of 1614 is the following entry:—"It paid to Francis fluid for making ye pulpit xxs." I conceive that this alludes to the pulpit in plain form, uncarved, as in 1626 he is again paid for "finishinge ye pulpit iijli. iij. s. iij. d." The labour, therefore, of carving it would appear to have taken him twelve years. It has had its vicissitudes. In 1851 a so-called restoration, or, in other words, an abominable desecration, took place. Purbeck marble columns were wrenched from the sedilia, the altar rails were lowered, the font had its base and steps removed, being reduced to its present mean level, the remains of

THE ROOD STAIRCASE AT THE WEST END

of the chapel which now forms the vestry were removed, and this beautiful pulpit was pronounced to be rotten, and turned out. The late Mr. Barlow of Toftrees happily rescued it and set it up in his own church. In 1882 he magnanimously returned it. A few repairs had to be done, but so far from being rotten, the workmen assured me that they broke their tools over it. On the front you will note the very appropriate motto, "Verbum Dei manet in eternum." According to the late Mr. Carthew these were the words originally cut upon it, and as they had disappeared I had them renewed. Nor does the pulpit exhaust the works carried out by Francis Floyd. Let me ask you to cast your eye upon the altar table. He made it. It is finely carved with grapes and vine leaves, having in the centre "Vera Vitis Xts," and the date 1622, in which year the churchwardens pay him for making the Communion Table, for "goold (and cullers), and for other things, as appears by his bill, xxxiijs." In 1624 he journeyed to Lynn in order to see a free mason about a new font, which cost the church fund 1xs. I think this can only allude to the upper part, as the shaft is of the Decorated period. It arrived from Lynn in 1625, and in the following year he is paid iij. iij. d. for "leaddinge" it, and xiiij. d. for "hewing the marble" forming the base. If

THE PULPIT HAD ITS VICISSITUDES,

certainly and even more so had the rood-screen. Sawn asunder in obedience to the injunctions of Elizabeth, and hacked about by the Puritanic frenzy of the Commonwealth, what little of it remained in situ was banished to out-of-the-way parts of the church. Portions of it were discovered in 1851, face downwards, flooring some of the pews. In 1882 the relics were gathered together and placed in their present original position. Enough remained to show how exquisitely beautiful it must have been in the days of its glorious prime, when, no doubt, it extended from north to south of the church. It contains sixteen panels altogether, eight of them representing male, and eight female figures of saints. The painting and carved work will repay inspection. Standing, as the church does, upon the highest ground in the parish, it becomes an attractive object to the eye from a considerable distance, though the great length of the nave, 173ft., with a breadth of 43ft., including both side aisles, tends rather to dwarf the height of the tower, which rises some 80ft. "This," to take Mr. Carthew's account, "is in four stages, each of smaller dimensions than its inferior, the lower portion of each set-off having a moulded string. It is flanked to the top of the third stage by

DUPLICATED BUTTRESSES

in corresponding stages, with pedimental set-off obtusely angled, decreasing upwards, and terminating in triangular heads, with trefoils at the apex. The parapet is four-embattled, with an arcaded panelling over a string course, the under part of which is hollowed and ornamented with roses. It has corner

pinnacles with octagon panelled bases. Within the projection formed by the west buttresses of the lower stages has been formed a galilee porch, which has a two-centred arch, with a hollow moulding, enriched with roses, trefoils, &c., and gargoyles on either side." He has omitted to mention that at the apex of the porch internally are some mutilated figures, which, as the church is dedicated to St. Mary, may have represented the Annunciation. Over the porch externally, and guarded on either side by the aforesaid huge gargoyles, are three pedestals which once, no doubt, supported images of the Saviour, St. Mary, and St. John. The tower is surmounted by an extinguisher-like spire—a modern addition which had been better omitted. The dimensions of the chancel are about 42ft. 3in. by 18ft. 7in., and the thickness of the walls is 2ft. 8in. Here

NORMAN TRANSITION WORK

on each side of the chancel screens points to the oldest part of the church. History records that Herbert de Losinga, the friend of Rufus, and the renowned founder of Norwich Cathedral, smitten in conscience for certain simoniacal actions of which he had been guilty, sought absolution of the Pope in 1093, and by way of penance was directed to build five churches. One of these is said to have been at Elmham. I think it not unlikely that he built the chancel of this church. The east window was inserted in 1851, and took the place of an Early English one with three lights. It is a copy of a good window, but, from its dwarfed appearance, totally unsuited to its present position. After the chancel there followed, in due course, the nave. It is lofty, in six bays, the arches being supported by Early English pillars, alternately round and octagon. The next period of addition was the north and south aisles, and the chapel dedicated to St. John, where the organ now stands, in the Decorated style. For what cause the uniformity of the windows in the south aisle has been sacrificed by the insertion of a Perpendicular one, can only afford food for conjecture. Perhaps the original one had fallen into decay when the new architectural period came into vogue; or, possibly, some individual at that day, not over-provided with the gift of modesty, desired to have a large and conspicuous window for memorial purposes. It has, perhaps, one advantage, and one only. We are assured of its date; whereas, had a new Decorated window taken the place of the old, we might have found some difficulty in deciding at this distance of time. We might have been led to believe that it was of the same date as the others. Some of the windows in the aisles contain

REMNANTS OF ANCIENT STAINED GLASS,

and there may be seen that rich ruby colour which later ages have failed to imitate. In the Perpendicular period which followed a great work was undertaken. The roof was raised (the string course of the original roof is apparent at the west end), the clerestory was added, the chancel arch was rebuilt, and a three-light window, also containing ancient glass, was inserted over it. At the same time the chapel on the south side of the choir, dedicated to St. James, was built. As the original priest's door now became the means of entrance into the chapel, another had to take its place. This you will observe a little to the east of the chapel door. It is of singular shape, being cut diagonally across the angle formed by the south wall of the chancel and the east wall of the chapel. Close under the roof, and looking into the chapel, is a small, round-headed Norman window, broadly splayed inwards, and near to it on the east side are traces of another. By the building of the chapel, which obscured these windows, they became purposeless for light. More light, therefore, had to be provided, and this was done by piercing a Perpendicular window over the sedilia.

THE SEDILIA AND DOUBLE PISCINA

are original, and are good, bold specimens. The last, though by no means the least, work at this period was the tower, which I have already described. It contains eight beautiful bells, the tenor weighing a little under a ton.

The first, second, third, and fourth are marked with the name of the founder, Joseph Mallows, 1757; the fifth and sixth with the name of Thomas Mears, 1819 and 1815. On the sixth is this distich: "We rise like larks, sing as we fly, with notes that seem to reach the sky, 1767." On the seventh, "The hills, the vales, the towns all round, shall echo with a pleasant sound, 1757." In the interior on each side of the tower two boards will be noticed, the one containing the names of the bishops of Dunwich, and the other the names of the bishops of Elmham. At what date they were placed there I have never been able to discover. Shortly after the restoration of 1882 an enthusiastic visitor to the church recorded in a local paper the impressions left on his mind by his visit. He said that on entering the church his only feeling was "one of unfeigned admiration. Everything has been done that pride and affection could do for a lovely church."

NORTH ELMHAM CASTLE.

The party then inspected the ruins of North Elmham Castle, where Mr. Legge was again the cicerone. He said: The history of the parish goes back very far. It was a Roman station, and a Roman flamen is said to have had his residence here. Here, also, where we are standing is a Roman camp, and about a mile or more hence a Roman burial ground was discovered many years ago in a field called Broom Close, on the road to Dereham, on the right hand side by the white bridge which separates the parish from Beetly, and bears the name of Sponge Bridge. Elmham was one of the East Anglian sees as early as 673. We are standing upon the site of the Manor of Nowers or Novers, which derives its name from Milo de Noiers, who held it about 1180. He was a descendant of William de Noiers, a great favourite of William the Conqueror. The first thought, I think, which will strike one as to this castle is its small size; so small, indeed, that doubts have often arisen in my mind as to whether it might not after all be only the keep of a larger building, and these doubts were somewhat strengthened by the fact that when I was making a tennis court on the encampment the workmen came upon traces of walls. It is not only small in extent, but small also as to the several rooms or partitions into which it is divided. As to its age we seem to be

IN THE LAND OF CONJECTURE

and assertion. Looking at the outside walls I think you might assert any date you pleased, and there would be little danger of contradiction. Mr. Carthew was of opinion that it was the residence of the early Bishops of Elmham. For myself, and so far as my opinion is worth anything, I believe it to be of Roman origin. Several Roman tiles are to be met with inserted in the walls, though it is certainly possible that these may have been utilized at a later date, and in the angle of one of the towers I dug up a portion of a Roman lamp. I have unearthed human bones to any amount, and from the fact that you can scarcely dig anywhere all round and about without discovering them, gives me the impression that at some time or other a great battle was fought here, when perchance the castle was taken and dismantled, being destroyed by gunpowder. There are traces of fire to be seen on the east wall of one of the east towers. In one of these vault-like places I found a skull mortared into the wall, and close by were three skeletons in layers, one of them with the arm bones stretched above the skull.

IN THE SOUTH-WEST ANGLE

of the westernmost room I came upon the skeleton of a dead woman, and by her side, with the arm bones thrown around it, the skeleton of a child. Amongst various objects of interest which came to light from time to time were several red, yellow, and black tiles, the word "Nicholas" being apparently cut upon one of them; many pieces of stained glass, on one of which a bishop's mitre was rudely designed; deers' tynes, two large thimbles, one copper and the other brass; an old spur and part of a bit, the copper leg of what appear to have been a crucible, daggers and

tradesmens' tokens of the date of Elizabeth, together with various pieces of mediæval pottery, some of them of a graceful form, and two fragments having on them the Spencer arms. Perchance it was from this very castle that, throwing aside his mitre and donning a helmet, he mounted his charger and issued forth with his men-at-arms in pursuit of the rebel Litster, the Norwich tanner, with whom he came into collision at North Walsham, when, rushing over his barricades, gnashing his teeth, he seized him, piously absolved him, and then hung him erewhile kindly holding his head. One more matter I should add before bringing this paper to a close, and that is, on the farther side of the moat close to the east is a deep well, which was open till covered in by my predecessor. I felt sure that there ought to be another within the precincts of the castle, and so it proved to be. Searching about one day I discovered it in the highest tower to the east.

BRISLEY AND GRESSENHALL CHURCHES.

A brief visit having been paid to Brisley Church, where nothing of particular interest transpired, the party journeyed on to Gressenhall Church, dedicated to the Assumption of the Blessed Virgin. The edifice is chiefly in the Perpendicular style. It consists of a chancel, nave, aisles, north and south transepts, and porch, with a fine square tower springing from the centre. The south transept is called Hastings' Chapel, and the north transept Feraur's Chantry, or chapel. Dr. Jessopp said he considered this to be one of the most uninteresting churches in the diocese, at all events in this particular neighbourhood. Looking at the outside of the church, the aisles, and the transepts, everyone would agree that it would be difficult to find more infamous specimens of building. There was not a square yard of all the walls outside that would not disgrace a contracting jerry-builder in London. The restoration of the church he held to have been a great mistake. It would have been better to let it tumble down, and to have spent the money in putting up a church where the people lived.

SCARNING CHURCH.

Dr. Jessopp's church, that of St. Peter and St. Paul, at Scarning, was next seen. It consists of nave, chancel, south porch, and square tower. In 1859 it was restored and partly rebuilt. The preponderating style is Perpendicular, but the south porch and doorway and some other parts were Decorated. The ancient and beautifully carved rood-screen still remains, and upon it hangs the ancient sanctus bell. Dr. Jessopp said there was no indication of a church being in existence here before the thirteenth or the fourteenth century. There were a few fragments of Norman carving which might have been imported from somewhere else. His conjecture was that the place was overshadowed by the Premonstratensian abbey of Wendling, and that it continued to be a mere wooden church much later than most churches in this diocese. There were in it no mouldings or any of those other beautiful things which one looked upon as a necessary element in a Norfolk church. There was in it the least possible ornament, and it might truly be said of it that it was an uninteresting place.

ELSING CHURCH AND HALL.

The remainder of the afternoon was devoted to the Church of St. Peter at Elsing, and the handsome hall now in the occupation of Dr. Bustead. The church is a handsomely proportioned building in pure Decorated style, comprising nave, chancel, north chapel or sacristy, north and south porches, and square tower. On the pavement of the chancel are the remains of a splendid brass to the memory of Sir Hugh Hastings, who was buried there in 1347, and is supposed to have founded the church in 1340. The knight was represented in a mixed armour of mail and plate, with a loosely hanging jupon and sword-belt, a straight two-edged sword, and a shield. The legs have disappeared. The original font cover, restored within recent years to much of its ancient beauty, is said to be one of the finest in the kingdom.

A LEEDS MUSIC HALL.

THE erection of a new musical hall—the Empire Palace—has just been completed at Leeds. With seating accommodation for 2,000, and standing room for another thousand, the new theatre will rank as one of the most commodious buildings in Leeds. Architecturally, it is an ornament to Briggate, beside adding materially to the structural improvements now being made by the Leeds Estates Company in Wood Street and the immediate neighbourhood. A strong suggestion of the Flemish enters into the style, both inside and out. The front is terra-cotta over a granite base, and above all is a well-designed gable, supporting a life-size figure and an arc light. Internally, the prevailing tones are cream and gold.

RELIEVED BY COPPER BRONZE

on the mouldings of the ceiling and the fronts of boxes, circle, balcony, and amphitheatre, and by a "crushed pink" plush on the stalls and circle seats and other parts where draperies are brought into use. The tableaux curtains and valance, for instance, will be of this colour; also the Wilton pile carpet up the marble steps of the entrance, and on the floors of the grand saloon, and principal parts of the house. Italian marble columns, and moulded panels filled with paintings over mosaic floors, give artistic feeling to the vestibule. Coloured representations of carnival scenes also adorn four sides of the open roof of the theatre itself, where a pretty effect is obtained by the festooning of ornamental brass work to be employed as electroliers. The system of double staircases, entrances, and exits from and into the four surrounding streets reflects credit upon the ingenuity of the architect. Mr. Frank Matcham, however, has had much experience in this particular line, therefore much may be expected from him. The stairways and corridors are all 5ft. in width, and the arrangements for seeing the stage from every floor seem to be very satisfactory. The refreshment saloon attached to the grand circle is to be an apartment of some distinction, from the decorator's standpoint.

OVER A MARBLE BALUSTRADE

one can look down into the vestibule; and, projecting from the adjoining smoking lounge, a balcony furnishes peeps into Briggate. Then—to pass to the other side of the house—an iron curtain is in readiness as a protective partition between stage and auditorium, and here, too, are all the latest appliances for the production of scenic effects, besides dressing rooms and so forth. Ventilation, among other matters, has received due attention. A sliding roof gives a view of the sky whenever it is essential to rid the theatre of foul air. Some idea of the size of the house may be gathered when it is stated that the stage measures 65ft. in width. Smaller than the Empire Palace at Liverpool, and smaller than Manchester's latest music hall, it is nevertheless of tolerable dimensions. The characteristic feature is its compactness.

The preparations are well advanced for opening the new extension of the Hampstead Workhouse, which has been erected by the Hampstead Guardians at the junction of Heath Street and New End, Hampstead. The new structure, which will accommodate an additional 100 inmates, will cost about £30,000. The electric light will be installed throughout.

SOME excitement was occasioned in Fetter Lane last Thursday in consequence of a loud report as of falling brickwork. It transpired that some old erections—part of a colony of rookeries which are being cleared away—in Norwich Street had collapsed. Workmen have been pulling down the premises behind the old coaching house, the White Horse, and had only just left work for the day when the remaining high walls fell with a crash. Fortunately no one was passing the spot at the moment, but Norwich Street was completely blocked with bricks, &c., for a considerable time.

THE SOANE MUSEUM.

THERE are scenes of beauty in this City which the average Londoner never catches a glimpse of. There are places peopled by spirits of the dead, and corners crowded with memories of a past which the march of the modern City has improved away. Most of us ought, perhaps, to be pardoned for not knowing these things. The other day we turned into one of these for the sake of relief from the merciless August sunlight. Around Lincoln's-inn-fields the glare in the streets was blinding. But there, on the north side, stood an old house, fresh and smiling in a new coat of paint, which seemed to promise the shade so ardently desired. And so it proved. Inside the light was subdued, and there was a delicious pervasive coolness. This was the museum of Sir John Soane. Sir John Soane was Professor of Architecture at the Royal Academy. He wrote after his name R.A., F.R.S., F.S.A., and a good many more complimentary letters. He was architect, also, to the Bank of England, and designed the four façades, the rotunda, and most of the public offices. His

COLLECTION OF ANTIQUITIES,

gathered with infinite pains throughout a long life, was secured to the public by Act of Parliament in 1833. The house stands exactly as its owner left it, all its twenty-four rooms packed from floor to ceiling with articles of *virtu*. Dr. Waagen said, somewhat unkindly, that "the crowded and labyrinthine house leaves an impression as of a feverish dream. Something must have been wrong with the German Art critic to make him connect the Soane collection with a feverish dream. Crowded, the place certainly is;

FAR TOO CROWDED TO SHOW OFF

the countless exhibits to advantage. But it should be remembered that this is not strictly a public museum at all. It is the house of an antiquary, stored according to its owner's idiosyncrasy, and left mainly for the use of students. Nor is a single visit of much use, if one would get any kind of complete notion of the collection. It will depend upon your taste as to what relative value you give to the Soane treasures; whether illuminated manuscripts, pictures, or the magnificent alabaster sarcophagus. For ourselves, we incline to favour the last. It was discovered by Belzoni in the Valley of the Tombs of the Kings, near Gournou, Thebes, and bought by Sir John Soane in 1824 for £2000, a price which is absurdly low. The sarcophagus is sculptured within and without with

SMALL FIGURES IN INTAGLIO,

coloured with dark blue. When a light is held inside, it is quite transparent. But if the sarcophagus is quite the most fascinating object in the Museum, there are others which may not be overlooked. Hogarth is here, with the eight pictures of "The Rake's Progress" and the four of "The Election," and Sir Joshua Reynolds with the famous "Snake in the Grass;" also a few Turners. Tasso's MS. of the "Jerusalem" is here, too, and

SOME FINE ILLUMINATED BOOKS,

including one superb example by Giulio Clovio, a pupil of Michael Angelo. A short time ago the newspapers made merry over an alleged posthumous joke played by Sir John Soane on his trustees. The Museum contained three sealed cupboards which, according to the donor's will, were not to be opened until, respectively, thirty, fifty, and sixty years after his death. Because the cupboards were found to contain, not further treasures,

BUT ONLY FAMILY PAPERS,

Sir John was put down as a practical, and rather heavy joker. Nothing of the sort, however. The papers referred to private family quarrels, which were far better covered up. The Museum is now closed for six months. The endowment is not sufficient to cover the expenses of attendance all the year round. But, although the door is closed, the curator likes it to be known that no visitor from the country or from across the sea is forbidden access, and that anyone writing for a ticket may visit the Museum on any day in the year.

Professional Items.

"BRAHAN" (near Perth).—This new mansion, now in the course of erection for Mr. Rufus D. Pullar, of Messrs. J. Pullar and Sons, dyers, Perth, is built on the side of a hill on the Crieff Road, about $1\frac{1}{2}$ miles from Perth. It stands on the site of an old house which was pulled down, the old trees, hedges, and orchard of the old garden remaining. The garden front faces south-east, the entrance court being on the opposite side, and the kitchen court to the north-east. The walls are harled, and the roof covered with green slates. From its commanding situation a magnificent view of Perth and the surrounding district in every direction is obtained. The house is a most commodious one, and is fitted up on the most modern principles, special attention having been paid to ventilation and sanitation. The architects are Messrs. Francis W. Bedford, A.R.I.B.A., and Sydney D. Kitson, M.A., of Leeds. The clerk of works is Mr. D. Robertson, and the following contractors are being employed upon the works:—Excavators and concrete, Messrs. D. R. Taylor, Perth; steel work, Messrs. P. and W. MacLellan, Limited, Glasgow; masons' and bricklayers' work, Messrs. J. and C. Hay, Dundee; carpenter and joiner work, Messrs. Stewart and MacFarlane, Perth; plumber and drainage work, Messrs. Frew and Son, Perth; plasterer's work, Messrs. J. Mackay and Son, Perth; glazier's work, Mr. C. Alexander, Perth; leaded glazing, Mr. W. Pape, Leeds; ornamental glazing, Mr. W. Pape and Mr. Stephen Adam, Glasgow; and Messrs. G. Walton and Co., Glasgow; electric light installation, Messrs. Ernest Scott and Mountain, Newcastle; electric bells and speaking tubes, Messrs. Westwood and Sons, Perth; ornamental plaster work, Mr. G. P. Bankart, Leicester; hot water heating, Messrs. H. Walker and Son, Newcastle-on-Tyne; case-ments, Messrs. Williams Brothers, Chester; lift, Messrs. John Bryden and Sons, Edinburgh; carving, Mr. J. Hayes, Edinburgh; tiling, Messrs. Field and Allen, Edinburgh, and Messrs. C. W. Williams and Co., Manchester; panellings and interior woodwork, &c., Messrs. Marsh, Jones, Cribb, and Co., Leeds; Messrs. Stewart and MacFarlane, Perth; and Mr. C. Grant, Perth. The building is now well advanced, and it is expected that the house will be ready for occupation early in the spring of next year. The drawings of the house were exhibited in this year's Academy.

BRISTOL.—The new Board School at Westbury Park, Bristol, has just been opened. The buildings of the school are the first instalment of what will probably be a large school, and are therefore arranged with a view to extension, a circumstance which necessitates the initial outlay being proportionately greater than for a complete school. They comprise a lofty central hall, with open roof and windows all round, two class-rooms, each for fifty children, and a babies' room for fifty. A pretty feature is the octagonal teachers' room. This has a lavatory adjoining, and there is a large cloak-room and lavatory for the children, and a room for the use of the caretaker. The floors are laid with maple blocks, and the dadoes formed with maroon-colour glazed bricks, which contrast effectively with the green wall surface. The whole building is heated by hot water, and the hall and class-rooms have also fire-places of glazed faience. The exterior is simply treated in red brick, with white sashes and tile roofs, and has a bright and cheerful effect, grouping well with its pleasant surroundings. One matter may be mentioned as creditable to all concerned—not a penny has been required for "extras." The architects are Messrs. La Trobe and Weston, F.R.I.B.A.

BROOMFIELD (co. Monaghan).—The ceremony of laying the foundation stone of the proposed new Church of St. Patrick at Broomfield, in the parish of Donaghmoyn, county Monaghan, was performed last week by the Bishop of Clogher. The present edifice is

about a hundred years old, its arrangements are of the most primitive character, and even its size is inadequate to afford accommodation to the congregation. The site of the proposed new church has been admirably selected on a gentle eminence in the immediate neighbourhood of the old one. It has been designed by Mr. George L. O'Connor, C.E., M.R.I.A.I., of Dublin. It will be in the Gothic style of Architecture, cruciform in plan, with nave, transepts, and sacristies. The length of the nave will be 80ft., and the width 34ft. The walls will be built of limestone, rubble masonry, lined on the inside by brickwork. They will be strengthened by buttresses, having limestone chiselled weatherings. A spacious gallery and organ loft will be provided at west side, and from which will also arise a belfry tower. The roof will be of open timber construction, with wrought moulded principals and carved ribs. Ample provision will be made for ventilation and lighting. Lancet windows will pierce the walls in the alternate spaces between the buttresses. It is intended that the materials throughout will be, as far as practicable, of Irish manufacture.

BRUSSELS.—We give an illustration of part of the hall and staircase of a new house at Brussels. The drawing shows the fireplace under the staircase. The house was designed by Mr. M. H. Baillie-Scott, of Douglas, Isle of Man, for Mr. W. Schlobach, an artist, and a feature of the design is a large studio with an open timber roof.

DEVONPORT.—A new Science, Art, and Technical School is now approaching completion at Devonport. The building from its position, near the South Western Railway Station, stands clear of all other objects, and is prominent for miles in every direction. The principal entrance in the south front will be approached from the road by an elliptical drive, entered by two openings in the iron railed boundary wall. A flight of granite steps at the foot of the clock tower lead to the vestibule, the floor of which is tiled; thence another flight of steps of Portland stone brings one to the level of the first floor corridor. The doors between the vestibule and corridor are of walnut, glazed, and elaborately moulded, the caps of the pilasters and frieze-rail being carved. At the eastern end of this corridor is the art school entrance, and a separate entrance to the area and caretaker's apartments. On the first floor is the large hall, 57ft. by 26ft., the mechanical drawing class-room, several other class-rooms, the secretary's office and committee's room. On the upper floor another corridor extends the whole length of the building, lighted by two lantern lights and a window at either end. On the east side are the Art rooms, whilst at the west end the front is appropriated to the chemical laboratory, preparation and balance rooms, the back rooms for chemical and physical lectures, and the physical laboratory. From the upper corridor a central main staircase and two others at the extreme ends lead to the basement, in which are the caretaker's apartments, the electrical and mechanical engineering rooms, the plumbers' workshop and metallurgy rooms, a room for manual training and carpentry, and the plaster casting room, with meter room, Keith's heating boiler, &c. A room is also provided in the basement for photography. The masters' and mistresses' rooms are on mezzanine floors at the west and east ends of the building, with w.c.'s and lavatories below. The principle feature in the façade is the clock tower, which rises 120ft. above the road. Although this is an addition to the original design, yet the tower is well proportioned, and the graceful outline of roof, with the clock and bells, make up a handsome pile. The wall facing is irregular coursed rubble, point nobbled, of Cattedown limestone, with dressings of Ham Hill stone, an excellent contrast being obtained. Ventilation is well secured by means of four 30in. exhaust ventilators in the ridges, with airtight trunks in the roofs in connection with open frames in the ceiling of each of the rooms. The whole of the floors,

dadoes, and the internal joinery generally are of pitchpine, the doors and frames, roof timbers, air trunks, and dadoes being varnished. All the stairs to the first floor are of granite, with pitchpine above, and ornamental cast-iron balusters are used throughout.

FOLKESTONE.—The new wing of the Royal Pavilion Hotel, Folkestone, has been opened. The architect is Colonel Edis, and his principal object appears to have been to construct a commodious and comfortable edifice rather than one with a strikingly decorative exterior. The lounge is entered from the southern or garden entrance, and is a spacious apartment, tastefully furnished. Without going into details, the same remark applies to the reading room, dining hall, drawing room, and indeed every room throughout the building. The whole arrangements have been worked out by Messrs. Maple and Co. for Messrs. Henry Frederick and Co., the proprietors of the Coburg Hotel, Berkeley Square.

GILLINGHAM.—A portion of the new Catholic Mission Church of "Our Lady of Perpetual Succour," at Gillingham, was opened last week by the Bishop of Northampton. The church has been built by Mr. F. R. Allen's executors, of Beccles, from plans drawn up by Mr. R. Banham, Mayor of Beccles. It is of Roman style, red brick outside, with a sanctuary, and five bays to the nave. When it is completed there will be seven bays, and there will also be two companion towers. There is a moulded plinth, pilasters, and corvise, and there are circular windows in the roof. The nave is 40ft. long by 18ft wide, and the circular sanctuary is 20ft. by 18ft.

HESSAY.—The whole of the work in connection with the erection and completion of the new church at Hessay, near York, has been entrusted to Mr. Anthony Lyons, contractor of Norton, Malton. Mr. C. Hodgson Fowler, F.S.A., Durham, is the architect.

LONDON.—At the Royal Botanic Society's Gardens, Regent's Park, a new public café has been erected, together with a private dining-hall 45ft. long, by 30ft. wide, reading and reception rooms, and ladies' and gentlemen's cloak rooms. There is a spacious "hall lounge" entered from the main conservatory. With the exception of the café, the building is intended for the exclusive use of Fellows of the Society and their friends. The foundations and superstructure were carried out by Messrs. Hunkey Bros., of Croydon; the decorations and furnishing by Messrs. Maple and Co. Limited; and the heating by the Thames Bank Iron Co. The architect is Mr. H. W. Hetherington Palmer, of the Outer Temple, W.C.

NOTTINGHAM.—The new General Post Office, in Queen Street, Nottingham, has been formally opened. The ground floor is occupied by the public office, the rooms of the postmaster, the chief clerk, the inquiry-room, the parcels office, and the office for private box-holders. The public office, although not the largest in the kingdom, is considered to be one of the best furnished. The counter, forming three sides to a square, is of polished mahogany, and the handsome roof is supported by four massive columns, the telegram counters being in the centre. At one side of this office is a telephone call-room for the trunk lines. On the second floor is a very spacious sorting office, fitted up with every convenience for the workers, the returned letter branch of the establishment, the medical officer's rooms, and several private rooms. The third floor contains the telegraph school, the office of the accountant, cloakrooms, several retiring rooms, and the dining rooms. On the fourth floor are the instrument room, the telephone room, the battery room, and the "record rooms."

PORT TALBOT.—The extraordinary development which has recently occurred at Port Talbot in view of the approaching completion of the new dock and railway has just been followed by an unopposed and successful

application to the local magistrates to license a splendid hotel to be built by Mr. D. Williams, of Brynhaulog, Bridgend. The services of Mr. George Robinson, architect, Cardiff, have been secured, and he has worked out an effective design in the domestic Gothic style. The site is close to Port Talbot Station. It is a three-cornered piece, containing an area of about 2000yds. on Station Street. Station Street is to be widened to 60ft. Close by are in course of construction the county police offices, a handsome pile; and adjoining them, on the other side, will be the new premises of Lloyds' Bank. The front elevation will be mainly of native stone, with Victoria stone dressings, the latter being an almost indestructible ornamentation now being largely adopted in London. The estimated cost is £10,000, exclusive of furniture and fittings. Mr. Robinson has introduced into his plans the latest ideas of hotel structural arrangement. The commercial travellers' convenience has been well considered. For example, a series of capacious lockers has been designed, in which commercials may store their goods in safety and without confusion when not displaying them to customers. There will be twenty bedrooms for the guests' use, but under the lease the proprietor is obliged to provide twelve more when called upon.

SOUTH SHIELDS.—The new Unionist Club, South Shields, was formally opened last Wednesday by the Marquis of Londonderry, K.G., in the presence of a large concourse of people. The new building is situate in Catherine Street, which is contiguous to Fowler Street, and within a couple of minutes' walk from the centre of the town. In the general design and arrangement of the building, Mr. J. H. Morton, the architect, has shown no small skill and artistic taste. It is four stories in height, buff terra-cotta being used up to the first floor, with deep red bricks and terra-cotta windows above. The internal arrangements admirably adapt themselves for the purposes for which they have been erected. The approach from the street is through a high vaulted lobby to the entrance hall, and beyond a wide staircase leading to the floors above. On the right of the entrance hall is the reading room, a large, comfortable, and well-lighted apartment. Facing this is a commodious smoke room, with a buffet bar in dark mahogany with glazed screens, and which adds greatly to the appearance of the room. In the rear are the cloak room and lavatories, with walls of glazed bricks. The first floor is utilised entirely as a billiard room, and possesses accommodation for three tables. Above this, there is another large room covering the entire area of the second floor, but which can be divided into three smaller rooms by collapsible partitions. It is intended to use this room for assemblies and smoking concerts, a small raised platform having been placed in one corner. When not in use for this purpose it will be partitioned off for recreative purposes, such as games at chess, draughts, and cards. A lift runs from the buffet on the ground floor to the top of the building, by means of which refreshments can be supplied to the different rooms, thus doing away with the necessity of the waitresses travelling up and down the stairs. The top of the building is set apart for the caretaker's residence, and contains four large rooms with pantries and other requirements, while the whole of the basement is utilised as cellars. The building has been fitted throughout with gas and the electric light, and in addition to the steamcoils and radiators for heating there are fireplaces in all the rooms. The total cost of the building has been between £4000 and £5000.

TINTAGEL.—Good progress is being made with the building of King Arthur's Castle Hotel, on the hillside opposite the castle ruins, at Tintagel. Mr. Silvanus Trevail, J.P., of Truro, is the architect; Mr. Carkeek is the builder; the sanitary fittings are by Messrs. Jennings and Messrs. Doulton, of Lambeth; and the furnishing contract has been taken by Messrs. Waring and Co., of London and Liverpool. The hotel and grounds occupy $7\frac{1}{2}$ acres of land.

Views and Reviews.

"HURST'S ARCHITECTURAL SURVEYOR'S HANDBOOK."

The fifteenth edition of this extremely useful work, first published in 1864, has just reached us, it having been entirely revised and extended up to date. By this time its value is so well known and recognised that little or nothing new can be said about it. The usefulness of the work lies not so much in the facts it contains, as in the manner of their arrangement, which makes it so easy of reference. Undoubtedly it is one of the most useful works an architect can possess.

* A Handbook of Formule, Tables, and Memoranda for Architectural Surveyors and others engaged in Building. By John Thomas Hurst. Fifteenth Edition, 1898. 5s. London: E. and F. N. Spon, Ltd.

THE GAS ENGINEER'S POCKET-BOOK.*

Mr. O'Connor has done useful work in providing such a comprehensive collection of facts and precedents connected with a gas engineer's profession. There are many tables and memoranda arranged to facilitate reference in this attractive little volume, containing chapters on general mathematical tables, unloading materials and storage, retort house, condensers, boilers, engines, pumps, and exhausters, scrubbers and washers, purifiers, gasholder tanks, gasholders, workshop notes, storing materials, retort house working, condensing gas, exhausters, &c., washing and scrubbing, purification, the care of gasholders, distributing gas, testing, enriching processes, and products works. It should surely suffice for any eventuality that might occur upon a gas-works. There is much matter, however, that would be better for a little clearer arrangement; for instance, the notes upon mains would have been better treated apart from those upon service pipes. It would be idle, however, to cavil at the work upon a small matter of arrangement, which can easily be remedied in subsequent editions, and all are lit is due to the author for having collected such a valuable mass of information for the benefit of his profession.

* "The Gas Engineer's Pocket-book," comprising tables, notes, and memoranda relating to the manufacture, distribution, and use of coal gas and the construction of gas works. By Henry O'Connor, A.M.I.C.E., Vice-President of the Society of Engineers, 1898. P. 102, 10s. 6d. London: Crosby, Lockwood, and Son.

PRACTICAL SMOKE PREVENTION.*

Mr. Nicholson has embodied much practical information in this little pamphlet, knowledge acquired no doubt by his experience and duties as a smoke inspector in one of England's smokiest cities, Sheffield. While the work does not lead us much nearer the solution of an absolute cure, the author very clearly shows that much may be done to prevent the smoke nuisance, and that most of the smoke that poisons the air and disfigures our buildings is due to ignorance, want of proper apparatus, and negligence, intentional and unintentional. The work is a timely one, for people, after an outburst of indignation, usually lapse into a spirit of despair, and treat the question as hopeless. We have not heard much of the smoke question lately, and yet it is a growing question, and not one to be shelved. Mr. Nicholson's panacea for the evil is intelligent stoking, and this apart from any appliances, automatic or otherwise. While the opinion is indisputable, we fear the solution of the smoke question is still very far off, for the laziness of the British workman is such that the benefit of pure air will hardly weigh with him so much as the extra labour, which the author does not hesitate to state is absolutely necessary. In short, the stoker must use his head as well as his hands. The book is singularly free from errors; but the plural of apparatus is not "apparatuses," as given on page 23. We recommend everybody to buy this little work, for its price is within everybody's reach, and its mission concerns all men.

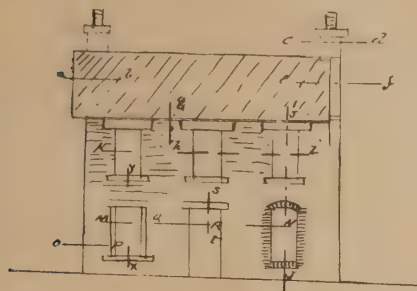
* "Practical Smoke Prevention." By W. Nicholson. Price 3d. Sanitary Publishing Co. Ltd.

Enquiry Department.

HOLLOW WALL CONSTRUCTION.

To the Editor of THE BUILDERS' JOURNAL.

SIR,—Can you give sketches showing the method of construction on each of the following section lines. I would also be pleased to



have any information about hollow wall construction.—Yours,
McK.

The accompanying sections will be found suitable for a small detached villa in an exposed situation; for less substantial property a $4\frac{1}{2}$ in. inner wall might be considered sufficient for the ground story, although this is not advised. It is usual to build these hollow walls with a $4\frac{1}{2}$ in. skin outside, as there is thus less substance to absorb moisture;

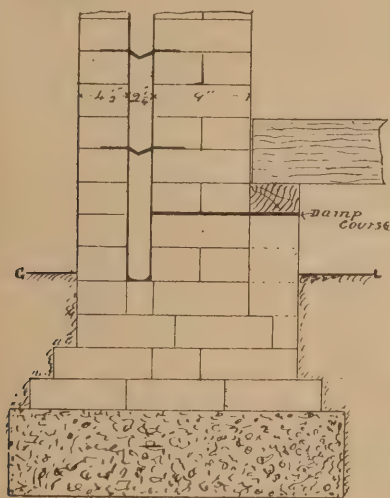


FIG. 1.—SECTION AT J.

and when wet it dries quicker; also the thicker portion being inside to carry the constructive timber, necessarily shortens the span and economises material. The hollow space between the two walls should not exceed 3 in., and is more frequently $2\frac{1}{2}$ in. The two portions are kept entirely separate between the ground line and the upper ceiling except at the reveals of door and window openings; these are formed, and the space closed, as shown in Figs. 3 and 7,

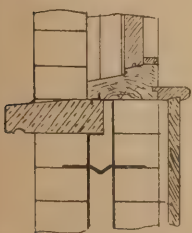


FIG. 2.—SECTION AT X.

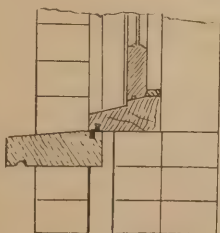


FIG. 3.—SECTION AT Y.

by King closers, all the hidden portion of these latter bricks should be covered with tar or melted asphalt before laying to prevent the transmission of moisture to the inner wall. Starting about four courses from the ground, and at every third course thereafter, rows of

The copyright of the accompanying drawings is reserved.

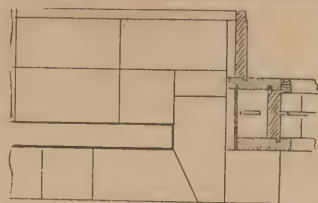


FIG. 4.—SECTION AT M AND R.

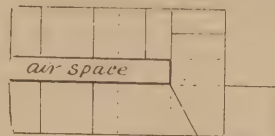


FIG. 5.—SECTION AT H.

wrought or cast galvanised iron ties, spaced about 3 ft. apart, should be built in the brickwork, as shown in the sketches, to tie the work together; they should not be placed vertically over each other, but hit and miss fashion. These ties are made of various shapes, but those having a good dip in the middle are best. There are also purpose made

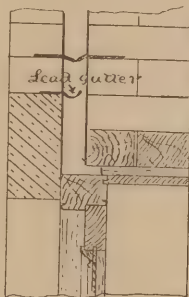


FIG. 6.—SECTION AT S.

bricks in the market, but in cases of unequal settlement these are very liable to break. It is not advisable to take the hollow below the ground line, as water will accumulate therein, but where this must be done to protect a basement the inner wall should be covered with asphalt up to the damp course, the

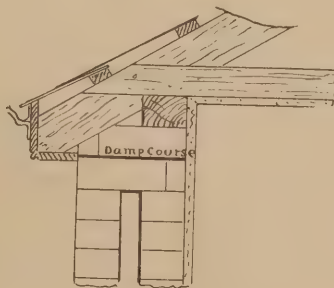


FIG. 8.—SECTION AT G.

top of the hollow should be closed at or near the ceiling line, and immediately above, a damp course must be inserted, as shown in Fig. 8. Over all doors and window heads a strip of lead should be built in the outer wall, and turned up to form a gutter as shown in Fig. 4; this should be long enough

to overhang each end about 2 in. During the building of the wall, pieces of board laid on the ties will prevent mortar, &c., falling into the space. Fig. 1 is a vertical section at the foot of the wall; Fig. 2, a vertical section through ground floor window. The stone sill must not quite bridge the space; both sills are grooved, and a strip of lead, bent and bedded in cement, prevents the ingress of water. Fig. 3, a similar section of first floor;

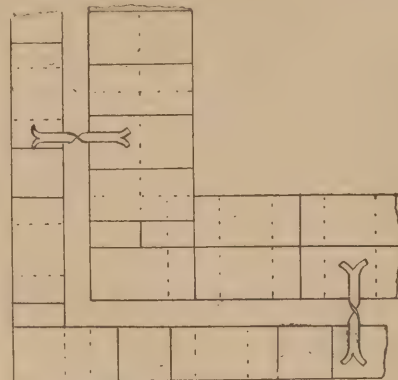


FIG. 9.—SECTION AT O P.

Figs. 4 and 5, horizontal sections through the reveals (dotted lines show courses above and below); Fig. 6, vertical section through head of doorway, showing stone lintel and lead gutter; Fig. 7, a horizontal section through the chimney breasts, the left half on the ground floor, the right half on the first floor; Fig. 8, a section through the eaves, showing top of the hollow wall; Fig. 9, section of

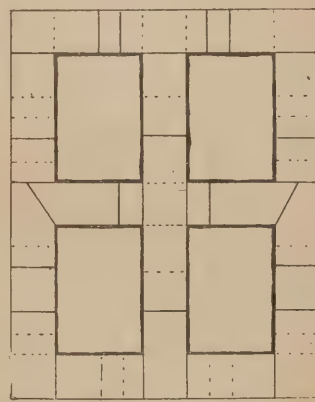
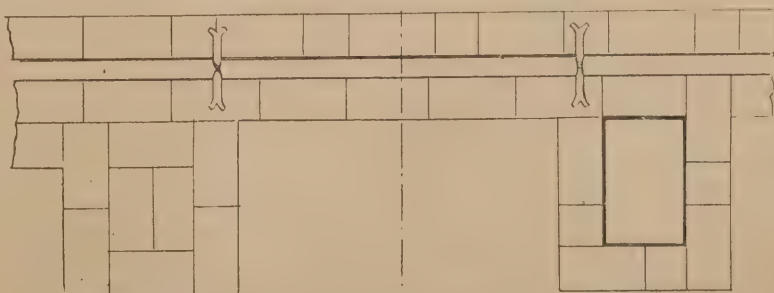


FIG. 10.—SECTION AT C D.

corner of wall at ground floor; Fig. 10, section of chimney above roof. Sections at gable and parapet are not necessary, as these will be built in the ordinary manner, but with the damp course taken all round at the same level.

It has been virtually decided to provide the Royal Courts of Justice with lifts at an early date for the accommodation of those having business at the offices and chambers situated on the upper floors of the building. It is understood that about four lifts will be erected for this purpose, of which two will be situated in the east block, and one each in the western and main blocks.



GROUND FLOOR.

FIRST FLOOR.

FIG. 7.—SECTION THROUGH CHIMNEY BREASTS.

KEYSTONES.

THE French Government is about to erect a new Parliament House from the design of M. Buquet.

THE premises of Messrs. S. Ranson and Co., of Britannia Works, Kensal Road, W., builders and contractors, have been burnt down.

THE Crewe Town Council propose to supply the Borough with electric light, at a cost of £25,000. Professor Hopkinson, F.R.S., is the consulting engineer.

MESSRS. SPIERS AND POND propose to erect a new hotel on Kirkley Cliff, Lowestoft. Plans have been prepared by Messrs. L. H. Isaacs and H. L. Florence, of London.

THE new Grand Theatre, Hanley, has just been completed from designs by Mr. Frank Matcham. The cost was £25,000. Mr. T. Goodwin, Hanley, was the builder.

THE new theatre in Charing Cross Road for Mr. Chas. Wyndham has been designed by Mr. W. G. R. Sprague. Mr. C. F. Kearley's is the successful tender at £20,400.

HERNE BAY is to have a new church, to be dedicated to St. John the Evangelist. The estimated cost is £8000. Mr. R. P. Day, Diocesan Architect, has prepared the plans.

THE first premium of thirty-five guineas for laying out the Appleton House Estate, Widnes, as a public park, has been awarded to Messrs. William Barron and Son, of Elvaston Nurseries, Borrowash, Derby.

THE London County Council have acquired the site of two houses in Warner Street, Mount Pleasant, for the enlargement of their Weights and Measures Testing Office. The work of demolition is now in progress.

MR. W. H. PREECE, C.B., F.R.S., Pres. Inst.C.E., Chief Engineer to the Post Office, has published a denial of the report that he is instructed by the Postmaster-General to prepare a scheme for a national telephone system.

A LOCAL GOVERNMENT INQUIRY has recently been held by Lieut.-Colonel A. C. Smith, R.E., into a proposal of the Canterbury Town Council to borrow £70,000, for the purchase of a site, and the erection of a lunatic asylum. Mr. W. Jennings is the architect.

THE Borough Sanatorium of St. Helen's at Pleasley Vale has just been completed. The borough engineer, Mr. Geo. Broom, designed the buildings, which were erected by Messrs. Whittaker and Woods, St. Helen's, under the superintendence of Mr. H. Helens, Clerk of the Works.

THE temporary bridge between Lambeth and Millbank, which has been open for traffic a week, is now deemed by the engineers of the London County Council to be capable of carrying the traffic which will be diverted from Vauxhall Bridge, and the latter is now closed both to foot passengers and vehicles. The work of demolition of the old bridge, which was built between the years 1811 and 1816 at a cost of £300,000, will, however, not be commenced until the 7th or 8th of next month.

TENDERS.

Information from accredited sources should be sent to "The Editor." No results of tenders can be accepted unless they contain the name of the Architect or Surveyor for the Work.

BASFORD (Notts).—For re-erecting Beaufit-lane Bridge over the River Erewash, for the Rural District Council. Mr. G. W. Hawley, surveyor, York Chambers, King-street, Nottingham:—
Joseph Tomlinson £509 4 3
H. N. Barry ... 500 18 6
Jno. Tomlinson ... 432 12 0
Alcock and Son, Eastwood* ... 2415 15 0
* Accepted.

BOURNEMOUTH.—For the supply of electric light pillars, as follows, viz.: A. Nine cast-iron ornamental lamp pillars, B. Ten cast-iron ornamental lamp pillars, with special flanges. C. Nineteen ornamental carriers for arc lamps:—

	A.	B.	C.
	each.	each.	each.
J. Allen, sen., and Son	£18 5	£18 5	£7 0
Geo. Smith and Co.	12 5	12 5	5 10
W. Macfarlane & Co.*	10 4	12 18	7 16

* Accepted.
BOURNEMOUTH.—Electric lighting of pier, pleasure grounds, and winter gardens (Contract No. 2, for the supply of steam dynamo, &c.):—

—	Type of Engine.	—
		£
Leonard S. Tate	Scott and Mountain ...	1,565 0
Brush Electrical Engineering Co., Ltd.	Universal (Brush Co.) ...	1,367 10
R. Algar and Sons ...	Ransom, Simms, and Jeffries (compound).	1,425 0
	Ransom, Simms, and Jeffries (dble. cylinder).	1,337 0
United Ordnance and Engineering Co., Ltd.	Williams and Robinson (Own manufacture) ...	1,125 0
J. H. Holmes and Co.	Belliss and Co. ...	1,253 0
	Belliss and Co. ...	1,270 0
	Belliss and Co. ...	1,420 0
	Williams and Robinson ...	1,090 0
Electric Construction Co., Ltd.	Belliss and Co. ...	1,261 0
	Belliss and Co. ...	1,458 0
	Williams and Robinson ...	1,209 0
Crompton and Co., Ltd.	Belliss and Co. ...	1,219 0
	Belliss and Co. ...	1,376 0
	Williams and Robinson ...	1,075 0
Johnson and Phillips ..	Belliss and Co. ...	1,150 0
	Belliss and Co. ...	1,325 0
	Williams and Robinson (simple).	1,080 0
	Merrett and Watson (compound).	1,215 0
*Siemens Bros. and Co., Ltd.	Belliss and Co. ...	1,135 0
	Williams and Robinson ...	1,085 0
Cash, Robinson, and Co. (informal).		
Mather and Platt (informal).		
Warburg, Dymond, and Co. (informal).		
	* Accepted.	
BRADFORD.—For the erection of eleven through houses, Newburn-road, Great Horton. Mr. Sam Spencer, architect, 24, Great Horton-road, Great Horton, Bradford:—		
Masonry.—A. Emsley, Great Horton ...	) Scheduled Prices.	
Joinery.—E. Watmough, Great Horton ...		
Slating.—J. Smithies, Great Horton ...		
Plastering.—J. Black & Son, Bradford ...		
Plumbing.—Thos. Perry ...		
BRIGHTON.—For additions, &c., to Royal Pavilion. Mr. F. J. C. May, C.E., Town Hall, Brighton:—		
Satten and Evershed ... £346	V. P. Freeman,	
Thomas E. Nye ... 333	Brighton* ...	£320

KNOCKDU (Banffshire).—Accepted for the erection of bonded warehouse, for the Distillers' Company Limited. Mr. W. Monro MacBey, C.B., Elgin:—
Buildings.—V. Cruikshank, Keith ... 2667 0
Carpentry.—G. and R. Cameron, Keith ... 941 0
Slating.—A. Strachan, Keith ... 345 0
Plumbing.—J. Wilson, Huntly ... 49 0
Painting.—A. Robertson, Huntly ... 21 15
Total, £2,026 15s.

LEEDS.—Accepted for alterations, &c., to the "North Tavern," North-street. Mr. Fred. Mitchell, architect, Safe Deposit-chambers, Leeds:—

Masonry and Brickwork.—Charles Myers, Woodhouse-street
Joinery.—Banks and Mawson, 50, Water-lane ... £1,252 18
Plastering.—R. Brunton & Co., Lovell-street
Plumbing.—Jno. Stead, Alexander-street
Painting.—John Robinson, Kirkgate
Revolving Shutters.—W. F. S. Holt, Upper Croft Works, Bradford
[Rest of Leeds.]

LONDON.—For cleaning, painting, and other works at the Vestry Hall, St. James's, Westminster:—
Bywaters ... £245
Johnson & Manners £161 11
Faulkner ... 497 0
Shiers ... 495 0
Knight ... 495 0
Rowe ... 438 0
H. and E. Lea ... 445 0
S. and S. Dunn* ... 430 0
* Accepted.

LONDON.—For alterations and repairs at Nos. 283, 285, Walworth-road, S.E., for Mr. Mitchell. Mr. John Andrews, architect:—
Hawtrey ... £1,486
Buckridge ... 1,423
Hollingsworth ... £1,322
Marlsand ... 1,185

LONDON.—For erecting new premises, 2, 3 and 4, Bishopsgate-street Without, E.C., for Mr. D. C. Apperly. Mr. Augustus E. Hughes, architect, 25, Mortimer-street, Regent-street, W. Quantities by Mr. A. R. Henderson, surveyor, 47, Pall Mall, S.W.:—
Lawrence and Sons ... £11,795
Colls and Sons ... 11,444
Hall, Beddall and Co. ... 11,320
Falkner and Sons ... 11,297
Higgs and Hill ... 10,984
Williams and Son ... 10,975
Patrick and Son ... £10,825
Adamson and Sons ... 10,721
H. L. Holloway ... 10,699
Woodward and Co. ... 10,682
Wm. Downs* ... 10,590
* Accepted.

LONDON.—For making-up the main road and repairing paths at the North-Western Hospital, for the Metropolitan Asylums Board. Messrs. Pennington and Son, architects:—

B. Nowell and Co. ... £1,286
A. J. Cole ... 1,215
Robert Jackson ... 1,187
George Bell ... 1,079
William Griffiths ... 1,040
Thomas Adams ... 1,035
C. W. Killingback and Co. ... 997
Ephraim Hollingworth ... 996
Ballard Ltd., Child's Hill, N. (accepted) ... 613

Architects' estimate, £1,080.

LONDON.—For new staircase at Messrs. Clarke and Son, 163, Clerkenwell-road:—
Lascelles ... £173 0
J. W. Heaps ... 164 0
Hawry ... £121 10
Little and Senegal ... 118 0

LONDON.—For addition to 19 and 21, Wilson-street, E.C. Messrs. Tillett and Yeoman, architects, 39, Finsbury-pavement, E.C.:—
Joselyns and Young ... £1,070
J. W. Heaps ... 912
Batt and Hart ... £875
Pearcey ... 696

LONDON.—For alteration of roof at Messrs. Adams Bros., 59, Moor-lane. Mr. E. Gwyder Jones, architect, 1, Albany-street, Regent's Park:—
J. W. Heaps ... £231
Chessum and Sons ... £197

LONDON.—For painting and repairs to infirmary, High-street, Lewisham, for the Lewisham Union Board of Guardians. Mr. Robert Williams, architect:—
Marsh and Co. ... £4,749 0
Leaf & Daughter ... 1,800 0
General Builders, Ltd. ... 1,420 0
E. Jones ... 1,390 0
E. Proctor ... 1,236 0
T. J. Barden ... 1,149 11
W. Vanstone ... 1,130 0
Folley ... 1,117 0
Batchelor ... £1,079 8 9
Penfold ... 1,059 5 7
E. Mills ... 1,026 4 11
F. Harris ... 1,020 0 0
Inns, Market-street, Watford ...
Herts* ... 984 0 0
W. Mills ... 904 10 8
W. Beazly ... 806 17 3
* Accepted provisionally.

LONDON.—Accepted for erecting ladies' cloak-room and lavatory on the Recreation Ground, Carlam Grove House, for the Wood Green District Council. Mr. J. Gwynon, engineer:—
Jas. Paney, Wood Green ... £220

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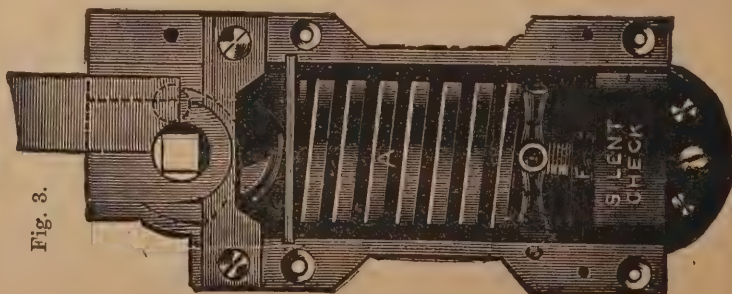
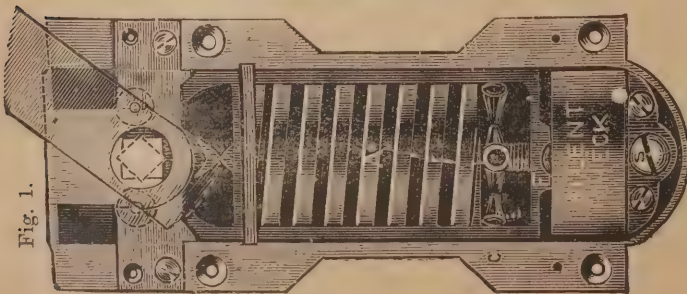
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LONDON.—For rebuilding Nos. 23 and 24, St. Martin's-street, S.W., for Mr. P. Dent Gardner. Messrs. Barnes-Williams, Ford, Griffin, architects, Railway-approach, London Bridge, S.E.:—
 E. Lawrence and Sons £2,574 | W. Falkner and Sons £1,853
 H. Roffey 2,005 | A. B. Chirgwin 1,844
 LONDON.—For internal renovation of Bedford Chapel, N.W. Mr. Alfred Conder, architect, Palace-chambers, 2, Bridge-street, Westminster:—
 McCormick and Sons £225 0 | Kerry and Holliday £177 9
 Edmund Toms 225 0 | A. J. Bellow (accepted), 159 10
 J. Grover and Son 198 15

LONDON.—For alterations to the "Fox and Hounds" public-house, Plumstead Common-road, Woolwich, for Mr. J. Hobson. Messrs. Church, Quick, & Whincop, architects:—
 Kitley 2697 | Hodgkin 2650
 Proctor 678 | Foreman 638
 Ware 665 | Thomas and Edge 611
 Sandford 658 | * Accepted.
 MARKET DEEPING.—For additions to schools, for the Maxey School Board. Mr. J. G. Stallebrass, architect, North-street, Peterborough:—
 Pine and Letail £185 | Aspitte and Neaverson
 Hipwell and Co. 400 | Werrington (accepted) £398

NEWCASTLE-ON-TYNE.—For the erection of a factory at Oneshorn, Newcastle-on-Tyne, for Mr. J. Crowther. Mr. Harry W. Taylor, architect, Newcastle-on-Tyne:—
 E. and T. George £1,300 | T. Hutchinson 21,216
 T. and R. Lamb 1,284 | R. Harris and Son 1,198
 J. B. Harris 1,252 | J. W. Brathwaite 1,182
 T. and Common 1,251 | G. H. Maughan 1,169
 R. J. Higboth 1,227 | T. and J. White 1,108
 NEW MILLS.—For laying 1,200 lineal yards 18in. pipe sewer of iron, steel, and Freclay, including 300 lineal yards of tunnel through the Torr; 500 lineal yards of 9in. pipes or thereabouts, together with manholes, storm overflows,

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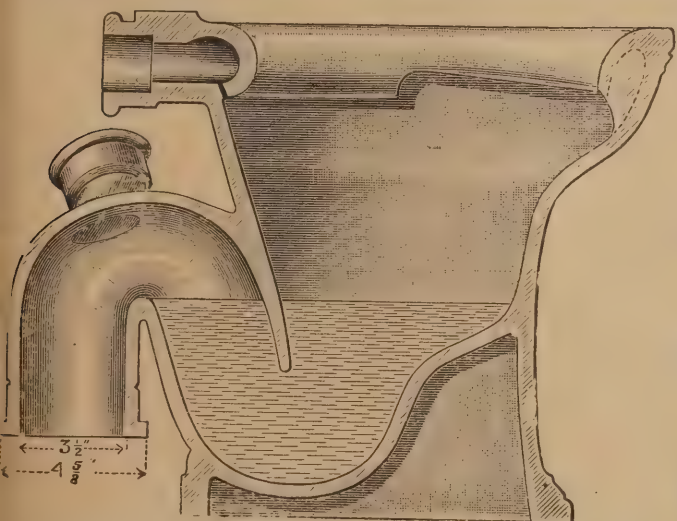
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flushing tanks, river crossings, and other contingent works, for the Urban District Council. Messrs. Spinks and Beaver, engineers, 9, Albert-square, Manchester:—
 J. Ainscouth and Son ... £5,195 3 0
 G. M. Collins ... 4,784 15 8
 Geo. Bell ... 4,615 6 11
 Geo. Freeman and Sons ... 4,509 14 0

NEW SWINDON (Wilts).—For the erection of workshops (Section B), Victoria-road, for the Urban District Council. Mr. H. J. Hamp, surveyor, Public Offices, Swindon:—
 C. Williams ... £233 0 0
 J. Williams ... 813 0 0
 H. and C. Spackman, Swindon* ... £804 19 6

NEWTOWNARDS (Ireland).—For the erection of a dispensary and residence, Lisbarnet, for the Union Guardians. Mr. T. Roe, architect, 1, Lombard-street, Belfast:—
 McCune ... £1,495
 Hanna ... 1,400
 Montgomery ... 1,297
 Caldwell ... 1,197
 Wm. Kerr ... £1,200
 Campbell and Lowry ... 1,290
 Wm. McGee ... 1,165
 Morrow, Ballygowan* ... 1,095

RAVENSTONEDALE.—For erecting the first portion of a new hotel at Ravenstonedale, for Mr. John Carver, J.P., of Easing. Mr. R. Walker, architect, Windermere:—
 Stable Block only.

Masonry.—T. Potter ...
 Joinery.—J. C. Brunskill ...
 Plumbing.—Brunskill and Nicholson ...
 Plastering.—Armstrong ...
 Painting.—Brunskill ...

READING.—For erecting new premises, Broad-street, Reading, for Mr. A. H. Bull. Mr. F. W. Albury, architect, Friar-street, Reading. Quantities by Mr. A. R. Henderson, surveyor, 47, Pall-mall, S.W.:—
 Higgs and Sons ... £4,085
 Bottrill and Son ... 4,401
 Stokes ... 4,339
 Kingler ... 4,370
 Lewis Brothers ... £4,350
 Margetts ... 4,279
 Fitt ... 4,210

[Amended and reduced estimate accepted at £3,747.]

ROCHESTER.—For additions, &c., to Wainscott Schools, for the Frindsbury School Board. Mr. G. E. Bond, architect, High-street, Rochester:—
 H. E. Phillips ... £295
 C. Roberts ... 588
 G. West ... 576
 G. Gates ... £275
 A. Ruby ... 549
 H. Wyles, Chatham* ... 539

SHREWSBURY.—Accepted for the erection of technical school buildings, Radbrook, for the Governors of the Shropshire Technical School for Girls. Mr. C. E. Dalgleish, architect, Central-chambers, Wellington, Salop. Quantities by the architect:—
 Building.—John Gethin ... £6,390 0 0
 Plumbing.—Marston and Co. ... 683 10 4
 Painting and Glazing.—J. H. Perks ... 202 10 0
 [Exclusive of heating and ventilators.]
 [All of Shrewsbury.]

STOCKTON-ON-TEES.—For additions to schools, Bailey-street, and Bowesfield-lane, for the School Board. Mr. Arthur Harrison, architect, 99, High-street, Stockton. Quantities by architect:—

Bailey-street School Additions.
 J. Davison ... £1,020 10 11
 A. J. Cooke & Co. ... 1,831 15 8
 A. J. Cooke ... 1,847 13 0
 Craggs and Benson, Stockton* ... £1,822 0

* Accepted subject to Educational Department's approval (now obtained).
 Bowesfield-lane School Addition.
 J. Davison ... £651 8 11
 A. J. Cooke, Stockton* ... 632 10 0
 A. J. Cooke, Stockton* ... 618 3 0
 Craggs and Benson ... 609 14 10
 A. J. Cooke, Stockton* ... *Accepted.

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 McCaffrey, Lifford ... £650

THETFORD (Norfolk).—For the erection of a vestry, St. Cuthbert's Church. Mr. A. J. Lacey, architect, 6, Upper King-street, Norwich:—
 J. W. Bunting & Son ... £213 9
 W. Boughton & Sons ... 235 0
 S. Holden, Thetford* ... 276 0
 W. Curtis ... £230 0
 *Accepted.

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The drawings may be seen, and a copy of the specification, bill of quantities, and form of Tender obtained at my office on payment of One Guinea, which will be returned on receipt of a bona-fide Tender.

Sealed Tenders, endorsed "Outfall Sewer," to be sent to Mr. T. M. WRATISLAW, Clerk to the Council, Rugby, on or before SEPTEMBER 13th next.

The Council do not bind themselves to accept the lowest or any Tender.

By order,
 D. G. MACDONALD, Assoc. M. Inst., C.E.,
 Surveyor.

Rugby, August 24th, 1898.

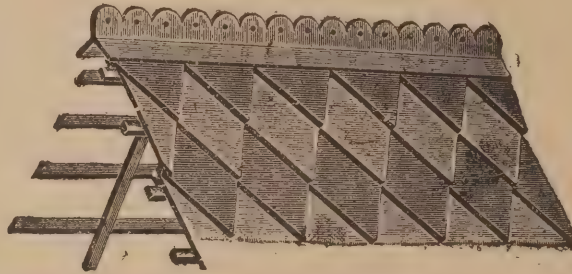
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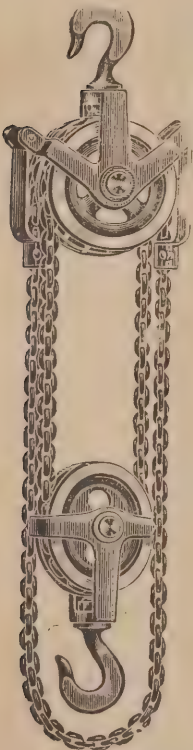
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"WASH-OUT" CLOSET (PATENT).

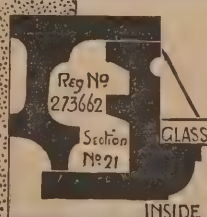
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AUGUST 31ST, 1898.

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See Large Advertisement, Back Page, Monthly.

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HEALTH EXHIBITION.

THE Health Exhibition, given in connection with the visit to Dublin of the Hygienic Congress of the Royal Institute of Public Health, is being held in the Royal University Buildings, Earlsfort Terrace. All the principal chambers as well as the grounds of the University Building have been made available for the purposes of the Exhibition, and the rooms are now filled with the specimens contributed by some ninety-six exhibitors. An Exhibition of this sort has been usually held in connection with the meeting of the Congress, and the scope of the present one has been considerably enlarged beyond the display of health appliances, with a view to making it as attractive as possible to the public, and of enlisting their interest in the important objects which the Institute exists to promote.

THE EXHIBITS

illustrative of modern hygienic doctrine and improved appliances, together with the other matters admitted as closely connected with hygiene, are arranged in the Grand Entrance Hall and Gallery, the Main Hall, the Sanitary Hall, and the Corridor. As for the numerous exhibits which especially illustrate modern hygiene, there are specimens of almost every article and appliance for the protection of health from the assaults of disease germs, the contamination of foul air, and other noxious influences, to say nothing of the curatives and restoratives which belong to the especial domain of the pharmaceutical chemist, and also aerated waters and cocoas, &c. Baths, kitchen ranges, disinfecting apparatus, and other articles of furniture conducive to cleanliness and comfort and of domestic utility are also to be seen in a variety of forms. A large disinfecting machine, shown by Messrs. Maguire and Gatchell, will be likely to attract particular notice. One of the most interesting objects in the Sanitary Hall is the apparatus exhibited by Guinness and Co. Limited, for the manufacture of mineral waters with carbonic acid supplied from their establishment in James's Street, where by a patented process this gas is reduced by pressure to a liquid, and also a solid form. The gas is, in the first instance, a residuum from the brewing process; and it is utilised for the purposes of the mineral waters manufacturer. The apparatus in question will be shown at work. Messrs. Dobson and Curtis, who have a large stand in the same hall, will supply from an electric installation the electricity required for illuminating purposes in the Exhibition. The exhibits of the British Acetylene Gas Company, the Sissons Gas Company, and the Sardin Gas Generation Syndicate, will be found worthy of special attention. The Sunlight Gas Company, of Wellington Quay, are exhibitors on the same lines. The Grand Concert Hall and the Main Hall will be lit with gas by apparatus supplied by Messrs. Stott and Co., of Oldham.

IN THE SANITARY HALL

are to be seen, besides various other objects, stands of the Septic Tank Company, of Exeter, and of the Oxygen Sewage Purification Company, of Dublin, who claim to show the most improved modes of purifying sewage, and whose respective processes formed the subject of papers read at the Congress. In the gallery of the Entrance Hall are to be seen specimens of the new colour photography, and lectures descriptive of the process will be given. A very interesting exhibition, indeed, will be the lantern and screen display of living ants at work. A very novel feature, which will be seen this week, will be gymnastic displays by a party of Swedish young lady teachers. A room is specially allotted to the reception of an interesting bacteriological collection which Professor E. J. McWeeny contributes; and here the visitor may see under the microscope specimens of sewage organisms from the Liffey, and of disease-producing and harmless bacteria. In another room off the entrance hall Mr. Henry Burns, of the Crystal Palace, will give demonstrations of the Röntgen Rays; and in the entertainment room, approached from the gallery of the entrance hall, a lecture will be given each

evening on the Photochromoscope, by Mr. E. Sanger Shepherd.

NAMES OF THE EXHIBITORS:—

Adams and Co., York and London; Alione Co., 17, The Broadway, West Norwood, London, S.E.; American Radiator Co., London; Anderson, Stanford, and Ridgeway, Grafton Street, Dublin; Ash, Thomas and Co., Cannon Street, Birmingham; Billington Brothers, Hibernia Works, Cook Street, Dublin; Boileau and Boyd, 92, Bride Street, Dublin; British Acetylene Gas Generator Co., Kirkcaldy; British Sanitary Co., Kirkcaldy; Buckley, Miss A. M., 2, Swanson Terrace, Limerick; Bulger, Joseph, 42, Mary Street, Dublin; Burmantoft's Pottery Co., Leeds; Burn Bros., 23, Charing Cross, London, S.W.; Brand and Co., Mayfair Works, South Lambeth; Cadbury Bros., Bourneville, Birmingham; Killgerrm Co. Ltd. Cleckheaton, Yorkshire; Kinnear, S., 41, Fleet Street, Dublin; Lafayette, Ltd., 30, Westmoreland Street, Dublin; Lambert and Co., 64, Grafton Street; Lapedus, S., 49, Harcourt Street, and 12, Nassau Street, Dublin; Leonard and Co., 19, North Earl Street; Little, Thomas W., 12, Harcourt Street; Lucan, Countess of, Laleham House, Staines; Lyon, Washington, Clifton House, 85, Asylum Road, Peckham, London, S.E.; McDonnell, A. M., 84, Main Street, Bray; Maguire and Gatchell, 7, 10, and 15, Dawson Street, Dublin; Martin, William, Son, and Co., 18, Stephen's Green; Moore, W. Russell, Regent Art Works, Blackpool; M'Ferran and Co., 4, Beresford Place; M'Namee, Thomas, 2, Ballybough Road; Murphy, Rose E., 46, Bloomsbury Street, Bedford Square, London; Musgrave and Co. Ltd. Belfast; National Registration of Plumbers—Leinster and Connaught District Council—61, Dawson Street; N.A.P. Window Company Limited, 159, Victoria Street, London, S.W.; Newton, Chambers, and Co. Ltd., Thorncliffe, Sheffield; North British Plumbing Company, O'Duffy, John, 54, Rutland Square; Oxygen Sewage, Ltd., 1, Suffolk Street, Dublin; Photochromoscope Syndicate Ltd., 121, Shaftesbury Avenue, London; Reck, A. B., and Co., Disinfecting Chambers, Copenhagen; Rossiter, W., 2, Hyacinth Street, North Strand, Dublin; Sanitary Ventilation Co., Lower Ormond Quay; Sanitas Co. Ltd., Bethnal Green, London, E.; Sardi's Patent Gas Generator Co., 25, New Broad Street, London; Septic Tank Syndicate, 7 and 8, Bedford Circus, Exeter; Shanks and Co., Tubal Works, Barrhead, Glasgow; Sissons Bros. and Co. Ltd., Hull; Steel and Garland, Ltd., Sheffield; Stott, J., and Co., Oldham; Cameron and Robertson, South Bank Ironworks, Kirkintilloch, Glasgow; Cantrell and Cochrane, Nassau Place, Dublin; Chidley, R., 5, Bar Street, Scarborough; Coal Tar Disinfecting Co., 14-20, St. Mary Axe, London, E.C.; Cooper, Abraham Thomas, 92, Moray Road, Finsbury Park, London; Coupland, H. S., Ballymore, Eustace; Craig, J. and M., Ltd., Fireclay Manufacturers, Kilmarnock; Crane and Co. Ltd., Scotland Road, Liverpool; Defries, J., and Sons, Ltd., 147, Houndsditch, London, E.C.; Dent and Hellyer, Newcastle Street, Strand, London; Dobson and Curtis Bros., Ltd., 113 and 114, Stephen's Green; Donaldson, Mrs. S., Urker House, Crossmaglees; Doulton and Co., Lambeth Pottery, London, S.E.; Dowling, J. W., 20, Upper Sackville Street, Dublin; Doyle, Alice, 56, George Street, Limerick; Drury, Mrs. Agnes L., 122, Queen's Road, Bayswater; Eagle Range and Foundry Co., Birmingham; Edmundson and Co., Capel Street, Dublin; Exhibit and Trading Co., 96, N-wgate Street, London; Fry, J. and S. and Sons, Bristol; Glover, M., 124, Stephen's Green; Graham, W., 49, Grafton Street; Graham, J. J. and Co., 38, Westmoreland Street; Hayes, Conyngham, and Robinson, 12, Grafton Street; Hayward, Tyler, and Co., London; Hellyer, T. Stevens, London; Horsfall Furnace Syndicate Co. Ltd., The-næum Buildings, Park Row, Leeds; Hovis Bread and Flour Co., Macclesfield; Hutchings, Geo. J., 94, Clerkenwell Road, London; Irish Figaro, 61, Dawson Street, Dublin; Jacques, John, Vine Cottage, Lodge Street, Bristol; Jeyes' Sanitary Compounds Co. Ltd., 64, Cannon Street, London, E.C.; Keating, J. F.,

42, Grafton Street; Kennan and Sons, Ltd., 13 to 25, Fishamble Street; Kennedy, Peter, St. Patrick's Bakery, Dublin; Sunlight Gas Co., 17 and 18, Wellington Quay, Dublin; Taddey, E. L., 42, Caunce Street, Blackpool; Thomas and Taylor, Ltd.; Twyford, Ltd.; Hanley; Vance, M., 140, Stephen's Green; Walker, E., and Co., Heckmondwike, Yorks; Wells Fire Place Co., Newcastle; Willesden Paper and Canvas Co., 29, Commercial Buildings; Wilson, Charles, and Sons, Carlton Works, Armley, Leeds; Wright, J. and Co., Essex Works, Acton, Birmingham.

THE PUBLIC HEALTH CONGRESS.

VISIT OF DELEGATES TO BELFAST.

LORD MAYOR'S LUNCHEON.

A COMPANY of the delegates to the Public Health Congress paid a hurried visit to Belfast, on the invitation of the Lord Mayor (Alderman J. Henderson, J.P.) and the Lady Mayoress. They were met and cordially welcomed by the local reception committee, of which Alderman Bigger, M.D., Councillor Barklie, Dr. Whitaker (Medical Superintendent Officer of Health), Mr. David Henderson (the Lord Mayor's private secretary), and Mr. F. W. Money Penny were the most active members. Brakes were in waiting for the guests, who, having got seated, were driven to the Botanic Gardens Park, and others to the Ormeau Park, whose beauties just now are to be seen to advantage. The party then drove to the Fire Brigade Station in Chichester Street, where two turnouts were shown under Superintendent Parker. These were executed with the wonderful promptitude for which the fire corps has become celebrated, and the visitors, representing as they did various large municipalities across the Channel, frankly admitted that they had never before seen such a complete, well-equipped fire brigade organisation. The party then drove to the Queen's Island, where they had an opportunity of seeing in full operation the finest shipbuilding works in the kingdom, and in course of construction the steamship Oceanic, the longest vessel in the world, which, as the public are aware, is being built to the order of the White Star Company. The time at the disposal of the visitors at this great scene of busy industry was all too short, but they made the most of it, and departed amid the sound of the riveters' hammers, deeply impressed with all they had witnessed. They afterwards drove to the Grand Central Hotel, where they and a company of local friends were entertained to a sumptuous luncheon by the Lord Mayor.

HIGHLY satisfactory are the results which have accrued from the appointment of female sanitary inspectors in Liverpool, and especially useful is the work undertaken by them at this time of the year. When hot weather comes, there is generally a prevalence of diarrhoea, which is particularly fatal to children, and no doubt the fact that, as compared with the corresponding period of last year, the malady is not anything like so widely spread is due in a large measure to the useful information that has been given and the supervision kept over the poorer portion of the population by the five female inspectors. During their house-to-house visitation these inspectors have distributed a printed circular drawn up by the medical officer of health, in which the necessity for strict cleanliness in all things, how young children should be fed, and other matters of equal moment, are dealt with. With the object of still further extending this beneficial system, Dr. Hope has obtained the sanction of the authorities to engage three more female sanitary inspectors, and although at present the appointments are to be for a period of three months only, it is more than likely that ere long the Health Committee will see the necessity for permanently increasing their staff of female inspectors in that most important of departments.

Surveying and Sanitary Notes.

For some months past the question of dealing with the sewage of Bristol has been occupying the attention of a sub-committee of the Bristol Sanitary Authority, and the advice has been obtained of Mr. Santo Crimp, of the firm of Messrs. Taylor, Sons, and Santo Crimp, engineers, of Westminster. Mr. Santo Crimp's scheme is of a very comprehensive character, dealing with the whole question of sewage disposal, and freeing the river Avon from pollution. The plan provides for an outfall near Dunball Island, which has been chosen after a long series of experiments, and there will be tanks constructed at Avonmouth for storage purposes, so that the discharge may be effected at suitable states of the tide. A new sewer will be constructed following the course of the river on the Gloucestershire side, and a pumping station will have to be provided somewhere near the Clift House Estate, so as to lift the sewage into the outfall sewer, whence it will be conveyed to the Bristol Channel. It is in contemplation to extend the sewer up the valley of the Avon, and it has been suggested that it might be utilised for accommodating outlying districts if satisfactory arrangements can be concluded with the local authorities. Something has also been said as to an arrangement with the city of Bath, the authorities of which have been contemplating the provision of disposal works in the neighbourhood of Saltford. The suggestion is that in the event of an agreement being arrived at with the Bath Corporation, the Bristol sewer might be taken up sufficiently far to receive the Bath sewage, and thus render their disposal works unnecessary.

With regard to Bristol itself, the whole of the sewage now discharging into the Avon will be collected at a point near Clift House, and lifted by means of pumps into the new outfall sewer. The cost of the scheme will be between £300,000 and £400,000, and in its conception allowance has been made for the growth of the population for many years to come. It is said to be sufficient for a population of 500,000. The Council will probably be asked to sanction the promotion of a Bill in Parliament to carry out the proposed works, the execution of which will occupy about two years. It is considered too big a scheme to deal with under existing Acts, which provide for the repayment of the money borrowed within certain limits; and it is suggested that a special Act shall be obtained, and the repayment of the money spread over as long a period as possible, so that the present generation of ratepayers shall not be saddled with the whole of the cost. If the scheme is confirmed, it will be for the outlying authorities to approach Bristol, with the view of coming to an arrangement, the main object sought being, of course, to free the river Avon all the way down from sewage pollution.

Two matters of considerable importance engaged the attention of the Dorking Urban Council at their meeting on Thursday. In the first place, the proposed diversion of the Reigate Road by the County Council, which has been strongly opposed, was again under discussion. A special committee recommended the Council to adopt an alternative scheme, improving the present gradients and making provision for carrying away the storm water, which could be accomplished by diverting the old road by means of a loop road crossing the meadow belonging to the Hope Trustees, and forming a junction with the old road at a point about 88 yds. from the south end of Box Hill Bridge. This scheme, it is contended, will be economical, not costing more than £1500, will prove equally advantageous, and in addition will preserve the rural beauty of the spot. It remains to be seen whether this alternative proposal will commend itself to the County Council.

MUCH time was spent by the Council in discussing the serious question of the water supply. As time goes on, matters would seem to grow worse instead of better, and now the number of complaints is truly alarming. The Company at present are apparently unable to do anything to relieve the distress beyond promising an adequate supply shortly. Some strong remarks were made by members of the Council as to the way the Company had fulfilled their obligations, and opinion was unanimous that the Council should acquire the Company's rights. The outcome of the discussion was that the Council decided to write to the Company asking whether they were prepared to sell; if no answer be forthcoming in twenty-eight days, then steps will be taken to promote a Bill in Parliament during the coming Session.

With reference to statements that have appeared as to the Maidstone water supply, the Mayor of the borough (Mr. J. Barker), says he does not consider there was any cause for alarm in the town. Undoubtedly there was a scarcity of water, but there was no danger of anything like a water famine. It was only necessary that people should be economical. Mr. Barker went on to say that at the present time there were 3000 people outside the borough drinking water from one of the springs at Farleigh, which were cut off during the typhoid epidemic last year on the recommendation of the medical officer of health. Ewell Spring was not one of those which were proved to be contaminated, and the Town Council were about to consider the advisability of asking the water company to restore the supply derived from it. He was satisfied that the water company could not increase their supply by taking additional water from the Mid-Kent Company. At present the Maidstone Company could only get about 3000 gallons per hour from their neighbour, or a total of 60,000 or 70,000 gallons per day, whereas they originally guaranteed 100,000 gallons per day. Reminded that there was an impression in some quarters that some portion of Farleigh water was reaching the Maidstone consumers at the present time, the Mayor said, "Yes, there are some people in town who get Ewell water, but they don't know it. There is not the slightest doubt, I think, as to the purity of this water, but at the present time it is undergoing careful analysis, and the Town Council will have full results before them at their meeting on Wednesday next." The manager of the Maidstone Waterworks (Mr. Ware) states that Ewell Spring has been analysed fortnightly by Dr. Gregorys, the Company's analyst, during the past year, and it has maintained a uniform standard of purity. Barming Lunatic Asylum has been supplied from the spring throughout the year, also the inhabitants of Barming parish and East and West Farleigh. Notwithstanding this, doubt is expressed as to whether the medical officer for the borough will recommend the Corporation to ask for the restoration of the water, seeing that it was under suspicion at the time of the late typhoid epidemic.

It has been semi-officially intimated to the local authorities in East London who have charge of public baths and washhouses, and to the owners of large manufactories who are supplied by meter from the fire mains, that, unless rain falls plentifully shortly, the East London Waterworks Company will be compelled to shut down the supply. At the present time the Company are said to have water stored in their reservoirs sufficient to last for about 100 days on the shortened supply. As long as the drought exists the difficulties of the Company will continue, and, indeed, for some time after rain has fallen, as the Lea Valley is in a very parched condition. Above Hertford the Lea and its tributaries are fairly filled with water. Halfway between Hertford and Ware is the intake of the New River Company, below which the stream entirely disappears. Just above Ware the Lea is joined by a sewage stream, which causes a slight flow but greatly pollutes the river. The old bed of the river, which is now the celebrated Amwell Magna fishery, is drying up.

The East London Company have to depend for their supply upon the water brought down by the Stort and what escapes the New River intake, which is certainly not much, for, as Mr. Bryan pointed out to the deputation from Hackney which waited upon him on Tuesday, the New River Company take their full 22½ million gallons before the East London Company can take any.

FOLLOWING close on the present water famine in East London, and also at Maidstone, another water company has found itself in difficulties, and the South Essex Water Company have notified their consumers that the supply will have to be cut down at least for the present during the present drought. This will affect what is known as the Metropolitan area of Essex and the adjoining places, and the supply will now be cut short during the day, and only during the hours of 6 to 10 a.m. and 6 to 10 p.m. will it be supplied. This is not the first year the South Essex Water Company have had to reduce supplies, and around Romford and Forest Gate to Wanstead the effect will be keenly felt, those districts being almost as densely populated as the districts now covered by the East London Water Company.

THE new regulation of the East London Water Company restricting its water supply to two daily periods of about three hours would be a serious matter at any time; it is particularly serious in view of the hot weather. It may be granted that the Company has difficulties to contend with. The year's rainfall is short, and the East End Londoner is an improvident being who is not likely to be habitually careful in turning off his taps. On the other hand the Company has had fair warning, and plenty of it, as to what would happen in a dry season. So long ago as 1894 it obtained powers from Parliament to add to its reservoirs; still it finds itself in the same plight as it was in two years ago. When, therefore, all allowance has been made it seems impossible to acquit the Company of want of ordinary foresight. In consequence of that the public—who pay for a constant supply of water, but do not get it—will certainly suffer in their comfort and almost certainly in their health—a state of things which constitutes a very real evil.

WE are so accustomed to look upon London as being a city of bricks and mortar that the number of "lungs" with which the metropolis is studded is apt to be lost sight of. Probably the great majority of our readers will be astonished to learn that, excluding the open spaces owned by the Corporation and the Royal parks, the number of acres now open to Londoners is 6142, which is equivalent to just one acre for every 717 persons. Such an amount of breathing space is not possessed by any other town in the country. The beneficial influence they exercise on the health of the community may be judged from the fact that the death-rate in London is lower, with three exceptions, than that of any town numbering over 200,000 inhabitants in the United Kingdom.

SOME of the South London vestries have applied for provisional orders to enable them to arrange for supplying electricity in their neighbourhoods. Among them Newington stands prominent. This parish has not only secured its provisional order, but is erecting a general station for the installation of electric lighting in this district during the ensuing winter. The present scheme being undertaken by the Electric Lighting Committee of Newington, and directed by Mr. J. L. Dunham, the Vestry Clerk, will probably cost between £40,000 and £50,000. In the case of Bermondsey, the Parliamentary Committee refused to sanction the granting of a provisional order unless the Vestry consented to take over certain mains already laid down by an electric company, and the Vestry, it is said, intends to comply with this requirement in order to secure better lighting arrangements for this crowded and important industrial district of South London.

VENTILATION.

By W. N. TWELVETREES, M.I.M.E., M.S.I.

THE object of the present series of articles is to direct attention to some important features appertaining to an art which frequently engages the professional attention of architects, and is also of direct personal interest to the community at large. Varying climatic conditions in this country render necessary considerable care in the design and installation of appliances, not only for the heating of air, but for its proper and scientific distribution.

Ventilation may be defined as the substitution of pure for vitiated air, so that a requisite standard of purity may be maintained in buildings of various kinds, and, although a familiar subject, it is one which seldom receives sufficient attention from those responsible for structural arrangements.

Existing examples of ventilation are more conspicuous in respect of variety than of success. Private dwellings, as a general rule, possess no means of ventilation, and many public buildings are provided with apparatus, apparently designed with the object of establishing such conditions as are most prejudicial to health and comfort.

yet in many cases the ratio is found to differ somewhat. Perhaps the clearest proof that air is simply a mixture is afforded by dissolving in water a small quantity of air, which, on being expelled by boiling, is found to contain 34·84 parts of oxygen to 65·16 parts of nitrogen. If the air had been a chemical compound it would have been dissolved as a whole, the expelled air showing on analysis the same constituent proportions as at first.

The law of gaseous diffusion, which is responsible for the uniform constitution of the atmosphere, is of great importance in ventilation, as it prevents gases from stratification in accordance with variations of specific gravity.

Thus noxious gases formed in rooms or buildings are gradually diffused over the whole body of air instead of accumulating in certain parts. By diffusion gases pass even through so impervious a substance as indiarubber, and carbonic acid gas (CO_2) rises to mix with hydrogen, although their relative densities are 1·5290 and 0·06926. The velocity of diffusion of gases is inversely proportional to the square of their densities, and directly proportional to the square root of their absolute temperature. Perfect diffusion is a matter of time, and in mines and wells it is frequently retarded so much that the air becomes dangerously charged with noxious gases.

In addition to oxygen and nitrogen, air contains in varying quantities, ozone, carbonic acid gas, or carbon dioxide (CO_2), carbonic oxide, or carbon monoxide (CO), vapour of

temperature of the air being at the same time noted by means of the barometer (c) and thermometer (d). Pure hydrogen gas in sufficient quantity to combine with all the oxygen present is now added, the volume and pressure being determined as before. The open end of the tube (a) is pressed against a disc of rubber at the bottom of the trough, and the

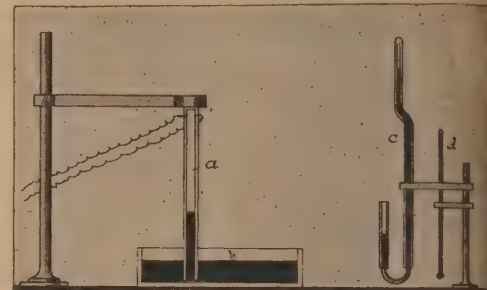


FIG. 1.

gases are ignited by the passage of an electric spark. The diminution in volume after the explosion represents exactly the volumes of oxygen and hydrogen which have united to form water, and one-third of this diminution represents exactly the volume of oxygen which was contained in the air examined.

Under the influence of electricity, oxygen undergoes modification, assuming an allotropic and condensed form known as ozone. Its properties are more active than those of ordinary oxygen, it arrests fermentation and possesses a distinctive odour.

Ozone exists in very minute quantities, about 1 in 140,000 being formed in nature by atmospheric electricity. It is absent in rooms and large towns, being changed by organic matter in air, and is chiefly found on the tops of hills and in forests. South-westerly wind usually contains a maximum quantity of this substance, and it is supposed to be one of the chief reasons for the health-giving qualities of country and sea air.

Nitrogen is probably the most inert of all the elements, and although it combines with hydrogen to form the pungent gas known as ammonia (NH_3) and with oxygen to form the base of the powerful corrosive and oxidising nitric acid. Its qualities when alone, or simply mixed with other gases, are strictly negative. Constituting about four-fifths by bulk of the air, nitrogen serves to dilute the oxygen and to modify its activity.

Argon, a recently-discovered element, also occurs in very small quantities, but as its qualities are even more inert than those of nitrogen, its presence need not be considered. The quantity of nitrogen present, including

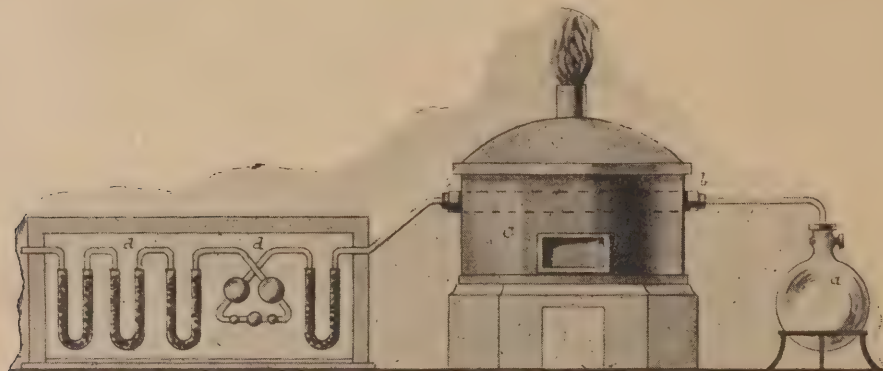


FIG. 2.

In churches, notably, ventilating arrangements, borne with fortitude by a long-suffering people, usually create cold currents of air, which wander amongst the feet of the faithful and sweep down upon reverently uncovered heads, on many of which a few firm adherents alone remain of Nature's original protection.

Defective ventilation is generally the result of attempts, probably unpremeditated, to reverse the action of physical laws. If the latter, however, be treated with due consideration and respect, there is no reason why success should not be attained.

Before proceeding to discuss some of the chief methods adopted for the purpose of securing ventilation, it may be convenient to examine the constitution and characteristics of air, as well as the physical laws by which it is influenced under diverse conditions.

Air, once supposed to be an element, is now universally recognised to be a mixture, the two chief constituents of which occur in proportions which are practically uniform, whether the air examined be taken from tropical, temperate, or arctic regions, from deep mines or from elevations up to 20,000ft. above the sea level.

It may easily be demonstrated that air is not a chemical compound by bringing together oxygen and nitrogen in the proportions of twenty-one to seventy-nine parts by volume respectively. The resultant mixture possesses all the characteristics of air, and the absence of any alteration in either temperature or in bulk is a clear indication that chemical combination has not taken place. Again, the relative quantities of the two gases correspond neither to their combining weights nor to any simple multiples of them, and although the proportions of the gases are generally constant,

water (H_2O), ammonia gas (NH_3), carburetted hydrogen, floating particles of animal and vegetable matter, and micro-organisms. Sometimes, owing to local causes, other gases, alone or in combination, are also present.

Oxygen is the most important constituent of air, being absolutely essential to all animal life. By its action the blood is purified by de-carbonisation, and the natural heat of the body is thereby maintained. A diminution of three parts per cent. of oxygen in air is extremely prejudicial to health, and, on the other hand, an increase of two or three parts per cent. may cause fever, owing to the more rapid generation of bodily heat.

In order to ascertain the amount of oxygen contained in air, the eudiometer (Fig. 1) is, perhaps, the most convenient form of apparatus.

(a) is a graduated glass tube, open at one end and closed at the other, and through the glass at the top are inserted two platinum wires. The tube is first filled with mercury, and inserted into a trough (b) also containing mercury. A quantity of air is then introduced, sufficient to occupy about one-sixth part of the tube. The volume of air is then accurately observed, as also the height of the mercurial column above the trough, the pressure and

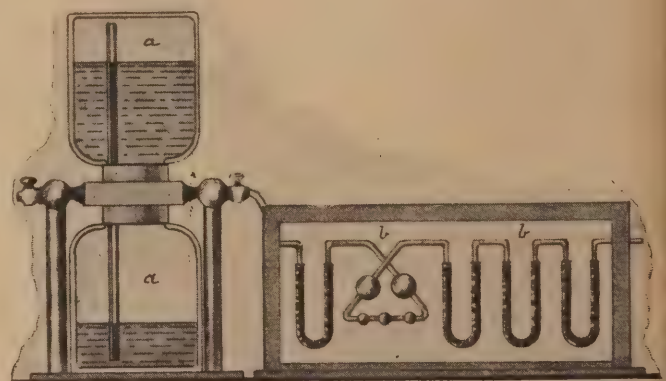


FIG. 3.

argon, in a given weight of air may be ascertained in the following manner:—A glass globe (Fig. 2), furnished with a stop-cock, is exhausted by an air pump, and weighed. A tube (b), fitted with copper turnings and fitted with stop-cocks, is also weighed. The tube is

heated to redness in a furnace (c), and connected at one end with the globe (a), and at the other with a series of tubes (d), containing caustic potash and sulphuric acid for removing carbonic acid and vapour. The cocks are opened and air is allowed to pass through the purifiers to the heated tube, where the copper removes the whole of the oxygen. Nitrogen thus passes into the empty globe, and when the experiment is concluded, both the tube and globe are again weighed. The increase in the weights of the tube and of the globe indicates the respective quantities of both oxygen and nitrogen.

Carbon dioxide, or carbonic acid gas (CO₂), occurs in a free state in the atmosphere, being evolved in large quantities from active volcanoes, from earth fissures in districts of extinct volcanic action, and in the process of fermentation. The quantity existing in open air varies from '03 to '06 per cent. by volume, whilst in dwelling rooms and buildings the percentage is considerably increased owing to

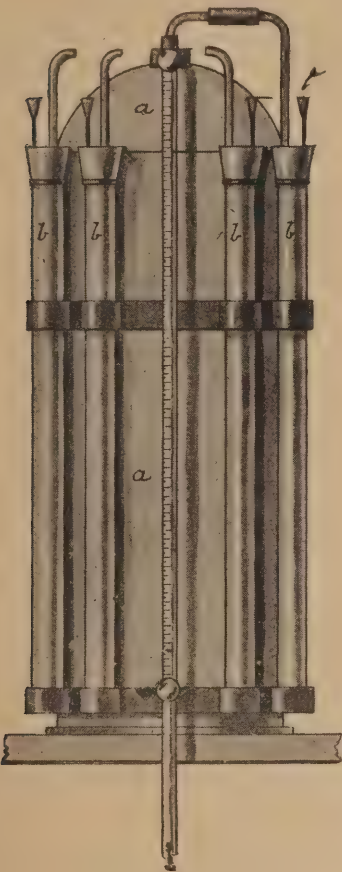


FIG. 4.

respiration and the burning of gas, &c. If the air of a room contains '10 per cent. of carbon dioxide, it becomes unfit for continued respiration, not only on account of the injurious effects of this gas, but because it is invariably accompanied by other deleterious compounds. The standard of practical purity may be taken as '04 per cent., and any system of ventilation, which is to be regarded as thoroughly efficient,

should prevent the accumulation of carbonic acid beyond '08 per cent.

Although non-poisonous itself, the presence of too large a proportion of carbon dioxide in the air is an indication that oxygen is deficient, and under such conditions respiration becomes impeded, and the nervous system is deranged.

It is, therefore, very desirable that architects and others who are responsible for the efficiency of ventilating arrangements should have at hand some ready means of testing the purity of air as indicated by the proportion of carbonic acid gas in public buildings. There are two convenient forms of apparatus for this purpose which may be mentioned. The first is shown in Fig. 3, where (a) is an inspirator, which by the flow of a measured volume of water from the upper to the lower vessel draws an equal volume of air through the tubes. (b) The first two tubes are charged with sulphuric acid to remove vapour, the next tube and bulbs are filled with caustic potash, which absorbs carbonic acid, and the last tube contains sulphuric acid to prevent loss of moisture from the potash solution in the bulbs. The quantity of carbonic acid is indicated by the increased weight of the potash tube and bulbs. The other apparatus, known as Dr. Scurfield's Ventilator Indicator, is indicated in Fig. 4, and renders possible an immediate estimate of the efficiency of ventilation without the trouble and delay involved in chemical analysis. (a) is an aspirator, filled with water and supplied with a gauge, surrounded by a number of tubes (b b), each containing an equal quantity of the same pink solution of baryta and phenolphthalein. Each tube can be in turn connected with the aspirator, so that a number of rooms may be tested consecutively. As the water is run off an equivalent volume of air passes through the pink solution, which loses its colour quickly or slowly according to the quantity of carbonic acid in the air. When decolorisation is complete, the amount of air passed is shown by the gauge on the aspirator. In operation one tube is first decolorised in open air, and the volume of air used is noted; the quantity of air required for decolorisation in each room tested is also observed. The differences give ratios from which the percentage of carbonic acid may easily be calculated on the assumption that outside air contains '04 per cent. of this gas. Although not minutely accurate from an analytical point of view, this instrument is extremely sensitive, and entirely reliable for all ordinary practical purposes, and might be used with considerable advantage in many public buildings, and especially in hospitals, as a check upon the operation of ventilating appliances. Carbonic oxide, or carbon monoxide (CO) is only found in the air under exceptional conditions, being produced when fuel is burned with a limited supply of oxygen. Some stoves, having slow draught, are apt to generate this gas, which is also frequently present in the fumes of burning charcoal. It is a most powerful poison, causing death when inhaled in small quantities. Two scientists who inhaled minute quantities of carbon monoxide suffered severely as a result of their investigations. One suffered loss of sensation, followed by sickness and pains all over the body, which continued for some days. The other experienced an attack of apoplexy, and was only restored with difficulty.

Trade and Craft.

MESSRS. BRAUN AND CO.—A CORRECTION.

We regret that an error should have occurred in the paragraph relating to the work of this firm at the Orwell Hotel, Felixtowe. The architect is Mr. J. S. Corder, of Ipswich.

THE vacillation of the Marylebone Vestry in regard to certain important works of wood paving should be a lesson to other local authorities, as will be observed from the proceedings at the last meeting of the Vestry, when the Works Committee reported that it had appeared to be impracticable to obtain suitable hard wood for the paving of Maida Vale in time for the work to be executed during the present season. Mr. W. Dennis, chairman of the Works Committee, explained that the Vestry were placed in an awkward position, and he desired instructions as to what the Committee should do in the matter. He had discussed the question with Mr. Waddington, the surveyor, in order that something tangible might be placed before the Vestry, as that was the last meeting prior to the summer vacation, and the surveyor had expressed himself in favour of obtaining either Jarrah or Jarrahdale wood. The speaker mentioned that the surveyor had applied to various firms in reference to the matter, and he asked and obtained permission for the surveyor to place before the Vestry the result of his inquiries. The surveyor then read letters from contractors, the substance being as follows: The Acme Wood Flooring Company stated, in reference to the inquiry as to the supply of 500,000 Jarrah blocks, that they would be happy to commence delivery late in September or early in October, and would be able to complete in November. Mr. Elliott, of Kentish Town, had telegraphed intimating that he thought he could deliver in September or October, and that he would send a definite reply on the following afternoon (the day of the Vestry meeting) or by Friday morning. In this connection the surveyor stated that no reply had been received up to that time. Messrs. McLean Bros. and Rigg wrote expressing the hope that the Vestry would be able to defer the work in order to enable them to supply their famous wood, Jarrahdale. The firm thought they could manage to "edge in" a ship for delivery in London at the end of January. Mr. W. Griffiths mentioned that in the event of orders being placed with him immediately, he could supply 250,000 blocks at the rate of 30,000 daily, and commence the delivery of the first half in September, and supply the remainder from a vessel early in October, at the rate of 50,000 per day. Millar's Karri and Jarrah Forests, Ltd, in a letter received that afternoon, expressed their willingness to commence delivery within a fortnight, so as to supply 250,000 in August and September, and 250,000 at the end of September. The latter added that the cost of wood blocks would be "very much less in January and February of next year."—After considerable discussion, it was resolved to authorise the Works Committee to at once obtain tenders and enter into contracts for the supply of hard wood blocks, so that the work of paving might be commenced early next year.

COMPLETE LIST OF CONTRACTS OPEN.

DATE OF DELIVERY.		WORK TO BE EXECUTED.	FOR WHOM.	FROM WHOM FORMS OF TENDER MAY BE OBTAINED.
BUILDINGS—				
Sept.	3	Tenbury—Wall	Rural District Council	R. W. Jarvis, Surveyor, Tenbury.
"	3	Tonbridge—Technical Institute	Urban District Council	A. H. Neve, 63, High-street, Tonbridge.
"	3	Wells—Public Hall, &c.		J. Johnson, 9, Queen Victoria street, E.C.
"	5	Tinsley—Car Shed, &c.	Sheffield Corporation	C. F. Wike, Town Hall, Sheffield.
"	5	Barry—Schools	School Board	Jones, Richards, and Budgen, 18, St. Mary-street, Cardiff.
"	5	Woolston—School	School Board	W. H. Mitchell and Co., 9, Portland-street, Northampton.
"	6	South Kirkby—School	Trustees	G. F. Pennington, Carlton-street, Castleford.
"	7	Derby—Wall	Corporation	J. Ward, Babington-lane, Derby.
"	7	Edinburgh—Public Baths	Corporation	Public Works Office, City-chambers, Edinburgh.
"	8	Birmingham—Aqueduct	Corporation	J. Mansergh, 5, Victoria-street, S.W.

COMPLETE LIST OF CONTRACTS OPEN—continued.

DATE OF DELIVERY.	WORK TO BE EXECUTED.	FOR WHOM.	FROM WHOM FORMS OF TENDER MAY BE OBTAINED.
BUILDINGS—Continued.			
Sept. 10	Bury St. Edmunds—Electric Light Works	Corporation	C. Smith, Borough Surveyor, Bury St. Edmunds.
" 10	Halifax—Additions to Gasworks		Jackson and Fox, 22, George-street, Halifax.
" 10	Whalley and Read—Repairs of Bridge	County Council	W. H. Radford, 19, Brazenose-street, Manchester.
" 10	Whitby—Two Villas		J. J. Milligan, 77, Baxtergate, Whitby.
" 10	Ramsgate—Office Buildings	Corporation	W. A. McI. Valon, Town Hall, Ramsgate.
" 12	Southgate—Twelve Cottages	Urban District Council	Surveyor, Council Offices, Southgate.
" 12	London, W.—Laundry	Workhouse Guardians	E. T. Hall, 57, Moorgate-street, E.C.
" 12	Widnes—Relief Offices	Guardians, Prescot Union	J. P. Fraser, 4, Bold-street, Warrington.
" 13	Walthamstow—School Buildings	School Board	W. A. Longmore, 7, Great Alie-street, E.
" 13	Dover—Workshop, &c.	Town Council	H. E. Stilgoe, Town Hall, Dover.
" 13	Weston-super-Mare—Alterations to Baths	Urban District Council	Price and Wilde, 15, Waterloo-street, Weston-super-Mare.
" 14	Epping—Hospital Ward	Rural District Council	E. Egan, Holmdale, Loughton.
" 15	Termoncarragh—Lightkeepers' Dwellings	Lighthouse Commissioners	Irish Lights Office, Dublin.
" 17	London, E.C.—School Buildings	Central London School District	Newman and Jacques, 2, Fenchurch-court, E.C.
" 19	Menston—Farm Residence		J. V. Edwards, County Hall, Wakefield.
" 19	Swansea—Board School	School Board	G. E. T. Laurence, 181, Queen Victoria-street, E.C.
" 20	Enfield—Schools	School Board	G. E. T. Laurence, 181, Queen Victoria-street, E.C.
" 20	Godalming—Cemetery Chapels, &c.	Burial Board	Welman and Street, Church-street, Godalming.
" 21	Leek—School		W. Sugden and Sons, Leek.
Oct. 3	Westbury-on-Seven—Workhouse Additions		W. F. Jones, 21, George-street, Gloucester.
" 12	London, W.—Laundry at Workhouse	Guardians	E. T. Hall, 57, Moorgate-street, E.C.
No date.	Ashton-under-Lyne—Additions to Station Hotel		J. Eaton and Sons, Ashton-under-Lyne.
"	Bootle—Station Building		Bootle Station, Cumberland.
"	Dukenfield—Town Hall		J. Eaton and Sons, Stamford-street, Ashton-under-Lyne.
"	Egremont—Reslating, &c.		Wyndham Mining Co. Ltd., Egremont.
"	Kidderminster—Additions to Wharf	Carpet Manufacturing Co.	J. M. Guthing, Oxford-chambers, Kidderminster.
"	Leeds—Alterations to Buildings		F. Mitchell, Albion-street, Leeds.
"	Naburn—School Hall		Tasker, Naburn.
"	Stanley—Three Shops, &c.	S. Parker	W. Forster, Clifford-road, Stanley.
"	Troedyrihw—Eight Houses	F. Stephens	C. M. Davies, 112, High-street, Merthyr Tydfil.
"	Leeds—Extension of Premises	Harding, Richardson, Rhodes, and Co.	W. Bakewell, 33, Park-square, Leeds.
"	Rochdale—Additions to Club Buildings	Club Committee	Butterworth and Duncan, South Parade, Rochdale.
"	Spital—Eight Houses		W. Gloss, 20, Cavendish-street, Chesterfield.
"	Hull—Sale Room	Lewendon and Son	Smith, Brodric, and Lowther, 77, Lowgate, Hull.
"	Isle of Man—Schools		T. W. Cubbon, 54, Hamilton-street, Birkenhead.
"	Ikley—Five Terrace Houses		F. S. Smith, Ikley.
"	Etruria—Wesleyan Chapel		R. Scrivener and Sons, Hanley.
"	Swindon—Schools	Managers	Silcock and Reay, Milsom-street, Bath.
"	Rishton—Wall		J. C. H. Sandbach, 15, Richmond-terrace, Blackburn.
"	Sheffield—Buildings		E. Winder, Jun., Wharf-street, Sheffield.
"	Shirebrook—Church Enlargement		H. J. Price, 24, Low-pavement, Nottingham.
"	Treeton—Two Houses		S. Land, Treeton.
"	St. Anne's-on-Sea—Church		Austin and Paley, Castle Hill, Lancaster.
"	Talgarth—Villa		E. W. Thomas, Bank-terrace, Talgarth.
"	Brentwood—Additions to Warehouses	Crampton & Co.	A. T. G. Woods, Brentwood.
ENGINEERING—			
Sept. 3	Hargrave—Sinking Well, &c.	Parish Council	Clerk of the Council, Hargrave.
" 3	Leven—Pipe-laying	Police Commissioners	H. Bruce, County Buildings, Cupar.
" 3	Pudsey—Filtration Tanks		C. S. Nelson, 15, Park-row, Leeds.
" 5	Devonport—Culvert	County Borough	Surveyor, Ker-street, Devonport.
" 5	Littleover—Reservoir	Corporation	Brough Surveyor, Babington-lane, Derby.
" 6	Aldershot—Scarifier	Urban District Council	Council's Surveyor, Aldershot.
" 6	Carriemacross—Water Supply Works	Guardians	J. H. Blackader, Carriemacross.
" 6	Hull—Boilers	Corporation	City Engineer, Hull.
" 7	Belfast—Meters	Gas Department	Gasworks, Belfast.
" 8	Swansea—Dock Works	Harbour Trustees	A. C. Schenk, Harbour Offices, Swansea.
" 13	Birmingham—Aqueduct	Corporation	J. Mansergh, 5, Victoria-street, Westminster.
" 15	Dijon—Weir, &c.		Prefecture, Dijon.
Oct. 17	Edinburgh—Gasholder Tank, &c.	Gas Commissioners	Gas Engineer, New-street, Edinburgh.
No date.	Baku, Russia—Water Supply Organisation		Mayor of Baku, Caucasus, Russia.
IRON AND STEEL—			
Sept. 5	Sheffield—Ironwork, &c.	Tramway Committee	C. F. Wike, Town Hall, Sheffield.
" 14	Hull—Iron and Steel Roofs	North-Eastern Railway Co.	T. M. Newell, Dock Office, Hull.
ROADS—			
Sept. 3	Weston-super-Mare—Road-making		H. F. Price, Surveyor, Weston-super-Mare.
" 3	Cockermouth—Tiling Footpaths	Urban District Council	R. S. Marsh, Surveyor, Cockermouth.
" 3	Norwich—Street Works	Corporation	A. E. Collins, Guildhall, Norwich.
" 5	Bishop Auckland—Road Works	Rural District Council	C. Johnson, 1, Cradock-st., Bishop Auckland.
" 5	Ryton-on-Tyne—Cartage	Urban District Council	J. P. Dalton, Surveyor, Ryton-on-Tyne.
" 6	Diss—Granite	Urban District Council	Clerk of the Council, Market-place, Diss.
" 6	Hexthorpe—Street Works	Urban District Council	G. Gledhill, High-road, Balby, Doncaster.
" 6	Aldershot—Supply Granite	Urban District Council	Council's Surveyor, Aldershot.
" 6	Aldershot—Supply Gravel	Urban District Council	Council's Surveyor, Aldershot.
" 7	Aldershot—Metalling, &c.	Urban District Council	Council's Surveyor, Aldershot.
" 7	Grays—Granite	Urban District Council	A. C. James, Surveyor, Grays.
" 7	Weybridge—Bad Materials	Urban District Council	J. S. Crawshaw, Surveyor, Weybridge.
" 8	Southend-on-Sea—Street Works	Corporation	A. Fidler, Clarence-road, Southend.
" 19	London, N.—Road Works	Hornsey Urban District Council	E. J. Lovegrove, Southwood-lane, Highgate, N.
SANITARY—			
Sept. 3	Bakewell—Re-drainage	Workhouse Guardians	Sterling and Swain, Town Hall, Chapel-en-le-Frith.
" 6	Chorley—Sewers	Rural District Council	A. Jolly, 9, High-street, Chorley.
" 7	Littleborough—Sewer, &c.	Urban District Council	Council Office, Harehill-road, Littleborough.
" 8	Overton—Sewer	Rural District Council	J. W. N. Smith, Borough Surveyor's Office, Wrexham.
" 9	Newcastle-upon-Tyne—Drain	Guardians	W. H. Dunn, 5, St. Nicholas-buildings, Newcastle-upon-Tyne.
" 9	Letterkenny—Drain		Board of Control, Custom House, Dublin.
" 17	Nottingham—Sewer	City Council	A. Brown, Guildhall, Nottingham.
" 26	Witney—Drainage Works	Rural District Council	N. Lailey, 16, Great George-street, Westminster, S.W.
No date.	Newbury—Sewerage Works	Corporation	S. J. L. Vincent, Borough Surveyor, Newbury.
"	Maple Hayes—Drive Works		A. C. Worthington, Auchmore House, Killin.
"	Swanage—Sewerage Works		Francis Newman & Cocks, 5, St. Thomas-st., Ryde., I. of W.
PAINTING AND PLUMBING—			
Sept. 6	Wrexham—Painting and Repairs to Public Hall		Company's Office, 3, Queen-street, Wrexham.
No date.	Dewsbury—Painting		T. Crowther, 3, Ashworth-road, Dewsbury.

COMPETITIONS.

DATE DESIGNS TO BE SENT IN.	DESIGNS REQUIRED.	AMOUNT OF PREMIUM.	BY WHOM ADVERTISED.
Sept. 24	Plymouth—Shops, &c.	£250	Plymouth Town Council.
" 29	Wivenhoe—Water Supply and Drainage Schemes		Wivenhoe Urban District Council.
Oct. 3	Liverpool—New Buildings for Royal Institution	£52 10s., £21	Harold Waterhouse, Hon. Sec., 3, Cook-street, Liverpool.
" 3	Godalming—Football Stand (150 seats—£150 limit)	£3 3s.	Secretary, Recreation Club, Godalming.
" 3	Leamington—Free Library and Technical Institute	£105 (merged), £52 10s.	H. Consett Passman, Town Clerk, Leamington.
" 3	Rotherham—Extension Baptist Schoolroom (£600 limit)		A. Crowcroft, Clifton-crescent, South Rotherham.
" 6	Reigate—Municipal Buildings		Reigate Town Council.

Property and Land Sales.

HAMPTON AND SONS,

ESTATE AGENTS, AUCTIONEERS, AND VALUERS.

1898.

HAMPTON AND SONS beg to announce that their AUCTIONS OF LANDED ESTATES, Town and Country RESIDENCES, INVESTMENTS, BUSINESS PREMISES, and other PROPERTIES are held MONTHLY at the Mart, Tokenhouse-yard, E.C.

Auctions can also be held on other days in Town or Country by arrangement; also Sales and Valuations of Furniture, Pictures, Farming Stock, Timber, &c. List of Estates, Town and Country Residences, Hunting Boxes, and Sporting Properties can be had gratis on application to HAMPTON AND SONS (Ltd.), 1, Cockspur-street, S.W.; or by post, three stamps. Auction and Estate Offices, 1, Cockspur-street, Pall-mall, S.W.

SUSSEX.

SOUND LANDED INVESTMENTS.

SMALL SPORTING ESTATES, 13 FARMS, FULLY LICENSED INN, RICH MARSHES, WOODLANDS, ACCOMMODATION and BUILDING LAND, COTTAGES, &c., being the outlying portions of the Sussex Estates of Sir James Duke, Bart., and extending to about 2750 acres, divided into numerous lots. They comprise:

Magham Down and Cottages in Hailsham and Hurstmonceux.

Amberstone Farm, Accommodation and Building Land in Hailsham.

Hempstead Farm and Building Land in Hellingly.

The Whyly Estate, East Hoathly, a capital sporting property, with grand coverts.

Squire and Tuett's Farms, Framfield.

The Merry Harriers Inn and 16 acres, Cowbeech.

Cowbeech House and Farm.

Beech Hill Estate, about 390 acres, of which 84 are wood. One of the most complete little sporting properties in the county.

Clippingham Farm, Hurstmonceux.

Straight Ditch Marshes in Pevensey Level.

Sandhill and School Farms and Marshes, Hooe.

Holmush Farm, Hellingly, 83 acres.

Carter's Corner or Cowbeech Hill Farm, 46 acres.

Strood and Gatehouse Farms and Woodlands at Chiddingfold.

Swansbrook Wood.

West-street Farm, Hellingly.

All the lands are let at fair rentals and mostly to tenants of long standing, and offer a good opportunity for the sound investment of capital in an improving security.

Many of the properties have long frontages and could readily be sub-divided or developed, there being a large demand for small residences in the district.

HAMPTON AND SONS

Will SELL the above valuable estates by AUCTION, in numerous Lots, at the White Hart Hotel, Lewes, on TUESDAY, SEPTEMBER 6th, at THREE o'clock precisely (unless previously disposed of privately).

Particulars and Plans of the Vendor's Solicitors, Messrs. PONTIFEX, HEWITT, and PITT, 16, St. Andrew-street, Holborn-circus, E.C.; of Messrs. DRAWBRIDGE and ANSELL, Estate Agents, Hayward's Heath, Sussex; and of the Auctioneers, HAMPTON AND SONS LTD., 1, Cockspur-street, London, S.W.

OFFICES: 1, COCKSPUR-STREET, S.W.

MESSRS. E. and H. LUMLEY (Lumleys, of St. James's-house, 22, St. James's-street, London, S.W.) beg to announce the following days of SALE by AUCTION, at the Mart, Tokenhouse-yard, E.C.; but in addition other dates can be arranged for special sales. Terms on application.

Tuesday, Oct. 18 | Tuesday, Nov. 15 | Tuesday, Dec. 13
Messrs. E. and H. Lumley announce in the advertisement columns of The Times on Saturdays a complete list of their sales, which will include estates in England, Ireland, and Scotland, town and country properties, ground-rents, reversions, gas and water shares, stocks, &c. In cases where property is to be included ample notice should be given in order to insure due publicity.

—St. James's-house, No. 22, St. James's-street, S.W.

To Landowners.—The Instalment Mortgage System.

MESSRS. E. and H. LUMLEY, of St. James's-house, are prepared to undertake SALES by AUCTION (and Private Contract) of LANDS, Farms, Estates, and Properties generally on this novel, beneficial, and successful system. A descriptive pamphlet of Messrs. LUMLEYS, of St. James's-house, 22, St. James's-street, S.W.

Sales by Auction for the Autumn, 1898.—Messrs.

DEBENHAM, TEWSON, FARMER, and BRIDGEWATER

beg to announce that their AUTUMN SALES of ESTATES, Investments, Town, Suburban, and Country Houses, Business Premises, Building Land, Ground Rents, Advowsons, Reversions, Stocks, Shares, and other Properties will be held at the Auction Mart, Tokenhouse-yard, near the Bank of England, in the City of London, as follows:—

Tuesday, Oct. 11. | Tuesday, Nov. 15.
Tuesday, Oct. 25. | Tuesday, Nov. 22.
Tuesday, Nov. 1. | Tuesday, Dec. 6.

By arrangement, Auctions can also be held on other days in town or country. Messrs. Debenham, Tewson, Farmer, and Bridgewater undertake Sales and Valuations for Probate and other purposes of Furniture, Pictures, Farming Stock, Timber, &c.

Detailed Lists of Investments, Estates, Sporting Quarters, Residences, Shops, and Business Premises, to be Let or Sold by private contract, are published on the 1st of each month, and can be obtained of Messrs. DEBENHAM, TEWSON, FARMER, and BRIDGEWATER, Estate Agents, Surveyors, and Valuers, 80, Cheapside, London, E.C. Telephone No. 503, Bank.

Notice.—Some of the Properties advertised may be purchased by Private Contract before the Auction; substantial firm offers will be submitted for the vendor's consideration. All particulars are sent free of charge.—Messrs.

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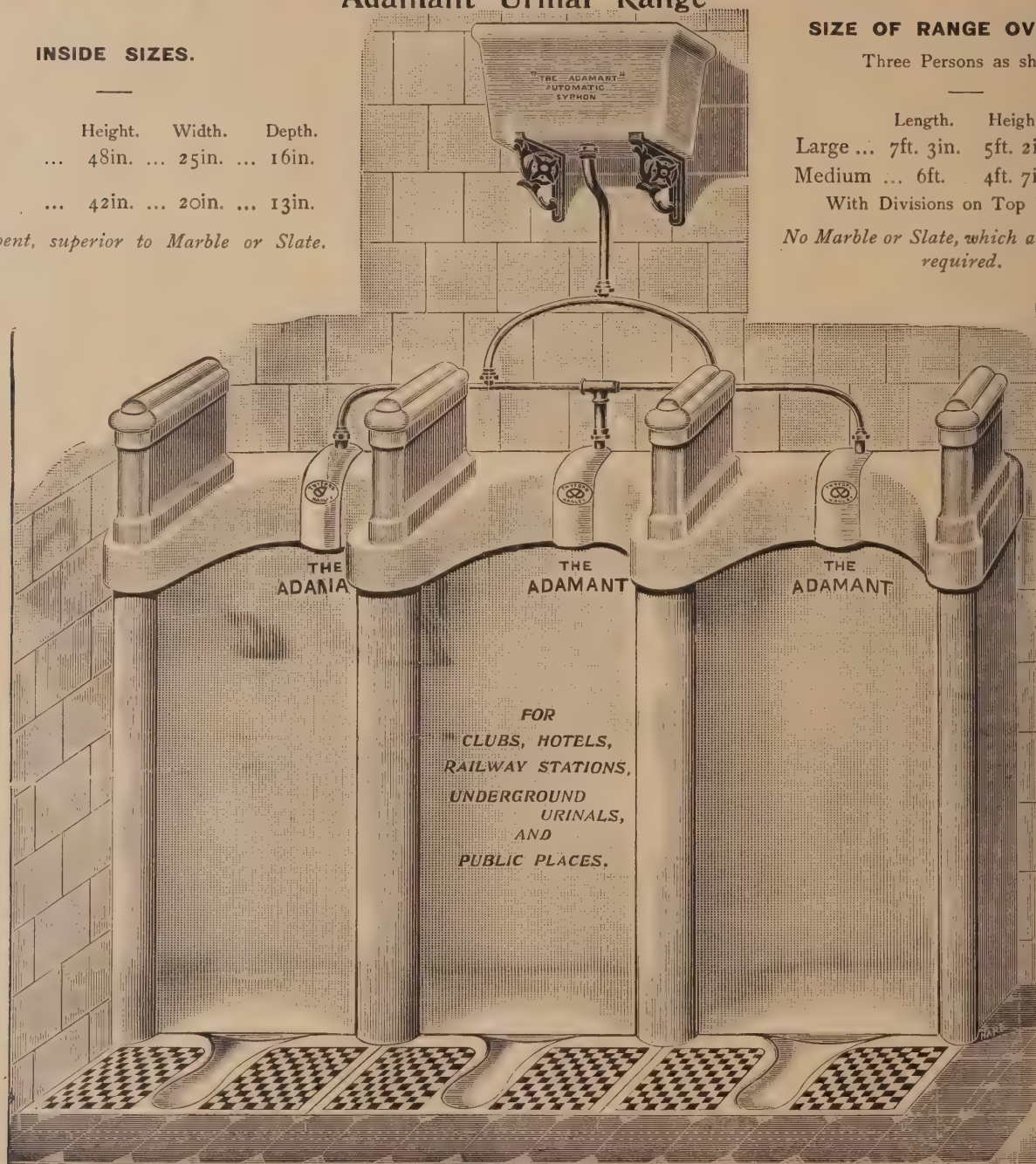
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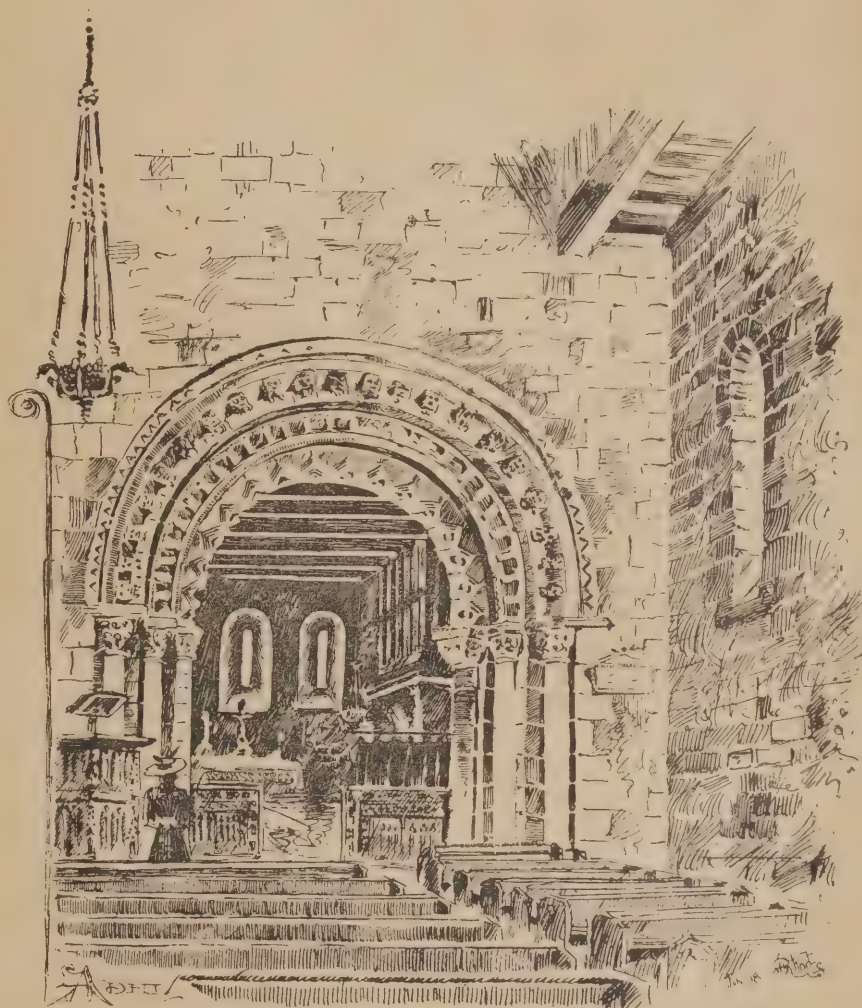
An Architectural Causerie.

Reigate's Turn. ARCHITECTS may come and architects may go, but the machinations

of municipal councils we have always with us. The latest of these candidates for distinction in the great comic history of architectural competitions is the Corporation of Reigate. One has always sympathised with little Reigate, and her late aggression ill becomes her. Picturesquely nestled under the slope of a great chalk ridge, and in the midst of the Garden of Surrey, she has long been beset on the one side by an historic and traditional rivalry with Dorking, in which she has well maintained her own importance and prestige; but now upon the other, at her very door, there has sprung up the great railway-begotten slums of Redhill, spreading over the fair countryside like a malignant growth, and threatening to overwhelm her dainty and particular atmosphere as of punch-bowls and great grandfathers, in a whirl of vulgarity and cheapness. Reigate considers itself the capital of Redhill, but little by little the urban dignities are attracted from the elder town to the newer and greater one, with accompanying outcry and protest, and it is no doubt in a wild endeavour to out-Redhill Redhill, that the Reigate Corporation have pretended to themselves that they are going to build "Municipal Buildings, fire station, police office, &c.," at a cost of £15,000. One says "pretended to themselves" advisedly, for a correspondent to a contemporary, whose word one has every reason to credit, states that the site is unsuitable and unpopular with the majority of the ratepayers. But if the ratepayers cannot bring themselves to agree to build them municipal offices and police and fire stations, at least they may be willing to enjoy the fact in imagination, and, as it is famous that architects are glad to engage themselves to supply designs for a few pounds only if—not one merely—but the whole Profession is invited, and have moreover shown themselves willing to supply unlimited designs for a small fee without requiring any explicit undertaking as to the use, destination, or execution of their designs, what consideration should there be to prevent the Reigate Town Council from spending fifty or a hundred pounds, and enjoying the satisfying delights of building in imagery, and that consciousness of a swelling municipal importance and aggrandisement which is attached to a popular imputation for costly building. Had any person been present who could have explained the unfairness of the demand the Council proposed to make upon the architects,

his representations could have been directly refuted by reference to scores of similar buildings to that projected, raised without protest, under precisely the same principles as those upon which the Council proposed to work. It is true that in the fact of their conditions the Council overreached themselves, and it is unlikely that they will receive any sound or serviceable sets of designs except they have recourse to a new issue of a revised set of conditions of competition. But this failure has been due, not to the precise requirements and undertakings of the conditions, but to the candour and the explicit wording in which

in other cases, it is true that the premiums of £50, £30, and £20 offered are a good deal lower than the average, such premiums being usually offered for designs of buildings costing not more than £10,000. On the other hand it has been shown that the average "conditions" enact that in 73 per cent. of competitions the premiated designs shall be the property of the promoters; that in 54 per cent. the promoters "are not bound to accept first award," and in 35 per cent. they are "not bound to accept first or any award." In fact, the only unusual feature in the Reigate conditions of competition would



Adel Church Interior looking East

A STROLLING SKETCH IN YORKSHIRE. ADEL CHURCH: INTERIOR, LOOKING EAST.
SKETCHED BY H. SYDNEY RHODES.

they were set down. Every year there are competitions wherein the intention of the Assessing Committee is similar in practically all particulars to that of Reigate, as their subsequent hedgings and explanations have very clearly proved; but they set the terms of the conditions of competition upon which the competitors are beguiled into contest in such vague and ambiguous language as admits of other plausible interpretations than the obvious one, although it does not deter the usual crowd of poor gulls who go like flies to the treacle whenever a competition is prepared for them. Comparing the Reigate conditions of competition with those issued

seem to be the clause which gives the Council right to withhold one or more of the premiums should they not be "merited." The marvellous and extraordinary quality in these proposals for competition of the Reigate Corporation, does not lie then in the affrontery of the promoters, who have merely acted in accordance with what they were entitled to believe was a just and proper precedent, but in the self-seeking of such architects who have fostered this irregular custom of competitions by their complete disregard of professional dignity wherever, and whenever, their own personal interests might for the moment be concerned.

B. C.

"Villas," Past and Present.

THERE is a kind of house, much in favour thirty years or so ago, which has of late years fallen on evil days. Not undeservedly have the stucco-fronted "villas" of the last generation gained so great a disfavour, for not infrequently the "compo." which covered their exterior, and made believe to be stone, hid exceedingly bad brickwork, while the planning left much to be desired. The suburban residence of that era is still much in evidence all round London, for the truth has not yet been sufficiently well rubbed into the minds of the owners of this class of property that this type of house has been a commercial failure. The kind was never really a success, and its utter ruin could be predicted by those who could see a little into the future so far back as twenty years ago. At that time Bedford Park was in the making. It was the fashion then to sneer at that "artistic colony," and many a commonplace person who lived in one of the poky little commonplace, stucco-fronted "villas," with those basement breakfast rooms that look so much like coal-cellars, would often issue forth to see the odd, red-brick houses that were rising from their foundations near Turnham Green railway station. It has now become quite difficult to believe that Bedford Park, which has set the fashion for the latter-day suburban house, was once regarded as one of the most curious things to be seen outside a museum, and that American magazines sent special correspondents over to these shores to write articles about it from personal observation. The music-halls even had comic songs about it, and we yet remember that there was one commencing

I took a little villa on the Bedford Park Estate,

which was by no means complimentary. Is there anyone now who considers that place so out of the common, now that the up-to-date builders of villas have followed its lead? We think not, for everywhere you may see the like, or even better. As Tennyson said of his poetry, "All can grow the flower, for all have got the seed," and just as better strains are produced from carefully cultivated seeds, so has the modern villa been rendered, often enough, superior even to its Bedford Park prototypes. Even the inartistic man who wants a house sees the advantages of the modern kind; just as one is advised over So-and-So's ketchup, or Somebody Else's soap, he "asks for it and will take no other." So it happened that the stuccoed basemented villas, a generation old, are everywhere "To Be Let." Explore, if you will, any London suburb, and you will find many streets of this class of house, built in the sixties and seventies, in which not only are more than half their houses empty, but the rest are let at diminished rentals. It is quite obvious from these facts that there must presently dawn a great suburban rebuilding era, for even though small property owners may hesitate before pulling down and rebuilding their houses, there must inevitably be a time when they can endure no longer to see no return on their outlay in tinkering their unprepossessing "desirable residences." In short, the time has, happily, passed when the Englishman is content to dwell, like his primeval troglodyte ancestors, underground. The suburban house with basements is an anachronism. Nobody wants it, and the house agent therefore tries in vain to let it. It cannot be conjured into anything less unpleasing, and as it cannot be mended it must be ended, and that soon. C. G. H.

THE REIGATE COMPETITION.

THOUGH the kindness of a correspondent, who has forwarded us a copy of the conditions of competition, we are enabled to reproduce them for the information of our readers. Our correspondent draws attention to several points, which are already dealt with in our leader; but he also points out that the Council seem to apprehend that some of the architects will refuse to compete under such conditions—witness the Borough Engineer's letter. The italics are ours. Our correspondent concludes his letter as follows:—"I consider the conditions impertinent; and, further, that any architect sending in a design under such conditions is giving his vote and influence to the degradation of himself and his professional brethren."

"ENGINEER AND SURVEYOR'S OFFICE,
"TOWN HALL, REDHILL, SURREY.

"DEAR SIR,—I enclose conditions of Competition as requested. *If you are willing to compete on the lines indicated*, I shall have much pleasure in transmitting you a lithographed plan of the site.

"I am, yours faithfully,
"W. H. PRESCOTT,
"Borough Surveyor."

PROPOSED MUNICIPAL BUILDINGS.

CONDITIONS OF COMPETITION.

"1. The Competition is to be an open one, and three designs will be selected and placed 1st, 2nd and 3rd in their order of merit.

"2. The premiums for the three designs which the Assessors shall consider best in order of their merit will be £50, £30, and £20.

"3. The awards of the Assessors shall be final and binding upon the Competitors, and there shall be no appeal therefrom.

"4. The Assessors do not bind themselves, in the event of only a small number competing, to give the three premiums before-mentioned, but only such as they may consider merited.

"5. The three designs to which the Assessors may award the premiums shall become the property of the Corporation and their authors shall have no further claim upon them.

"6. The Council do not guarantee to carry out any of the designs, and also reserve the right to modify, combine, alter, or amend any of the prize designs which they may think fit, and in the event of any designs being carried out, no further payment will be made to the author.

"7. Each drawing must be made to a scale of 8ft. to lin., and no other scale will be admitted.

"8. Each drawing shall consist of:—

"(a) A General Elevation.

"(b) General Section throughout Main Portion of Building.

"(c) Basement Plan. (Police Department.)

"(d) Ground Floor Plan (throughout).

"(e) First Floor Plan (throughout).

"9. The total amount to be spent upon the whole of the Buildings shall not exceed £15,000 (exclusive of the cost of fittings and furniture). Each competitor shall furnish an estimate of the cost of carrying out his design, and in making their awards the Assessors will be influenced by the practicability of the designs being carried out for the amount stated.

"10. Apart from the above conditions, the Assessors desire to give the utmost latitude as regards the design, &c., to the competitors. The Assessors would also point out and impress upon each competitor that the amount stated will not allow for any elaborate carving or other enrichments, but that first consideration should be given to the buildings being of a substantial and lasting character, and mouldings, if introduced at all, must be sparing and of a bold and simple design.

"11. Each design must be accompanied by a brief description, which shall not be in the competitor's own handwriting, and shall not exceed in length four pages of foolscap, and must be simply signed with the competitor's motto and device.

"12. All drawings must be stretched or mounted on mill-board with a neat border, and without being framed or glazed in any way.

"13. The drawings shall each be signed with a device and motto, and any drawing which shows any means of identification will be disqualified.

"14. The competitor's name and address shall be enclosed in a sealed envelope, which shall have on its outside the same device and motto as the drawings of the competitor, and this envelope must be enclosed and addressed to the Town Clerk, and endorsed on its upper left-hand corner, "Municipal Buildings."

"15. All drawings must be addressed to the Town Clerk, and delivered at his office not later than October 6th, 1898.

"16. A lithographed plan of the site can be obtained on application to the Borough Surveyor"

School of Art Wood-Carving.

WE are requested to state that the School of Art Wood-carving, which has hitherto been held in the Central Technical College, South Kensington, has now been removed to the Imperial Institute, in which rooms have been granted for the School's use. The School was re-opened after the usual summer vacation on Monday, September 5th. Free studentships in both the day and evening classes of the school are maintained by means of funds supplied by the City and Guilds Institute for the Advancement of Technical Education, and by the Drapers' Company. Some of these studentships are at present vacant, and forms of application for them, also information as to the school generally, may be obtained by letter addressed to the Manager, School of Art Wood-Carving, Imperial Institute, London, S.W.

It is proposed to build a Free Library at Gloucester, on land belonging to the Corporation. The probable cost is about £5000. Messrs. Waller and Son are the architects.

The old Militia Barracks at Bethnal Green are up for sale. They will probably be pulled down by the purchaser to make room for commodious business premises, and with them a noteworthy building will disappear.

The St. Pancras Vestry has notified that the portion of Euston Road from Gower Street to Cardington Street now paved with granite will be closed for six weeks for the purpose of relaying it with wood. This is a very much needed improvement.

The Great Western Railway Company have sanctioned the erection of the proposed Jubilee Memorial clock tower at the railway station approach, Maidenhead, and have approved of Mr. E. J. Shrewsbury's design for the memorial.

A PORTION of the Spinners' Arms, Shaw Road, Oldham, collapsed last week. The house is very old, and the owners were already engaged in the erection of a new building in front of the old one. It is supposed that the excavations for the new building were the cause of its fall. No one was injured.

The New Schultze Gunpowder Company Limited, of 28, Gresham Street, London, and of Fritham, Lyndhurst, manufacturers of explosives, have applied to the Hants County Council for their assent to the establishment of a factory for explosives on the premises known as the Ballast Hole, or Old Gravel Pit, at Rumbidge, Totton.

The work of roofing in the basement of the burned Metropolitan Tabernacle is being vigorously proceeded with, and the secretary of the Pastors' College hopes that, granted moderately fine weather, the new building will be ready for occupation at the end of October, and will provide accommodation for 1500 persons. The plans will be finally approved almost immediately, and, as soon as it is known what the approximate cost will be, an appeal to the public for financial assistance will be made.

STROLLING SKETCHES.

IN THE LEEDS DISTRICT.

BY HAROLD E. HENDERSON.

THE diligent student of Architecture may find much of interest in the Leeds district.

The Architectural Sketching Club of the local School of Art organises frequent expeditions of discovery during the summer months, and the accompanying illustrations are the record of several of these excursions.

At Whitkirk, six miles from smoky Leeds, the first halt was called. After admiring some very picturesque cottages with grey stone slates and rough cast walls composed of sand, ash dust, and "road scrapings," the party proceeded to the Church of St. Mary, nestling in the heart of the village. Built of sandstone of varied shades and colours, in some places beaten and battered by the rain and storm, at others coloured grey and green with lichen, with its sturdy western tower and lead spirelet its look rural and unpretentious, it is a typical Yorkshire church. Of Perpendicular date, it consists of nave, aisles, chancel, south porch and chapel. Inside the chapel and piercing the chancel wall is a capital alabaster tomb to Sir Robert Scargill and his lady, 1525 A.D., of Thorpe Hall. It is decorated on the sides with shields containing arms of the owner, and is under a canopy supported by two figures of angels. Among other interesting monuments is one erected by the Hon. Mrs. Meynell-Ingram in memory of Hugo Francis Meynell-Ingram, Esq. In the chancel is a mural tablet to the memory of John Smeaton, F.R.S., who was born at Austhorpe Lodge, 1724, and "departed this life" 1792. Smeaton was the celebrated engineer of Eddystone lighthouse. There is a very good pulpit of Caen stone of Perpendicular style, simple in design, yet not crude. Near the church is a very good house, partly covered with rough cast, with stone gables. The plan is of L shape, and the grouping of the different parts capital. On the front is a quaint little fire-bell, supported on iron scrolls and under a small wood canopy. About a mile from the church is Thorpe Stapleton, a small hamlet chiefly noted for the ruins of Thorpe Hall, a mansion of the fifteenth century, and formerly the residence of the Scargill family. Not much of the fabric is now standing.

The second excursion under notice was to the ancient village of Adel, four miles from Leeds, situate in the midst of breezy moors and charming scenery. Adel was the ancient

Roman "Burgodurum," and evidences of a Roman station have been found. Passing through the vicarage garden, where note was made of another of those quaint little bell turrets, we come to the Church of St. John the Baptist. Built in 1140, of local sandstone, in the Norman style, it is in excellent preservation, owing mainly to its sheltered position. The church consists of nave, chancel, south porch, and western bell turret. The beautiful chancel arch is supported on sandstone shafts, with caps of interlacing ornament. The orders of the arch are enriched with chevron and bird's-beak ornament. The south porch is one of the most magnificent in the country. It is of four orders of chevron and bird's-beak ornament, with nail-head label mold, supported on cylindrical shafts, with cushion caps of interlacing ornament. In the tympanum are the emblems of the four Evangelists, with an Agnus Dei in the apex. Fixed on the door is an ancient sanctuary ring, and many a thief has escaped justice by clutching the ring and claiming the protection of the church. The font is of ancient date on a modern base. The former stained east window, now removed to the vestry, is filled with armorial bearings of the Arthington family. In the chancel is a small memorial window to Thomas Kirke, of Cookridge, dated 1706. In the vestry is a very old oak chest. The church was restored by George E. Street in 1879, when a new pulpit and screen were introduced, and the roof raised to its original pitch.

We next visited Methley, a pretty little village about eight miles from Leeds. On our way to the church we looked over the old manor house, a sandstone building of Tudor style, with mullioned windows, deep and sturdy chimneys, and picturesque stone gables—a very good example of a Yorkshireman's country house. We then visited the Church of St. Oswald, of Late English and Decorated styles, built of sandstone of varied and beautiful colours. It consists of a spacious nave, chancel, aisles, with a chantry dedicated to the Waterton family; south porch and western embattled tower, with a fine octagonal spire. The Waterton chantry is separated from the aisles by an oak screen of Perpendicular date, with some very good carving and cresting well worth the notice of the architectural measurer. In the chantry are several fine tombs; one piercing the wall of the chancel, with a cusped and enriched canopy over, contains the effigies of Sir Robert Waterton and Cecely, his wife, both wearing collars of S.S. on either side. The sculpture in the panels on the side are very vigorous and well executed. Under the south window is a splendid alabaster tomb with effigies of Lionel VI., Baron Welles, who fell on the Lancastrian side at Towton, March 29th, 1461, and Cecely his wife, daughter

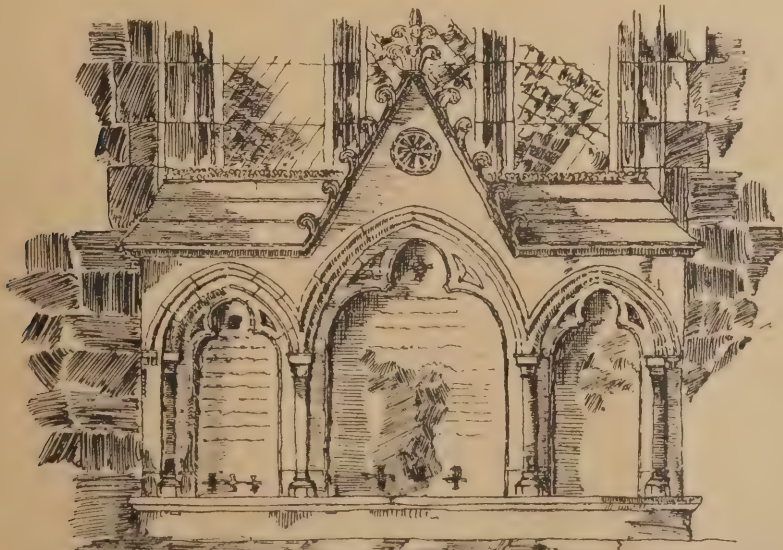
and sole heiress of Sir Robert Waterton. To a student of Gothic sculpture this tomb is unique, the drapery and enrichment of the figures and the series of conventionalised angels on the sides bearing shields with quarterings being incomparably splendid. There is a magnificent tomb to Sir John Savile, first Baron of the Exchequer, who died February 2nd, 1607, and whose heart only is buried here. The tomb is supported on Ionic columns of black marble, the sculpture of the effigies illustrating capably the transition from the Gothic to the Classic feeling. Another notable tomb is to Sir John Savile, first Earl of Mexborough, who died February 27th, 1778. On the wall are suspended several pieces of funeral armour, and the roof is panelled and



A STROLLING SKETCH IN YORKSHIRE.
BY HAROLD E. HENDERSON.

painted, but has been restored. There is a good Jacobean pulpit and font cover, well worth sketching.

The last of the visits for June was spent at Barwick-in-Elmet, an old-world looking place, with stone cottages with quaint doorways and gables, and several yellow-washed thatched cottages. In the centre of the village are the remains of the ancient market cross; near to is the vari-coloured maypole, where high rejoicings are held every year, a custom, sad to say, which is gradually falling away. The Church of All Saints is a large church, with a Perpendicular eastern tower built of two kinds of stone, the darker being sandstone, and the light limestone, coming from Jackdaws' Crag, and given by the Vavasours of the fifteenth century. A canopied niche in the tower contains a figure of Sir Henry Vavasour presenting the stone. The church is of all styles, and evidences of an earlier erection have been found. The west end walling is very early, being herring-bone in structure. The stone font is reproduced from the fragments of an older one found embedded in the floor of the nave. Opposite the south porch is a sundial dated 1765. To the west of the church are some very early earthworks, conjectured to be of Saxon origin, and assigned by some antiquaries to the seventh century. They consist of two enclosures, one of which is circular, and has within it a large mound; the other is much larger, and of a rectangular form.



TOMB IN WHITKIRK CHURCH, YORKSHIRE. SKETCHED BY JAMES PARISH.
JULY 98
James Parish



Photo. by

ADEL CHURCH, YORKSHIRE: PORCH.

Jas. Neill.

RUINS OF MEDIAEVAL ENGLAND.*

By CHARLES HADFIELD.

(Continued from page 54.)

THE account of the opening ceremony at Canterbury Cathedral is a model for the special correspondent. After describing the blessing of the new fire and other ceremonies of the day, it concludes:—"At the door of the church, which opens to the martyrdom of S. Thomas, the Archbishop received from a monk with profound reverence the Blessed Eucharist in a pyx which was usually suspended over the high altar. This he bore to the great altar of the new choir. Thus our Lord Jesus Christ went before us into Galilee, that is, in our transmigration to the new church. The remainder of the offices that appertain to the day were very solemnly and devoutly celebrated. And then the Pontiff, mitred, standing at the altar, intoned the "Te Deum Laudamus," and the bells ringing, the convent took up the glad strain, and shedding tears of joy, loudly praised God with heart and voice for all His benefits." During this same year many interesting details are given—such as of the removal of the bodies of S. Odo and S. Wilfred, and their re-interment, and of the erection of a temporary wooden chapel for the reception of the shrine of S. Thomas. The funds for the prosecution of the works seem to have been largely subscribed by the crowds of pilgrims who visited the cathedral, for

record is made of two unusually wet seasons, when the works were stopped for want of money. I have, at the risk of tiring you, gone more fully into these details

IN THE CASE OF CANTERBURY, for the record is exceptionally complete and unique in that respect, brimful of interesting lifelike incidents and touches of human nature, that give so much charm and reality to the student. The fabric rolls of York and Ely Cathedrals give also a large insight into the building customs of the Middle Ages. It must be remembered that the cathedral chapters and monastic establishments were for over 400 years liberal employers of labour and patrons of the arts and crafts. Those bodies seem for the most part to have purchased their own materials and paid the wages of the craftsmen, thus limiting and safeguarding the employment of the middleman. When the crash came in the sixteenth century there was hardly a cathedral, important parish church, or abbey in the land where the great cranes on the summit of lofty walls and towers were not in evidence, and the ring of the hammer and click of the mason's chisel could not be heard. An earnest of the old German guild sentiment, "By hammer and hand all arts do stand." The work of the Reformation, inaugurated by the voluptuous Tudor despot, Henry VIII., and completed by his bastard daughter, "Good Queen Bess," destroyed those bulwarks against pauperism, the great monastic institutions, the never-failing shelter of the poor and helpless; and the crowd of minions and sycophants who fattened on the plunder, the patrimony of Christ's poor, inaugurated the reign of a poverty amongst the masses, which makes Great Britain to-day a bye-word throughout the nations. The learned Benedictine, Dom Francis Aidan Gasquet, in his "Henry VIII.

and the English Monasteries," shows on undeniable authority that so great was the crowd of destitute able-bodied men wanting work in the North of England on the final

SUPPRESSION OF THE MONASTERIES

that for one beggar in Henry VIII.'s time there were one hundred in the glorious days of Good Queen Bess. Quoting from an MS. preserved in B. Mus., Cole MS. XII, p. 41, of the funeral in 1591 of George, sixth Earl of Shrewsbury, the gaoler of Mary Stuart, who, with his fellow spoiler, George, fourth Earl, one of Henry VIII.'s accomplices in putting down the Pilgrimage of Grace, lies in the Shrewsbury Chapel of the Sheffield Parish Church, he records "that at the said funeral, in the twenty-third year of Elizabeth's reign, at Sheffield, in Yorkshire, they were, by the report of such as served the dole unto them, the number of 8000, and they thought that there were about as many more that could not be served through their unruliness. Yea! the press was so great that divers were slain and many hurt. And, further, it is reported of credible persons, that well estimated the number of the said beggars, that there were about 20,000." From this, says Dom Gasquet, "some idea may be formed of the great poverty, for it was thought that all the said poor people were abiding within thirty miles' compass of Sheffield, and that there were many more who could not go to receive the dole."

Here was the beginning of our modern system of Poor Law relief, one of the legacies of those days of Tudor tyranny when the liberties of the English masses, secured in the main by the efforts of the fearless Bishops of the Catholic Church, and for which those blessed martyrs, More and Fisher, died, were trampled ruthlessly under foot, to be restored after a fashion and given new lease of life by a Cromwell in the middle of the seventeenth century. The two great risings of the North, in which the gentry and peasants combined

IN DEFENCE OF THE MONASTIC INSTITUTIONS,

were stamped out in blood; and, for the benefit of the poorer and humbler sort of folk who clung to the old religion, it was enacted "that all Popish recusants who do not possess lands to the yearly value of twenty marks (the fine for hearing Mass), or goods and chattels above the yearly value of forty pounds, if they do not repair to the place in which they abide, or neglect to give in their names, or remove five miles away, then they shall be required to conform or abjure the realm—or in other words take an oath to depart out of the realm of England and all others the Queen's dominions—during the said Queen's pleasure." Mr. Edward Peacock's "English Church Furniture, Ornaments and Decorations at the period of the Reformation, as exhibited in a list of the goods destroyed in certain Lincolnshire churches, 1566; London: John Camden Hotton, Piccadilly, 1866," should be carefully perused by students. It is an account of the second destruction in Elizabeth's time, and shows that some of the churches were then comparatively rich, and in many cases filled with handsome accessories. I give one extract (Ab uno disce omnes): "Kilbie in the Pische of Haydor. Thomas Wells and Lambert Harrison, Church Wardens 8 April 1566.

1. Itm a vestment, a pair of censers and a stoole wch the said Thomas Wells bought this year and defacid it.
2. Itm a sopulker clothe—solde to Robert Harrie of the said pische this year by the above named Church wardens wch is defacid.
3. Itm a Rood Loft sold to Thomas Grene this year by the said Church wardens who hath defacid and broken it in peces.
4. Itm a sacring bell solde to Giles Harrie this year by the said Church wardens wch is defacid.
5. Itm II candell sticks, a holie water fatt, a pix, a sacring covering, II crosses and a crismatorie sold to James Lawe this year by the said Church wardens wch is broken in peces, defacid and put to profane use.
6. Itm the Rood Marie and Johnne, with a picture of S. Peter defacid and burned in the pnce of the pishoners yesterday being the

* A Paper read before the Catholic Young Men's Societies of Great Britain at Sheffield in July last, entitled "The Cathedrals, Churches, and Ruins of Mediaeval England, as Witnesses to the Faith of our Fathers."

VII. of this April 1566 by the said Church wardens.

7. Itm a mass booke a pressioner a manuelle, a graile, and a pax, defacid and burned yesterday being the VII. of April.

8. Itm II. Altar stones, which is defacid and laid in high waies, and serveth as bridges for sheep and cattell to go on, so that their nowe remaineth no trashe, nor trompre of popish peltrie in the said Church of Kilbie, Lincoln.

John Aelmer, Archdeacon of Lincoln.
Robt. Mounson.
Thos. Saintpole.
&c. &c."

What *locus standi* can our Anglican friends have about their "continuity theory" in the face of evidence such as this? Mrs. Ella S. Armitage, in a clever handbook, "A Key to English Local Antiquities" (Sheffield, William Townsend; Bingley, Harrison and Sons, 1897), which I recommend to those who wish to follow this subject, observes that the money found for the alteration and erection of mediæval churches came by no means exclusively out of the pocket of the great land-owner. The principle of co-operation for a common end, which we find working at the very beginning of English Constitutional history, was made use of in religious matters also. Religious guilds, consisting of men and women alike, associations of pious persons, who provided out of their own means for various religious necessities, were commonly the munificent benefactors. Guilds of this kind often undertook the

REPAIR OR ENLARGEMENT OF CHURCHES,

the furnishing—supply of sacred vessels, vestments, &c. If their funds did not suffice, they frequently raised money by a "Church Ale," an institution which had many points of resemblance with a modern bazaar. The ale was brewed and given by the Guild members, and paid for by the general public, who gathered together to drink it—other innocent amusement being doubtless provided. At Rotherham, the Guild of the Holy Cross was an instance. There were also voluntary assessments made by parishioners for the buildings' fund. A perusal of old church and guild inventories that have come down to us will elicit evidence of an extraordinary richness and lavishness in the furniture and decorations of even small English country churches, the gold and silver chalices, studded with rare gems, the embroidered vestments and hangings, costly shrines, and the like, which were commented upon by a Venetian Ambassador to the Court of Henry VII., who remarks on them with astonishment and delight in a letter to his Republic. All those adornments were mostly executed for the buildings in a correct and artistic manner by local skilled craftsmen, and were not, as is too often the case in these later days, when the so-called Gothic revival has run its course, and fallen into disrepute amongst thinking men, purchased on the plea of cheapness from some factor or shopkeeper, yeleft an Ecclesiastical decorator, who buys them from abroad, where the

FASHIONABLE FURNITURE

in so many of our modern churches, &c., is manufactured wholesale by underpaid, underfed, and overworked men, women, and even children. I venture to ask both clergy and laity alike, who purchase this trash, if they are not degrading religious art by the encouragement of what, in plain language, is nothing more than "the sweating" of the handicraftsman, and the stifling of all artistic progress and culture. The present state of things did not exist in the early days of the Gothic revival, when the movement was controlled by Augustus Welby Pugin, a craftsman of craftsmen, whose scathing denunciation of the commercialising of art in his day are well remembered. In those far-off times the Catholics of England were to the fore in church building. Eastlake, in his history published in 1872, remarked on this, implying, as events have justified, that the fashion then setting in for so-called cheap "modern Gothic" churches, with showy exteriors, and interiors devoid of anything likely to arouse the sympathy of an educated artist, would place us

before the close of the century behind most other religious bodies in the knowledge and culture displayed in our buildings. My own idea is that if we cannot raise funds to build as they did in the forties, we had far better call for solid, plain structures like the chapels of the first quarter of the century, filling them with interesting and thoughtfully designed fittings devised for the surroundings. The great crux of the modern craftsman is the wretched shibboleth as to style, which the British public seems determined to cling to when Continental nations will have little or none of it.

A TECHNICAL school is about to be erected at Bournemouth. Messrs. Creeke, Gifford and Cakeley, of Bournemouth, are the architects.

A NEW Church Mission-room has been erected at Warley. The building, which is of iron, consists of a small chancel and vestry, and is capable of seating 200 persons. The total cost, including the site, was about £350.

A NEW day school is in course of erection at Preston. The building will consist of one large room, an infants' room, and a cloak room. The architect is Mr. H. E. Peach, of Southport, and the work has been entrusted to Mr. Smith, of Croston. The school is expected to be finished about the end of November, and is estimated to cost £600.

THE old town hall, Henley, has been sold, as a new building is about to be erected. The town hall was built in 1796 by Mr. William Bradshaw. Possession for the purpose of pulling down and clearing the site will be given on September 12, and the whole is to be absolutely cleared on October 8.

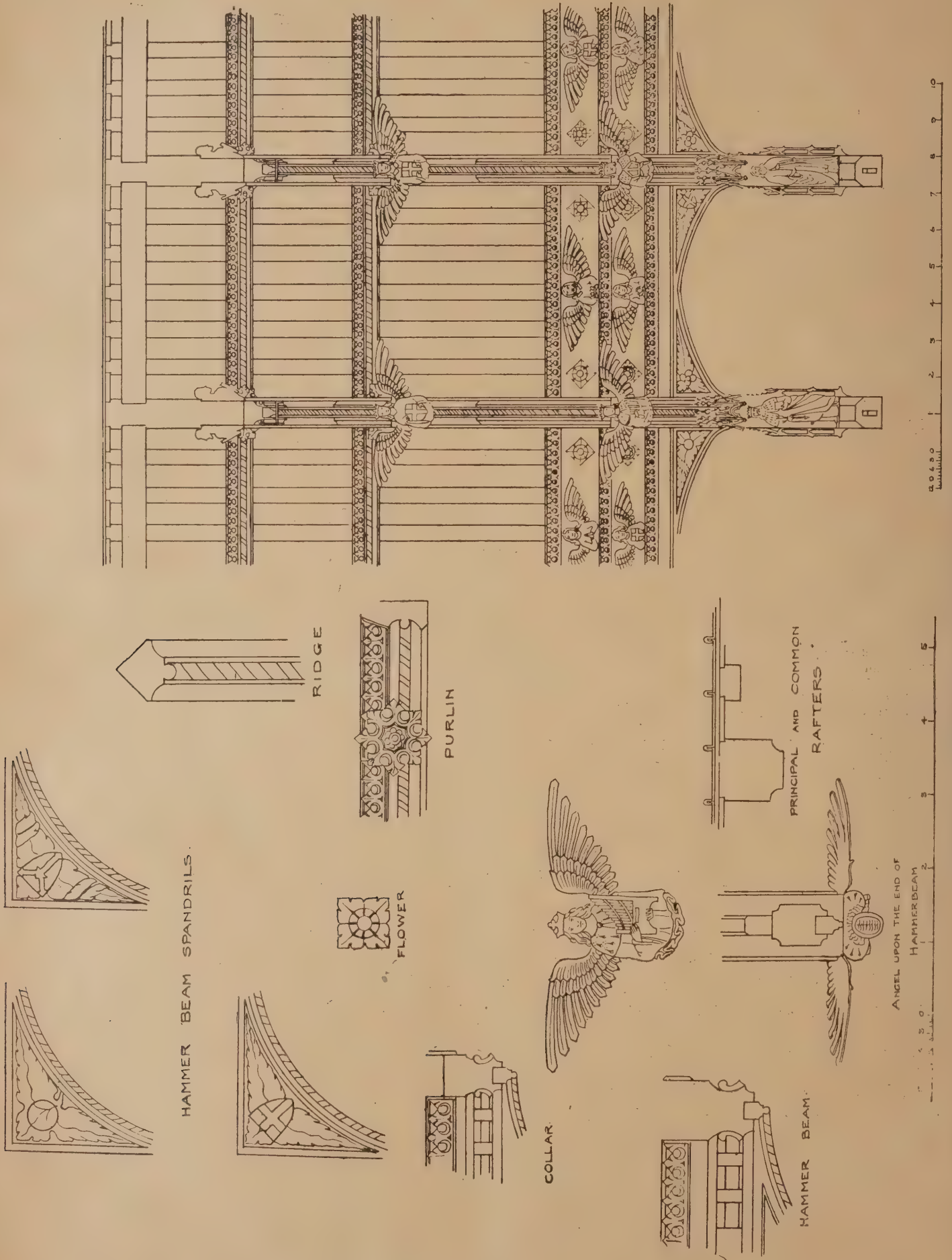
RICHMOND HILL.

AN UNIQUE VIEW THREATENED.

AN appeal issued by the Mayor of Richmond for the sum of £4000 with which to purchase Glover's Island for the benefit of the inhabitants of the town, has resulted in the very small sum of £50 being received. The appeal was made with the object of preventing the possibility of the island being sold and used for advertising purposes, in which event the unique view from Richmond Hill would be seriously affected. In conversation with a Press representative the Mayor said he was exceedingly disappointed at the apathy displayed by his fellow townsmen in not taking measures to prevent the island falling into the hands of speculators who would either erect some building or cover it with advertisement boardings. Only that morning he had received a telegram from a wealthy and prominent resident of Richmond Hill, to whom he had applied for assistance, and whose residence overlooked Glover's Island. The gentleman, who was on the Continent, stated that he did not care what became of the island, as he had no interest in it. Some of his (the Mayor's) colleagues on the Town Council appeared to think he was asking a price far in excess of what the island was worth. As so much dissatisfaction had been expressed as to the disposal of the property, he had decided to leave the whole question as to the proposed acquisition of the island to the Amenities Committee of the Corporation, who would draw up a report on the matter.



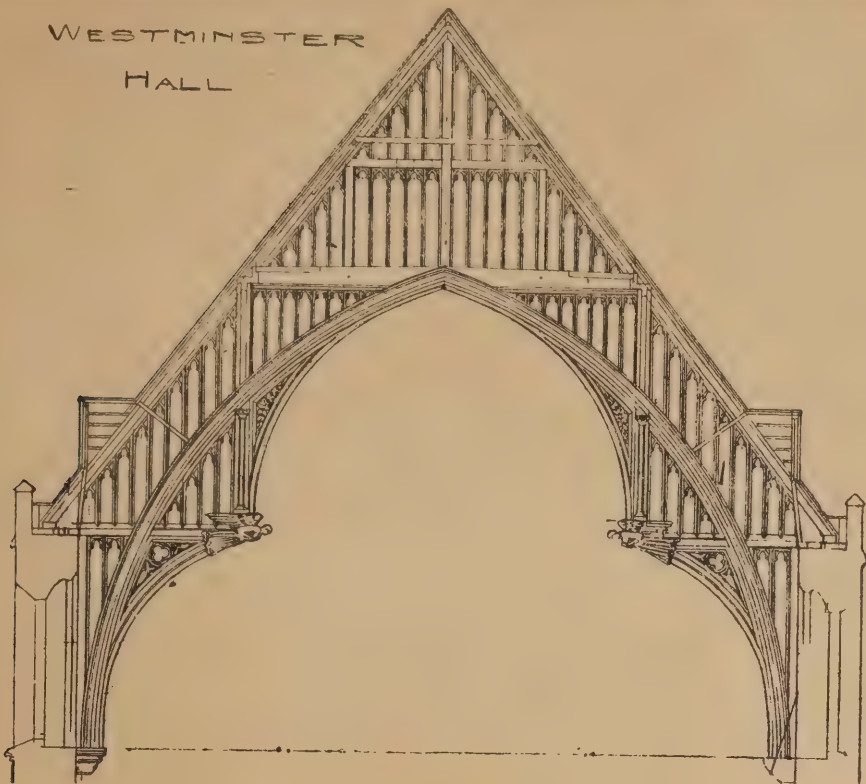
METHLEY CHURCH, YORKSHIRE. SKETCHED BY HAROLD E. HENDERSON.



MEDIEVAL TIMBER ROOFS: KNAPTON CHURCH, NORFOLK.

REPRODUCED FROM A TRACING.

WESTMINSTER
HALL



MEDIAEVAL TIMBER ROOFS.*

BY D. M'LEOD CRAIK.

MANY buildings have double ranges of hammer-beams, whose object is to further stiffen the principals, and bring all the strains on to the lower range and from thence directly to the wall; they are usually employed in roofs of low pitch.

Hammer-beam roofs are always double framed; they are divided into several classes:—First, those with hammers, collars, and struts, connected with curved braces; a good example, Little Welnetham Church, Suffolk. Secondly, roofs with collars omitted and the curved braces carried up almost to the ridge and framed into a wedge-shaped strut at the apex of the arch, into which the principals are also tenoned. Example: Nave, Trunch Church, Norfolk. Third, those with collars, and no struts, as at St. Mary's Church, Suffolk; and, fourth, roofs without either collars or struts, as in Palgrave Church, Suffolk, where the arched brace is formed of three pieces of timber about 3in. thick, one on either side tenoned into the hammer-beam and principal, and reaching up as far as the purlin, the centre-piece forming the apex of the arch, being tenoned into each principal, and itself acting as a brace, and at the same time, to a certain extent, as a collar.

Roofs with collars usually had the braces in four pieces, two uniting the hammer-beams with the lower half of the principals, and the other two connecting the upper halves with the collar-beam.

It is very seldom that a hammer-beam roof has a steeper pitch than 87°.

In the south aisle, Outwell Church, Norfolk, a roof occurs without wall-pieces or braces—the projection of the hammer-beam is very slight, with no support underneath.

At St. Peter's, Moncroft Church, Norwich, the cornice is brought forward to the ends of the hammer-beams, and wooden arched ribs spring from the supports of the wall pieces to its underside, forming a sort of fan growing round the hammer-beam braces, which contributes greatly to the beauty of the roof, although some people condemn it because the idea seems to have been derived from fan tracery, a stone construction, but surely this

is mere faddism, as there appears to be no imitation of stonework intended.

In roofs of a late period, the difficulty of too great a space between the main trusses was overcome by the introduction of intermediate trusses without hammer-beams, as at Little Welnetham Church, Suffolk, or by retaining the hammers, but diminishing the depth of the braces and wall pieces beneath them. They were usually placed over the apex of the nave arches, or over the piers between the clerestory windows.

These intermediate trusses produced such a

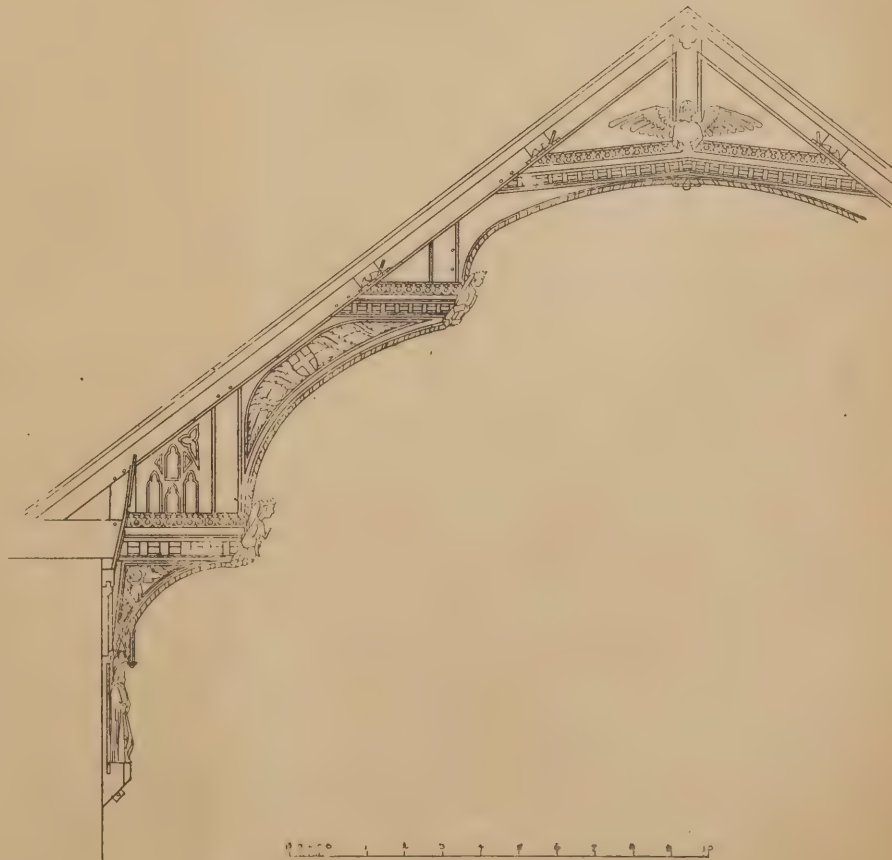
pleasing variety in the design, and avoided the monotony of a long succession of hammer-beams, that they were often introduced for effect alone, as at St. Mary's Church, Bury St. Edmunds, Suffolk, a specimen of mediæval Architecture scarcely to be surpassed by any other in the land. Span 26ft., rise about 12ft.; the angels on the hammer-beams and in the cornice are exquisitely carved.

The magnificent roof of Westminster Hall (1397) is one of the earliest known examples of the hammer-beam roof, which was not in general use until late in the fifteenth century. In roofs of large span, main arches of timber were employed, as at Westminster, springing from the bottom of the wall pieces, and reaching to the underside of the collars; the hammer-beams and struts run through this, and their braces complete the form of a tre-foiled arch; the main purlins over the strut are upheld with the collar-beam by an intermediate rafter of great strength. The roof, notwithstanding its enormous span (68ft.) is of an extremely simple construction, the whole pressure being carried by the straight lines of the principal rafter and curved brace, directly into the solid wall. My sketch of this roof is enlarged from a small drawing, and is only intended to convey an idea of the construction and general effect.

The arch also occurs in Beddington, Surrey, in the beautiful Hall roof—span 19ft. 6in.

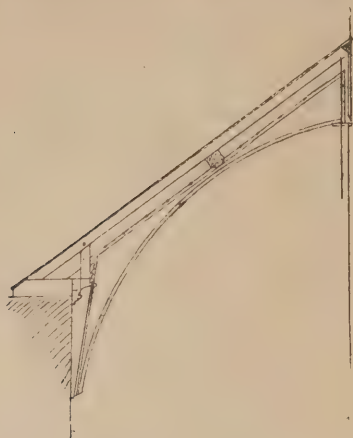
The early examples of hammer-beam roofs differ from the later in the thickness of their carved braces. In the former they are generally the same breadth as the principals, but in the latter seldom more than 3in. or 4in. thick.

The hammer-beams were often beautifully carved to represent angels, which appear to be holding up the roof, as at Wymondham Church. Demi-angels, with outspread wings, and clasping escutcheons to their breasts, were nearly always affixed to the ends of the hammer-beams. In a roof where they are so numerous as in Knapton Church, it would require very little stretch of the imagination to conceive a Heavenly Host hovering overhead. Most of the palace and hall roofs that remain are hammer-beam trusses. The splendid example at Hampton Court, 40ft. span, bids

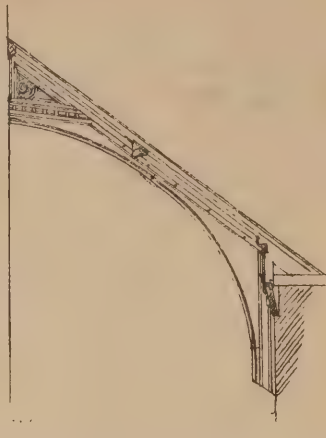


KNAPTON CHURCH NORFOLK. ROOF OF NAVE.

* A paper read before the Edinburgh Architectural Society. Continued from page 52.



STARSTON CHURCH, NORFOLK.



ST. MARY MAGDALEN'S CHURCH, PULHAM.

fair to rival even Westminster. It is one of the most elaborate in the country, the whole roof being covered with panelling, rich carving, coats of arms, and tracery employed to fill up all spaces. It consists of hammer-beams with curved braces, struts, and collar-beam, supported by braces which form a four-centred arch; the spandrils filled in with tracery, as well as the space between the collar and ridge, which is supported by a post. The trusses are connected by arches, which spring from the ends of the hammer-beams, and form in reality a small duplicate of the main truss. From the ends of all the hammers hang richly crocheted pendants.

The roof of Melton Abbey, Dorset, is extremely fine, great charm and variety being caused by the introduction of a very beautiful intermediate truss.

Other good examples occur at Bramhall and Arlington, Cheshire, the former a tie-beam truss and the latter sheeted, and panelled with ribs as high as the collar.

At Penshurst is an example of a trussed rafter roof. There are also beautiful roofs at Eltham Palace and Croydon.

Braced roofs are a simplification of the hammer-beam roof, instances of which occur without struts or collars; and so having proved by experiment that these could be done without, the hammer-beam itself was next omitted.

There are two varieties—those with collar-beam, and the other without.

At Brinton the wall piece is tenoned into the underside of the principal rafter, the foot of which is also connected with it by means of a horizontal piece of timber, which we will call a wall beam; the arched braces, which terminate rather abruptly, securely bind the main timbers together. This roof bears a considerable resemblance to a Decorated roof nearly a century earlier at Tunstead Church.

A beautiful example of a collar-braced roof occurs at St. Mary Magdalen's Church, Pulham, Norfolk. The form of the arch is extremely graceful, the timbers are effectively moulded, the purlins and cornice surmounted by a cresting of strawberry leaves, the collar-beam is enriched by an embattled moulding, as are also the lower members of the cornice, which has a double range of angels and flowers alternately, and their positions in the second row counter-changed; the spandrils above the collar are filled in with tracery.

The nave roof, Starston Church, Norfolk, is a good instance of an arch-braced roof, and shows the method of framing braces at the apex of the arch when the collar-beam is omitted. A strut 9in. square hangs down 2ft. from the summit of the principals, which are framed and pinned into it, so as to prevent it from dropping, sometimes it was wedge-shaped; mortises are cut in the four sides, into two of which the main arch braces are tenoned, and arched ridge-braces are received by the other two. By this manner of construction it is almost impossible for the roof to spread outwards, or to rack from east to west, as sometimes happened in trussed roofs, where no lateral connection existed. The underside of this strut is finished with a boldly carved

flower. The cornice is framed in lengths between the wall pieces, the struts and wall-beams of the common rafters being tenoned and pinned into it.

Old Basing Church, Hants, presents a curious example, the braces do not meet at the summit of the principals, but after describing a four-centred arch the curved braces themselves meet together, and the ends crossing, continue with an inverted curve up to the principals into which they are tenoned. These braces are almost as thick as the rafters; there are two rows of purlins with purlin braces, and the appearance of the roof has a very good effect.

Curved braces, besides binding the timbers together, serve two highly important purposes; first, in conveying the thrust or strain of the roof lower down on the walls, where they offer a greater resistance to lateral pressure; secondly, they serve to steady the walls, this being the more important part of their duties, for they occur in tie-beam roofs, or flat late perpendicular ones, where there is no outward thrust, and although the braces are a great support to the massive beams, yet together with them they greatly strengthen the walls, which is very necessary when it is remembered how much they are weakened by the enormous clerestories.

The absence of the ridge-roll, and the position of the ridge-piece, which rather served the purpose of a purlin than an abutment for the rafters (they being halved and pinned together above it), is a very marked characteristic of mediæval construction.

Aisle roofs are for the most part of the lean-to order, the earliest examples being merely a continuation of the nave rafters; but the introduction of clerestories necessitated a distinct roof, generally of a flat pitch, in order to leave as much space as possible in the nave wall for light.

The construction was very simple; principal rafters resting on plates at each end, the upper supported by corbels, or let into the nave wall, and the lower resting on the external wall. Wall-pieces are tenoned into the principal at its head and foot, and curved braces spring from these, and meet in the centre of the roof, as at North Walsham Church, Norfolk; or else, gradually dying into the soffit of the principal, form a flat arch, as at Ixworth Church, Suffolk; the spandrils in both instances are filled in with tracery.

A purlin is usually framed into the principals to support the rafters, and, where necessary, intermediate trusses are used, the mouldings in most cases mitreing with those of the purlin.

In nearly all instances the whole of the timbers were beautifully moulded, as well as the bosses exquisitely carved, these roofs being so much nearer the eye than those of the nave; the lower cornices were the more enriched for the same reason.

Aisles very rarely have gabled roofs, and then only of low pitch if clerestories exist; they nearly always occur over the south aisle, this being considered the more important.

As stated at the commencement, colour

played an important part in the decorative splendour of Mediæval roofs, as it also did in connection with the rest of the building, at a time when our churches glowed from floor to summit in all the glory of bright colour and gilding.

It may be taken as an invariable rule that where stained glass occurs, the rest of the building was coloured.

Roofs were subjected to a variety of treatments, some being coloured altogether, but the general practice was only to tint the mouldings and carvings. In flat roofs the panels were frequently painted blue, powdered with gold stars (in the centres of which small mirrors were sometimes introduced, and so caused them to twinkle), as in the Clopton Chantry, Long Melford Church, Suffolk, the rafters being painted red, with scrolls bearing texts on their soffits, as well as on the cornice. Between the feet of the rafters in the cornice are shields emblazoned with the arms of the family, a common and very effective use of colour. The beads in the ridge and cornice are coloured red, with a gilt leaf twisted round them spirally, this being the usual mode of colouring beads in all woodwork, the colours varying, but always in spiral bands, black and white are most common.

At Palgrave Church a rich and pleasing effect is produced by means of few colours, namely, black and white on a red ground.

In the drawing of Knapton Church I have attempted to give you some idea of the effect of a roof in the full blaze of its original colour, which this exquisite example fortunately retains, together with the best part of its carved enrichments, the angels at the foot of the wall pieces being the only ones missing. There is a tradition that this roof was saved from a wreck, which has some appearance of truth, in so much as it seems much too elaborate and costly for the rest of the building. The wood is entirely concealed by colour, which is of rare occurrence.

In the eastern bay of St. Mary Magdalen's, Pulham, the spaces between the principals are boarded under the common rafters, subdivided into panels which are coloured all over, the emblems of the Evangelists being painted in them. Only the ornamental portions, carvings, mouldings, &c., of the remainder of the roof were coloured.

This enrichment of the portion of the roof over the altar was generally observed. It sometimes consisted of the whole of the chancel, but often only of a couple of bays.

The importance of colour to accentuate mouldings at a great height, and for giving prominence to carving and heraldic devices, cannot very well be over-estimated, as these bright touches of colour would do much to enliven the general sombreness of modern churches, and greatly enhance their charm.

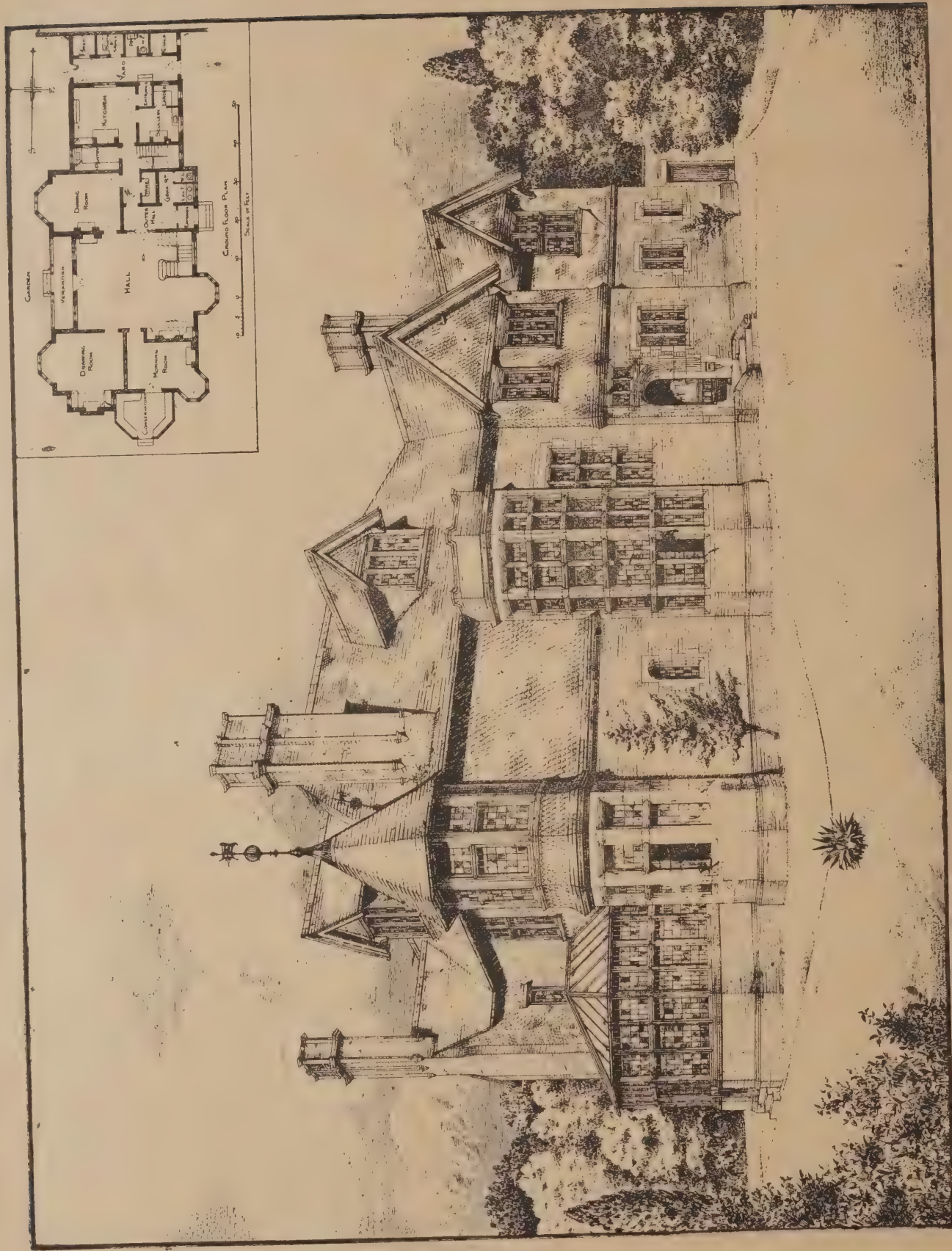
It will be noticed that my remarks have been wholly confined to English examples, no Scottish roofs being mentioned. That there are some worthy of notice I have not the least doubt, and I sincerely hope that the members of the Society will take pity on my ignorance, and in the discussion supplement this paper by the addition of local examples, which always add such an amount of interest to a subject of this kind that distant illustrations fail to convey.

A STATION hotel costing £4000 is to be erected by the South-Eastern Railway Company at Whitehall, Crayford, for the accommodation of the men employed at the engine works.

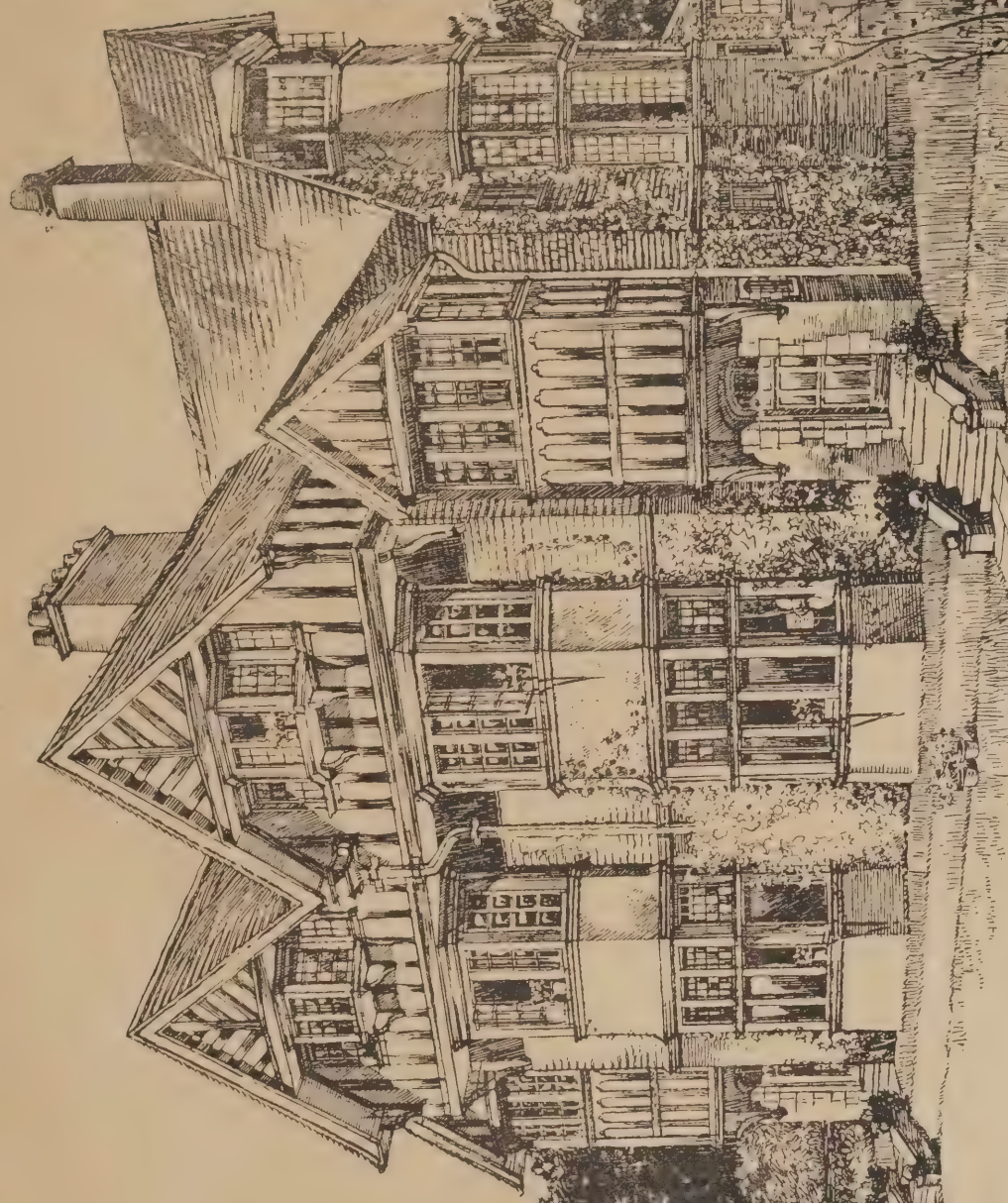
MESSES. G. AND R. COUSIN, contractors, Alloa, have been successful in securing the contract for a large addition to the Waverley Station Hotel, Edinburgh. The estimated cost is stated at between £50,000 and £60,000.

THE River Wear Commissioners of Sunderland have adopted a scheme for quay and dock extensions to cost £261,000. This is in addition to the works in progress, which raises the total cost to £375,000. The object is to provide accommodation for the large steamers which are now being generally ordered by shipowners.

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A HOUSE AT EASTBOURNE. LOUIS AMBLER, ARCHITECT.



Two Houses ^{at}
Scarborough W. E. BARRY
ARCHT.

TWO HOUSES AT SCARBOROUGH. W. E. BARRY, ARCHITECT.

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Bricks and Mortar.

EFFINGHAM HOUSE, ARUNDEL STREET,

September 7th, 1898.

"I know what it is to live in a cottage with a deal floor and roof, and a hearth of mica slats; and I know it to be in many respects healthier and happier than living between a Turkey carpet and a gilded ceiling, beside a steel grate and a polished fender. I do not say that such things have not their place and propriety; but I say this, emphatically, that the tenth part of the expense which is sacrificed in domestic vanities, if not absolutely and meaninglessly lost in domestic discomforts and incumbrances, would, if collectively offered and wisely employed, build a marble church for every town in England; such a church as it should be a joy and a blessing ever to pass near in our daily ways and walks, as it would bring the light into the eyes to see from afar, lifting its fair height above the purple crowd of humble roofs."—JOHN RUSKIN.

It is thirty-five years since Mr. G. A. Storey (made A.R.A. in 1876) went on a tour to Spain. Eleven years earlier he had exhibited his first picture at the Academy. His reminiscences of the Spanish trip, including descriptions of the native artist life with which he came in contact, and characteristics of town and country life in Spain, will be found in his "Sketches from Memory," a volume which Messrs. Chatto and Windus will publish in about three months. Among the London memories will be those of his student days in Mr. Leigh's school, Newman Street, where he began to study in 1850. Mr. Storey's early training was received in Paris, of which city his book records various warlike memories. The book also contains anecdotes about Dickens, and interesting details about the Landseers, the Pre-Raphaelites, and the Royal Academy forty-five years ago.

The walls of the National Gallery have just received some interesting accessions. These are three new Romneys and two very pleasing portraits by Sir W. Beechey. Of the Romneys, one is a lovely portrait sketch of Lady Hamilton; another, a lady and child; and the third, a portrait of Lady Craven, afterwards the Margravine of Anspach. This last is presented to the Gallery by Colonel the Hon. F. W. Stopford. The other two Romneys were bequeathed to the nation by the late General John Julius Johnstone, together with the two family portraits by Beechey. Room 18, in which the Romneys have been placed, has now been rearranged, and looks exceedingly well, containing, as it does, so fine a collection of pictures by Reynolds, Gainsborough, and Romney.

THOUGH we are to have an exhibition of works by the old masters at the Academy in January, it must not be taken for granted that the series will continue. On the contrary, all that has been settled is the character of the next show, and that chiefly as a matter of compromise. It takes a much longer time to organise an exhibition of one master's works than to choose from many collections the desirable or interesting works of several painters. To follow in the old groove was the shortest way out of a difficulty, and counsels were very far from unanimous on the course actually decided on. Nothing really has been settled except that for 1899 there will be old masters at the Winter Exhibition. The opposition to this scheme was so determined, and numerically so important, that we certainly have not heard the last of the question.

ONE of the rare cool places now is the ground floor of the Louvre. That part of the palace is devoted to sculpture. Few strangers go there, and the Sunday crowd never. One need not go to Gizeh to see the rarest specimens of antique Egyptian art. There are ground-floor rooms here filled with them. The Renaissance rooms are of great interest. France had assimilated Italian art, and given it a new and distinct character. The many-

sided genius of Jean Goujon best expresses that period. A new gallery devoted to modern French sculpture has been opened on the ground floor. Among its treasures are a bust in terra-cotta by Corpeaux, a bust of Houdon's little daughter, by her father, some sixteenth century statues that have come from the old Chateau de Chantilly in the Allier, a twelfth century Christ on the Cross, a Ste. Genevieve in stone which decorated the portal of the abbey church called after her and has lain for years in a lumber room of the Henri IV. College, a Head of Christ in painted stone of the fifteenth century, and a bas-relief representing Faith, Hope, and Charity. This is supposed to have been done for Margaret de Valois, Queen of Navarre, by an Italian artist who probably worked for her brother Francis. This room impresses one with the sociable genius of French modern art.

Nor content with the laurels she has gathered on the stage, Madame Bernhardt has pursued other walks of Art with remarkable success. In 1869 M. Mathieu-Meusnier induced her to sit to him for a bust. She attentively watched the process, and criticised the result with so much taste that the sculptor recommended her to make an essay in his art. That very night, on her return from the theatre, she adopted his suggestion—a relative, Madame Bruck, being awakened from a sweet sleep to pose as a model. In the result the young actress became an enthusiastic votary of sculpture, and her first serious work in this direction, a marble bust of a young girl, was exhibited in the Salon of 1873. Next came a bust of a younger sister, who did not live to witness its completion. But it was not until Madame Bernhardt exhibited "Après la Tempête" that her cleverness as a sculptor was fully evinced. The subject is maternal grief: an aged woman, bereft of reason by accumulated misfortunes, gazes at the dead body of an only son, refusing to believe that he is not alive, yet with a glimmering consciousness of the truth expressed in her withered face. The group is pathetic in a very high degree. Madame Bernhardt has also executed, among other things, a bust of Emile de Girardin, and a colossal statue for the façade of the theatre at Monaco. Nor is she a stranger to the palette; a striking picture of Medes slaying the children has come from her easel.

A NEW use for petroleum has been discovered in America. The tracks of the Pennsylvania Railway are sprinkled with it, and the trains between Philadelphia and Atlantic City are no longer accompanied by the clouds of sand and dust that suffocated the passengers and converted them into effigies of millers. Have we no room for this device in England? The Kingston Road, for instance, is, as the Vicar admitted the other day, a "perfect Sahara" on Sundays; but, for Sabbatarian reasons, the local authorities decline to remove the nuisance. How would it do to experiment with petroleum? The sprinkling of water, as is well known, greatly increases the dustiness of a road as soon as it has dried; for it separates the finer particles of sand and dust from the hard substratum of the roadway. Oil, on the other hand, has a permanent clogging effect. In London streets, desirable as it might seem to discover some means of suppressing the clouds of powdered filth that are whirled into our eyes at street-corners in dry seasons, oil might be unsuitable.

WE believe that it is not only under consideration to make improvements in the Keeper's house, but also to make some addition to the buildings of the Academy itself. There is ground in its possession that can be utilised for the purpose. It has not yet been settled whether another room shall be added to the existing galleries, or whether the addition shall be merely of offices of which there is felt to be great need.

AN important step towards the establishment, near London, of a Wagner Memorial Theatre has been taken by Mr. Schulz-Curtius. In a circular issued to the Wag-

nerian English musical public he expresses the opinion that an ideal site for a theatre built after the Bayreuth plan would be Richmond Hill, with Richmond Park as a background, and the Thames Valley spreading beneath, but he has no desire to force this view upon any committee of artists and men of business that may be constituted. He invites communications on the subject from his patrons, and with the intention of bringing the matter to a practical issue, encloses forms for subscriptions to any workable scheme that may eventually be submitted. The sum likely to be required for the erection of the theatre would be from £50,000 to £100,000.

A LIVELY inquiry has been held at Bourne-mouth by Mr. A. E. Sandford Fawcett, Local Government Board Inspector, respecting an application of the Town Council to borrow £1000 in order to transform the course of the stream in the well-known lower pleasure gardens into an ornamental water-course, with islet, grottoes, ferneries, weirs and a rustic bridge. The proposal is looked upon with great disfavour by many ratepayers, who offered strenuous opposition. Mr. Wall Richards, formerly of Birmingham, said that to talk of improving the beautiful gardens was like painting a butterfly. There were only two inches of water now in the stream, and where would the fishponds and cascades come from? In time of flood the fancy grottoes and rockeries would be swept into the sea if the stream was corkscrewed. The decision of the Local Government Board is awaited with considerable interest.

THE "Golden Cross" Hotel at Charing Cross, which has just emerged from the hands of the builders, after being entirely reconstructed, stands some distance to the east of the historic "Golden Cross" Inn, at the door of which Mr. Pickwick had the ever memorable encounter with the philosophic cabby. At that time it was a well-known coaching hotel, and was called "The Bull and Mouth of the West." Until late in the last century a signpost and a water-trough, which were familiar features of all such hostleries, might have been seen in front of this famous inn.

LONDON is an amazing jumble of long streets, short streets, broad streets, and narrow streets; but the shortest, if not the narrowest, is John Street, S.W. A Daily Mail representative's measurement of the length of that imposing thoroughfare is 26yds. The directory of John Street begins at No. 1—and ends there. The house is occupied by the architect to the Duke of Norfolk; and it is seldom that his letters miscarry, as the postman would have some difficulty in leaving them at the wrong number. That is the advantage of having one-house streets. The whole of the other side of the thoroughfare is occupied by Ye Olde Bell Hotel. It is said to be 400 years old. The house, however, fronts Pall Mall, and is included in the numbering of that home of fashionable clubs.

A FEW days ago it was very generally reported that the happy hunting ground of the Italian colony in Saffron Hill was threatened in connection with a street improvement, and that a year or two would suffice to bring about the complete transformation of a part of London almost entirely given over to the stranger within our gates. Inquiries we have made, however, show that this is not altogether correct. It is possible that changes will take place in the near future but, if so, they will be initiated by private enterprise, and will not involve nearly so comprehensive a scheme of clearance as that foreshadowed. For some little while the district has been enjoying the attention of a few speculators, and now a syndicate is on the point of commencing operations of a development on a somewhat ambitious scale.

GUILDFORD hardly seems to offer a congenial sphere of labour for an architect with up-to-date ideas in the matter of church decoration. This, at any rate, is one of the

morals to be drawn from the interesting proceedings at Holy Trinity Vestry meeting. In lieu of painting the walls, in connection with the urgently-needed cleaning and re-decoration now being carried out, the architect, Mr. A. H. Powell, had the "happy thought" of employing in part a paper of a green shade and in part a pattern described as "carpet brown." The effect would have been novel and artistic, no doubt, but news of his intentions no sooner spread than revolt began, and the emphatic opposition evidenced no doubt only voiced the deeply-felt indignation of the vast majority of the congregation. Holy Trinity with a garb of brown paper to hide the nakedness of its walls would cease to be Holy Trinity in the eyes of many worthy folk; and even the most unsympathetic critic must confess to some difficulty in reconciling such a development with the sober classicism of the new chancel. Mr. Powell's modernism was, in fact, effectually sat upon, and the vestrymen returned home with the satisfaction of knowing that they had triumphantly accomplished their purpose.

PAST finding out are the ways of Vestry Paving Committees. After all these years of experiment they have not yet decided upon one uniform kind of paving for London streets, says a contemporary supporting our view of a week or two ago. The consequence is that in a comparatively short drive one may come upon wood, macadam, asphalt, and granite setts. Nor do they seem able to agree upon a definite plan of campaign, so as to avoid having two parallel main thoroughfares "up" at the same time. At the present moment, when the Strand is absolutely impassable, half Holborn is in the hands of the excavators, and we should not be surprised if an excuse were found to dig up the Embankment also. To such vagaries we have grown accustomed. But at least it might have been expected that the Strand authorities, having decided to repave, would have chosen the most lasting wood for the purpose. Years ago a small portion of the roadway was laid with some species of Australian wood. The experiment answered admirably. Will it be believed, then, that the Strand Vestry has actually reverted to the use of the old creosoted deal blocks, which, under the wear and tear of skidded omnibus wheels, cannot last more than a couple of years, when all the present discomfort will have to be repeated? There is no excuse for this reactionary measure, for there are now three or four large companies in London engaged in the supply of the durable Australian woods, and able to furnish any quantity of the necessary blocks. One feels almost inclined to echo the witticism of Sydney Smith, and say if only the vestrymen would lay their heads together the thing would be done. Meanwhile, we sincerely commend the action of the Strand to other paving authorities as an example of how not to do it.

THE recent great fire in London, which laid so many houses low, has done good service in calling attention to the utterly false security promised by so-called "fireproof" buildings. The buildings are so far fireproof that the materials used in their construction—iron and concrete—will not take fire. But what happens when such a structure is stored with highly-inflammable goods, should such goods become ignited? The building acts like a fireplace, its numerous staircases, lift-shafts, and windows acting as flues, until its interior is one mass of glowing heat. Then the heat acts upon the iron girders, causing them to lengthen, by several inches, and to exert an outward thrust upon the walls, which speedily brings them down. Good strong, old-fashioned oaken beams are far safer, for they take a long time to burn through, and they do not elongate by the action of heat. It is obvious that there is room for great improvement in our methods of building construction in view of risk from fire.

CRANFORD HOUSE, an ancient house on the Bath Road, a mile or two from Hounslow,

which has been in the possession of the Berkeley family for nearly three centuries, is about to be tenanted by Lord Fitz-Hardinge, after having remained unoccupied for many years. The residence is the manor house of the village of Cranford, and has long enjoyed the reputation of being haunted, many stories being current of the appearance of ghosts of long-departed members of the Berkeley family. The building was commenced by James, Earl of Berkeley, in the seventeenth century, and it has been added to by many of his successors, so that the existing structure is a curious mixture of architectural styles. The adjoining parish church is said to be the smallest in the county of Middlesex.

EARL PERCY has laid a memorial stone of the Church Schools, to be known as "The Medd Memorial Schools," now in course of erection at Amble, in the presence of a very large gathering of people. The schools are to be erected to perpetuate the work of the Rev. A. O. Medd, in the parishes of Amble, Bamburgh, and Rothbury. They are to cost £2800 (including site), and, of this amount, subscriptions and promises have been made amounting to £1400. The plan of the new building will be on the class-room system, with centre corridor, this being considered the most desirable system for teaching purposes. Mr. J. W. Douglas, Alnwick, is the architect; and Messrs. R. Carse and Son, builders, Amble, are the contractors.

THE Globe is asking for a wheel-less Eden, to take the form of a short street—only one short street—which shall be sacred to foot passengers, and in which vehicular traffic should be absolutely prohibited. It points out that abroad the idea is by no means new. Paris has its Palais Royal, Milan its Galleria Vittorio Emanuele, and, to go further afield, Rio de Janeiro its Rua do Ouvidor. There is much to be said for the idea, but it is doubtful if the powers that be could fix upon the street. The reason for this enquiry upon the part of the Globe is the resumption of traffic in the Strand, with its accompanying whirl of noise and danger. We have long had an idea that if a man opened a building in which his harrassed brethren might find a comfortable chair and an hour's peace and quietness, the proprietor would make a good thing of it. From the whirl and bustle there is no escape for the visitor or suburban resident, and of quiet places with a plentitude of seats London is absolutely destitute.

SERIOUS news comes from Ely, where portions of the cathedral fabric show signs of decadence. Apparently some of the additions to the cathedral during the past generation are scarcely worthy the older work, and will not stand the test of time. In the case of the Peacock memorial, which reveals signs of decay, extensive repairs are necessary, and the causes which affect the structure are exciting interest among builders and scientific men. It seems that the lantern is built of oak, rich in tannic acid, with probably a trace of mellic acid. Over the oak work a thin sheeting of lead was battened, and the acids from the wood have attacked the lead, reducing its substance. Sun heat has drawn and cracked it, thus admitting the carbonic acid of the atmosphere. As a result remarkable reductions have taken place, and carbonate of lead seems to have been produced in considerable masses. All this has inspired the fear that the lantern might soon become denuded of its lead. Another modern work that is within measurable distance of obliteration is the painted ceiling of the nave, which is rapidly fading, whilst the pigments are becoming powdery, and falling imperceptibly away. The maintenance of our cathedrals, so zealously and reverently undertaken in the case of Norwich, is a heavy responsibility in these latter days; and Ely will speedily offer plenty of scope for the work of restoration.

UPWARDS of 200 men are already employed by Messrs. Walter Scott and Co., Newcastle,

on the extensive gas works being erected at the high side of Walker Estate, near the old toll house on the south-western boundary of the township. The works, which, when completed, will be among the most extensive of their class in this country, will cover an area of 81 acres of land, mostly on Lord Northbourne's estate, and partly on the Walker Estate. The new erections will consist of five sections, each complete in itself, with a gasometer capable of containing five million cubic feet of gas. It is understood that Messrs. Middlemiss Bros. will manufacture the bricks required from the clay taken from the excavations necessary to make way for the huge gasometers, which will be lowered to a depth of some 60ft. It is proposed to build three streets at a later date in the neighbourhood of the new works, of a class of dwellings suitable for the requirements of working men.

ALTHOUGH the serious question of cost has given pause to the movement for completing the restoration of Selby Abbey "the most perfectly preserved specimen of a monastic church in Yorkshire," a good deal of interest continues to be taken in the famous edifice by the general public. The fine Norman nave of Selby Abbey was restored in 1871, under the direction of Sir Gilbert Scott, and Mr. Oldrid Scott superintended the restoration of the choir about eight years ago. The nave was declared by the President of the Royal Academy to be the most exquisite specimen of Norman Architecture that he knew; and Sir Gilbert Scott wrote of the choir that it would be difficult to find an example of the Decorated style—except in some of our finest cathedrals—more perfect than at Selby. The cost of the further work is estimated at £10,000.

THE official report as to the explosion at Earl's Court Exhibition recently, by which one man was killed and two injured, exonerates the Exhibition authorities from all blame. The theory that the accident was due to a lighted match thrown down near the door of the magazine is rejected by Her Majesty's inspector, who is of opinion that the ignition was spontaneous, and occurred inside the building.

COLSTON HALL, Bristol, one of the most famous halls in the West of England, was destroyed by fire on Thursday. The conflagration began in a clothier's shop adjoining, and, in spite of all efforts, spread to the hall, of which nothing remains but the bare walls. The Trade Union Congress, who were holding their sittings there, have been unhoused, and the arrangements for next week's meeting of the British Association have been upset.

THE introduction of electricity as an illuminant in St. John's Market, Liverpool, has proved an unqualified success, and therefore it might be suggested that other Corporation markets should be similarly dealt with. Scarcely any shops or stalls have been vacant since the completion of the new lighting system, and the market has proved more attractive to buyers, judging from the larger number of people who now transact business there. Another important fact is that the electric light has not that detrimental effect on fruit and poultry which the heat of gas is apt to occasion, especially in the hot season, and although electric lighting is found to be a little more costly than the old system, it would be a great improvement were it extended in the way indicated.

A GREAT amount of interest has been excited in archaeological and scientific circles, both in England and in Scotland, by the discovery, already referred to in these columns, of a crannog or lake-dwelling on the banks of the Clyde, a little to the east of Dumbarton Castle. The find is declared to be one of the first importance. Its associations and structure are unique, and the immediate excavation and investigation of the place is advised. Already a further discovery of an interesting character has been made, a "grand" type of canoe, 37ft. long by 48in. beam, having been found. The canoe is dug out of a tree.

THE FEUDAL PRINCIPLES OF REAL PROPERTY LAW.

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I.

TO the ordinary lay intelligence the most difficult and, in many respects, unintelligible branch of our laws is that which relates to what is called real, as distinct from personal, property.

Common sense by itself will tell us much about the legal rules and principles that regulate contracts and conveyances of everything but land, when land is dealt with as realty; but about the law of real property in land, mere unassisted common sense can give no information whatever, though it may very well appreciate the effect of certain statutes by which the rules of this law have been, to some extent, ameliorated and brought into harmony with the spirit and requirements of modern times.

The reason of this is that the old law of real property which, be it remembered, to a large extent still exists, and whose fundamental principles still live in our jurisprudence, was the outgrowth of a social state which people of the present day can only very dimly realize, if, indeed, by a strong effort of the imagination they can do so at all. This old law had at one time a practical utility. The conditions of life which gave it practical utility have long since disappeared, and its principles and rules are at once unintelligible and inexplicable without them. Nevertheless, the old law, as I have said, still exists. Its vital principles flourish to-day as they did five centuries ago, and its rules are still operative, except where one or other of them has been expressly annulled by the isolated operation of certain Acts of Parliament, whose purpose and effect it requires some knowledge of the old law itself to appreciate.

In the following articles I propose to give, in language as familiar and untechnical as possible, a brief sketch of the origin and growth of the principal tenures of real property in England. I do not at all promise the reader that he can be "his own lawyer" when he has perused the articles; on the contrary, I expressly warn him that he will act very foolishly if he attempts to be anything of the kind. All I can promise him is an intelligent knowledge of the different kinds of estate in land which are included under the term freehold, and of some of the general principles and rules of law that apply to these estates. With a knowledge of this kind he will not necessarily be an expert, but he will be the better able to gauge the advice of experts, and, where he has to seek their assistance, discuss his business with them on a more equal footing, and without requiring constant, and, perhaps, imperfectly understood, information on elementary points. Besides which, some general knowledge of a subject in which one is constantly dealing seems necessary for general guidance. At every step in this inquiry we shall see how closely interwoven are the theory and history of the law.

Thus, at the very outset, the terms real and freehold are often, though not quite correctly, used as synonyms when applied to property in land. All freehold estate is real estate, though, as we shall see, some real estate is not freehold. How did property in land come to be called real, and how did it come to be called freehold? As regards the term "real," the answer is this: Land is different from all other things in this respect—that it cannot be carried away or destroyed. If a man wrongfully possesses himself of your money, your jewellery, your cattle, or your clothes, he may destroy or make away with them, so that it would be impossible to recover from him the identical things that he has taken from you. You could then have

only an action *ad personam*, as it was called in old times, or an action against his person to recover monetary damages for such loss. On the other hand, he could not make away with an acre of land, and if you were wrongfully deprived of land, you could have an action *ad rem*, as it was called; in other words, an action for the recovery of the real thing that was taken from you. Actions for the recovery of land, then, were called actions *ad rem*; actions for the recovery of other things, actions *ad personam*. Presently the former were spoken of as real actions, and the latter as personal actions, and then the terms "real" and "personal" were applied to the things that formed the subject-matter of the actions. The reader will probably ask here why, according to this explanation, a leaseholder has not real property in the land he leases, since, if wrongfully ejected, he can have an action for the recovery of it. The answer is, that in old times he could not have had any such action. In early times the leaseholder was not regarded as having any ownership in the land, but merely as a bailiff, or caretaker, in the service of the freeholder, to whom he had to account for the profits at a certain fixed sum, called rent. If deprived of the possession of the land, he could only have had an action against the person of the owner to recover damages for breach of contract. The term "freehold" meant such an estate in land as it was worthy of a free man to accept, which, in ancient times, was an estate for his own life at least, though subsequently an estate for the life of another person (called an estate *pur autre vie*) was regarded as freehold.

What we call the law of real property is (excepting, of course, the provisions of certain modern statutes) the development in England of the feudal system. The feudal system was the polity of the northern nations when they overran Europe during the early centuries of the Christian era. Feudal means of the nature of fees, or payments for services rendered and to be rendered. The feudal system was the system of portioning out a conquered territory amongst the soldiers of a conquering army, and giving to each soldier so much land, not to be his absolute property which he could do as he liked with, but to hold from the general during such time, and only during such time, as he performed certain military duties which were necessary for the defence of the territory. These allotments were called feuds, fiefs, or fees. They were, in fact, of the nature of a salary which is paid partly for services already rendered, and partly for services to be rendered, only that the payment was in land, and not, as now, in money. And so, on the death of the military tenant, or *holder*, the land reverted to the general of whom he held, and who would then give it to someone else to hold so long as he performed the same services.

This is the original and fundamental idea of feudalism, and it ought to be noted here that to feudalism in this, its pure state, primogeniture, or any other form of inheritance, was unknown.* Having been educated by his father, the eldest son would seem to be a likely person to discharge the duties of his father properly, and, accordingly, a custom arose of appointing the eldest son to succeed his father, from which custom he gradually acquired a prescriptive right to the appointment. But it should be remembered that inheritance of any kind is not contained in the original conception of feudal or stipendiary holding of land from a chief, which is the essential idea of the whole system.

Another quality of these early feuds was that since they were given to the tenant as recompense for his own personal services, they could not be sold, exchanged, mortgaged, or in any way alienated. "For," says Blackstone, "the reason of conferring being the personal abilities of the feudatory to serve in war, it was not fit he should be at liberty to transfer this gift either from himself, or from his posterity, who were presumed to inherit his valour, to others who might prove less able; and as the feudal obligation was looked upon as reciprocal the lord could no more transfer

his seignory or protection without consent of his vassal than the vassal could his feud without consent of his lord. . . . These were the principal, and very simple, qualities of the genuine or original feuds, which were all of a military nature, and in the hands of military persons."[†]

The above are the principles of the feudal system in its pure and military state, from which in different countries various systems of laws were deduced as corollaries by lawyers who were highly trained in what is known as the scholastic philosophy, which was concerned much more in considering the logical accuracy with which conclusions were deduced from their premises than in any attempt to estimate the truth or utility of the propositions employed.

"As soon," says Blackstone,[‡] "as the feudal system came to be considered in the light of a civil establishment, rather than as a military plan, the ingenuity of the same ages which perplexed all theology with the subtlety of scholastic disquisitions, and bewildered philosophy in the mazes of metaphysical jargon, began also to exert its influence on this copious and fruitful subject: in pursuance of which the most refined and oppressive consequences were drawn from what originally was a plan of simplicity and liberty, equally beneficial to both lord and tenant, and prudently calculated for their mutual protection and defence. From this foundation, in different countries of Europe, very different superstructures have been raised."

I am going to sketch the superstructure that was raised in England, a very considerable portion of which remains to the present day. In doing so I shall avoid as much as possible all matters of a purely archaeological or historical importance, and such as are only likely to be of interest to lawyers as such. My purpose is to exhibit the broad features of freehold tenure in so far as they are developments of, or explicable by, feudal principles.

An English subject may have the absolute ownership of goods, he cannot have the absolute ownership of land. The fundamental maxim of our law of tenures (though practically it may now be regarded as a fiction) is that "the king is the universal lord and original proprietor of all the lands in his kingdom, and that no man doth or can possess any part of it, but what has mediately or immediately been derived as a gift from him, to be held upon feudal[§] services."^{**}

In the first year of the actual, and the twelfth of the nominal reign (on the principle that the king never dies) of Charles II. a very important Act of Parliament was passed (12 Car. II., c. 24). The epoch which preceded, and that which followed the passing of this statute, may be considered as two grand epochs in the history of real property law in England, though the statute itself left untouched the spirit of the feudal system, and only altered the nature of certain of its consequences.

In the next article I propose to consider the peculiar incidents of tenure which were destroyed by this statute, and then, in subsequent articles, the nature and methods of inheritance of the tenures by which lands are now holden. The result will, I think, be to show how curiously a complicated mass of laws are unified by a few simple principles (however antiquated they may be) such as are enunciated above. It will also show how necessary a knowledge of the history and assumed axioms of real property law are to its comprehension as an intelligible system, however remote from the practical exigencies of modern life. On the ground of practical present-day utility the law of real property cannot be defended, though the defence, or, at least, explanation, is possible if we regard it as part of an ingenious system of deductions from fixed, though possibly to us of the present time fanciful, propositions.

(To be continued.)

* The statute 12 Car. II., c. 24, only abolished the military tenures. Socage, into which they were converted, is "of the feudal nature."—2 Bl. Com. Ch. 6. Of this we shall see more presently.

[†] Ib.

[‡] Ib.

* Blackstone's Commentaries, Book 2, Ch. iv. This volume will be referred to hereafter as 2 Bl. Com.

CHURCH DECORATION AT SUDBURY.

THE services of Mr. G. F. Bodley, A.R.A., were secured for the renovation of St. Peter's Church, Sudbury, and the erection of a new reredos therein. The torn and soiled papering has been removed from the western side of the chancel arch, and the wall repaired and richly decorated. On either side of the arch, on green diaper work, are very large figures of angels, in flowing draperies, swinging censers; while over the centre of the arch two angels, in smaller design, are holding a blue shield, bearing the sacred monogram. The ledge above, which formed the canopy of the original rood, has been painted blue, with gold decoration; and along the entire length runs a vellum scroll. Above the ledge has been placed a gilded cresting of beautiful fifteenth century work, broken with three shields, the three crowns of the Diocese of Ely in the centre, and on either side the arms of the Provinces of Canterbury and York. The decoration of the easternmost bay of the nave roof is very effective; but perhaps one of the most interesting features of the work is the painting of the chancel roof. The ground work of the first bay is a superb red, each panel containing a handsome wreath of black-and-white twist, in the centre of which is the sacred monogram in gold. Across the corner of each panel are vellum scrolls, bearing the words, "Laus, Honor, Gloria, Amor," and between the scrolls are raised stars. In the rest of the roof the ground work of the panels is green, with blue turn-overs, surrounds the letter "P" in gold. The beams are of deep red, relieved with black-and-white chevron, and the spandrels are heavily gilded; while the angels which form the corbels are in blue-and-white copes, with gold wings, and each holds a scroll, bearing a short Latin text. An inscription runs round the chancel walls, immediately beneath the roof, taken from the Communion Service. The side walls of the choir and sanctuary are a deep Venetian red, with pine diaper in a darker shade of red. Between the springs of the arches are eight shields, surmounted with large gold crowns; the shields are grey blue, the four in the choir having the crossed keys of St. Peter, those in the sanctuary the emblems of Evangelists. A good deal of other artistic work has been carved in this part of the sacred edifice. On the south wall, behind the sedilia, is a rich curtain of tapestry in red, black, and gold. The splay of the east window has been coloured, and is decorated with shields bearing the sacred monogram, while between the shields is a small vellum scroll with "Alleluia" in black letters. The monotony of the red walls is also broken by the five painted windows Mr. Bodley has placed in the clerestory of the chancel. The four windows in the choir are two-light windows, and each light contains the figure of an angel vested in a rich cope of soft blue green or crimson, and a member of the Celestial choir is holding one of the musical instruments mentioned in Holy Scripture. In the upper tracery of the windows are handsome shields, bearing respectively the arms of Ely, Canterbury, Bury St. Edmund's, and the emblem of St. Peter. In the three-light window re-opened on the south side of the sanctuary are figures of the three Archangels, St. Michael in the centre, St. Gabriel next the altar, and St. Raphael. St. Peter's is a fifteenth-century church, and the reredos has been carried out in the true character of that period. It is 20ft. high, and 7½ft. wide. The main groundwork is red, but the canopy work and decoration in gold and colour is so rich that very little of the red is seen. On either side, and round the top, runs a carved banding of vine leaves and grapes, gilded, but glazed down to colour. The figures are raised, and stand out well. The three central ones are beneath rich gold canopies. The centre is that of the Saviour, on the north side is a representation of the Blessed Virgin, the outer robe being of soft blue, the under robe of gold being glazed down to deep red. On the south side is the figure of St. John, the

outer robe being of green, lined with a lighter shade of the same colour, the under garment of gold also glazed down to a deep red. In choice canopy work beneath the Cross is a panel illustrating the Annunciation. The Blessed Virgin is kneeling at the "prie-dieu," on which is carved the conventional lily. Her outer garment is of blue, the inner being glazed to soft red. Before her stands the Archangel, clad in a garment of white and gold, with a cope of soft green turned over with light blue. Above her hovers the dove. In the panels, on either side of this, are groups of angels, finely carved, decorated in white and gold, and holding in their hands scrolls, which bear the words, "Gloria in Excelsis," and "In Terra Pax." The lower part of the reredos takes the form of a lofty re-table, with a bold projection, adorned with bosses of gold and small paterae and dark green carnations. On this are five panels of carved tracery work, surrounding emblems of the Passion; while on the face of the lower re-table are the words in high gold relief, "Ecce Agnus Dei Qui Tollit Peccata Mundi." The reredos is set off with wings of tapestry in two shades of green, ornamented with gold pines; while before the reredos stands the new altar, of best English oak. A great improvement has been made to the sanctuary by the removal of the gas standards, and the substitution of brass wall candelabra of seven lights with sconces.

KEYSTONES.

THE Lichfield Guardians are now considering plans by Mr W. H. Woodroffe for an extension of the workhouse buildings.

THE Earl's Court Exhibition next year will take the form of a Colonial Exhibition, and large application for floor space has been received. The spectacular feature in the Empress Theatre will illustrate scenes from colonial life.

THE Gloucester School Board lately invited local architects to compete for a new school. Mr. Martin, of Birmingham, was appointed referee, and by his award the first prize was awarded to Mr. A. J. Dunn. By a majority of one it was, however, decided to appoint Mr. Medland to carry out the work.

THE memorial stones of the New Bethany English Congregational chapel at Aberaman have been laid. The new building is a very neat structure, capable of seating 450 to 500. It has been built by Mr. J. Jones, Gwawr Cottage, from plans prepared by Mr. T. Roderick, architect, Aberdare, and is situated on a site on the new main road from Aberdare and Aberaman to Cwmaman.

THE foundation stone has been laid of the proposed Church Hall at Springfield, Essex. The hall, which will cost, with the furnishing and the purchase of the site, about £1000, is being built by Mr. Frank Johnson to plans executed by Mr. George E. Clare, architect. The building will be of red brick with stone dressings, will seat 364 persons, and will have a vestry attached to it.

THE Public Health committees of the local authorities of the burgh of Arbroath and the Arbroath district of Forfarshire, to whom the matter was remitted, have approved of erecting a joint epidemic hospital to supersede the present hospital belonging to the burgh, which is closely environed with dwelling houses and by the infirmary. A sub-committee has been appointed to look out for a suitable site.

A BUILDING ORDINANCE was recently passed by the City Council of Chicago compelling the use of swivel windows above the second story of all new buildings. The purpose of the law is declared to be the prevention of the numerous accidents attending the cleaning of stationary windows. The new law provides that upper story windows must swing on horizontal or vertical pivots, otherwise a balcony must be built in front of every window. Opposition has arisen to the law on the ground that it was designed to benefit the owners of patents on swivel windows, and also that the size of windows will have to be reduced owing to wind pressure, and accidents will result from falling window-sashes.

THE NEW STATION AT NOTTINGHAM.

THE work on the site of the new Central Station in Nottingham has not yet assumed a very imposing appearance, but short of an inspection at close quarters, it is impossible to obtain any idea of the immense amount of labour which has already been accomplished. As has already been announced, there are to be two island platforms at each end, and their length on the main line is to be upwards of 1100ft. The contractors have yet to erect the huge retaining walls, both on the Mansfield Road and on the Windsor Street sides, and for a considerable distance these will also serve as supports to the station roof, a massive structure of steel and glass. The steel columns, 42ft. 6in. high, and 15ft. apart, which are already fixed on the main platforms, are intended to carry the roof, and an archway between the columns exactly facing Shakespeare Street denotes the location of the new public footbridge which the Company are erecting across their station. At the present moment the work of pressing importance is the completion of the fine bridge from Bywell Street to Glasshouse Street for public use, so that the temporary bridge lower down may be demolished. Several girders remain to be fixed on the York Street side of the permanent bridge, but meanwhile the roadway for the greater part of the distance across is being made ready for handing over to the Corporation for metalling. Under the main platforms run a perfect network of admirably-built subways for passengers' luggage, access to the cellars, and for the protection of the gas, water, and drainage pipes. The subway for luggage will be connected by two lifts with the booking hall on Mansfield Road, and has communication also with lifts with both the down and up platforms. It is faced with glazed bricks, and measures 14ft. wide by 11ft. 2in. high. A smaller tunnel, 8ft. wide, communicates with the cellars, which are situated immediately under the refreshment rooms. The storage is of the most complete character, and all the cellars have blue brick roofs, with steel joists. The buildings on the platforms are all to be constructed of specially prepared terra-cotta blocks and glazed bricks, and when completed they will have an exceedingly imposing appearance. In addition to the signal cabin at the Woodborough Road end, there are to be boxes on the down and up principal platforms, and a fourth close to Parliament Street bridge. The roof of the station itself will be about 420ft. long, and it will have five spans, but there will be what is known as an awning roof, 220ft. long, connected with it at either end. The station is to be lighted by electricity and gas, and the plant for the former is being provided in the goods yard. It remains only to be added that the contractors are proposing to face the Parliament Street bridge with brick and stone, and to erect an elaborate parapet. Much important work is still going on in the goods yard, but it is impossible to convey any idea of the immense change which has been wrought in the neighbourhood as the direct result of the construction of the new line.

THE great tower by the entrance of Haddon Hall is in danger. The large, overhanging turret has caused the wall to lean forward, and unless something is done to stop the movement a disaster may occur. A slight settlement of the great curtain wall to the south of the tower, which had occasioned that wall also to lean westwards, has accelerated this movement in the tower. It is recommended that to arrest the movement in walls some 25ft. high, a new 3ft. thick wall, well bonded to the old walls, should be built back to the fifteenth century curtain wall, which runs longitudinally between them in the aviary below the Earl's rooms. Another proposition is that the lead roofing and gutters, which were found past repair, should be taken up and recast on the site, and then relaid as before, any repairs needed to the roof timbers being undertaken at the same time.

WALL PAPER.

THE PROCESS OF MANUFACTURE.

THE employment of paper as a covering for walls originated, as many of our arts and manufactures did, with that Eastern race which are now occupying so much the attention of the Western Powers—the Chinese. It was introduced into Europe as a substitute for tapestry hangings by the French, and at the present time it offers probably the cheapest and most ornate means of mural decoration. The blank paper, usually weighing from 85lb. to 90lb. to the roll, is received by the manufacturer in long rolls. It varies in quality according to the printing and finishing it is going to receive, weighing 9, 10, 12, 14, and 16 ounces to the length of 12yds., which constitutes the usual length of the roll in England as sold retail. French papers are about 9yds. in length. The first process undergone is termed "grounding," and the object is to give the paper the requisite body to enable it to receive the coloured pattern, for which purpose it is passed through a pounding machine. While passing over a roller the paper is covered with a mixture of so-called Jersey clay, which contains some eighteen per cent. of alumina, glue, and water, and if the surface is to be finally polished, or satin finished, a percentage of lard oil is added. After the mixture is applied, it is evenly distributed over the paper, first by two reciprocating brushes, then by a rotating brush, and, lastly, by two reciprocating brushes again. It is then conducted between endless belts, across which sticks are laid, and over which sticks the paper is suspended in festoons. The sticks are so placed that

A LENGTH OF PAPER

measuring just 12ft. hangs between any two. The belts are kept in constant motion, and the paper is thus conducted along the shed, which is generally some 160ft. long. Steam coils are placed beneath the belts, and a temperature of 120deg. maintained. About nine minutes are occupied by any one festoon of paper in making the journey from the grounding machine to the point where it is again made into a roll, and during this period it becomes thoroughly dried. Frequently colouring matter is mixed with the ground paint, and the paper is thus given a flat tint, which forms a background for the pattern, or which is left unaltered when the paper is meant to be perfectly plain. Imprinting the pattern by blocks is done in two ways, either by the block or by the roller. In either case, each colour entering into the design must be printed separately, so that there must of necessity be as many blocks or rollers prepared as there are tints in the pattern. The blocks are constructed of two layers of wood, a thin piece of maple fastened to a thicker backing of pine board. Each block is about 26in. wide, 2ft. long, and 1½in. to 2in. thick. On the maple all the design to be printed in a single colour is drawn and afterwards cut out by engravers, so that the lines are in high relief. The more delicate figuring is not made in the wood, but is supplied by the insertion of bent pieces of brass, as explained presently. When the wood carving is completed, the work is brushed over with boiled oil, and when dry are sent for use. Hanging above the table at which the workman stands, supported by an indiarubber cord, is the block. The upper end of the cord is attached to a small wheel

TRAVELLING ON AN IRON GUIDE,

so that the block may be swung from the table over to the place where it receives its covering of colour. This last is obtained from what is termed the "slush-box," which consists of a shallow vessel, the bottom of which is covered with painted ticking. This box floats on a mixture of water and paper pulp contained in a larger box, so that its bottom is always perfectly level. The workman first places the paper across his table, then swings the block over to the slush-box and brings its carved side down on the paint. Next, he carries the block back again and places it on the paper, using great care in the registering, so that the impression may fall exactly

on the right place. A vertical movable arm attached to a frame above is then rested upon the back of the block, and forced down by a lever worked by the workman's foot. This process is repeated until the whole piece is covered with the pattern, which is hung up until perfectly dry. Hand-printing is now employed on borders which contain many colours, and in the finer qualities of decorated paper, where the care necessary for printing the numerous tints can scarcely be exercised during the motion of the rapidly-working cylinder machines. In roller-printing, the impression is obtained from a series of rollers, on the surface of which the design is raised. This process is employed for all the cheaper kinds, and hence for the greater proportion of all wall papers manufactured. The rollers are of maple, lined in the interior with brass. Four different sizes are used, and their width is always 18½in.

THE PATTERN OF THE DESIGN

is first drawn on paper and coloured, and then the outlines of the various parts are transferred upon the rollers, each roller printing only such portions as are of one particular hue. Unlike that of the blocks, the surface of the roller is not cut away, but the pattern is made by driving in pieces of thin brass, which the workman bends in a vice so as to correspond with the lines of the pattern. Where there is a considerable area to be printed "solid," its outlines are raised in brass, and glued felt is packed inside the metal boundaries thus made. In some cases, where the paper is not grounded, rollers are covered entirely with felt, with the exception of such portions representing the pattern as are intended to be left white. After the design is thus produced, the roller is placed in a lathe, in the side rest of which is fixed a vertical file, smoothing the surface; or if the roller be entirely felted, it is submitted, when the glue in the felt is dry, to the action of an emery wheel. The printing machine consists of a large cylinder or drum, around which the paper passes, and while thus carried the paper receives an impression from each roller in turn, the rollers being disposed around the periphery of the cylinder. Each roller is supplied with colour by an endless belt of felt, which passes down into a receptacle filled with the paint. If the paper is striped, the colours are blended by dry paint brushes held in contact with the surface as the cylinder rotates. If, however, the paper is to be satin finished, before the above operation takes place it is put

THROUGH A POLISHING MACHINE.

This consists of a central rotating brush against which the paper is carried by several metal cylinders. The alumina and oil in the ground-work admit of its being finely polished. The printed pattern is, however, in dead colour, so that when the paper is finished some portions have a lustre while others have not. As the printed sheet emerges from the machine, it is let over sticks on endless belts. The following ingenious device is employed for placing the sticks under the paper: At the ends of a roller, over which an endless belt passes, are two canes; above these and resting on their periphery is a pile of sticks. The cane shoulder equals in height the thickness of one stick. Hence at each revolution of the cane, a stick is moved from the bottom of the pile and carried down on and across the belts. Between the latter comes the paper which thus falls in folds over the sticks as they are laid in place. After the paper, becoming dry meanwhile, has been carried on the belts to the end of the shed, one end is connected to a swiftly rotating horizontal spindle, which winds it into tight rolls. These measure 12yds. in length, the sheet being cut as soon as a mark placed by the printing machine comes to the spindle. If the paper is to be embossed, this is now done by passing it through engraved metal rollers. Nothing further then remains to be done but to send it out for sale.

W. N. B.

WORKMEN'S dwellings are to be erected in Southampton, according to plans to be prepared by Mr. Hair.

Professional Items.

ABERDEEN.—The St. Fergus Parish Church has just been reopened after extensive alterations and decoration. The improvements included the introduction of new heating apparatus and a new organ, and the addition of two stained-glass windows. The church has also been very beautifully decorated. Mr. A. M. Mackenzie, A.R.S.A., Aberdeen, was the architect, and the contractors were—Woodwork, Mr. William Auld, Ellon; painting and decorating, Mr. John Whyte, Aberdeen.

BIRKDALE.—The Urban Council are about to erect a caretaker's lodge at the Victoria Park, at a cost of £575, and also a fire brigade station at a cost of £500. The designs have been prepared by Mr. F. C. Hodgkinson, the surveyor to the authority.

BRANDON.—The Cabot Memorial Tower, Brandon Hill, Bristol, has just been opened. Mr. W. V. Gough was the architect.

BLYTH.—A new theatre is to be erected here for the Blyth Theatre Co. Ltd. Plans have been prepared by Mr. Hope, of Newcastle, for an auditorium to seat 2500 persons.

CROMER.—A new hotel is proposed to be erected at Overstrand, Cromer, on the road between Overstrand and Sidestrand. Mr. Boardman, of Norwich, is the architect.

HECKMONDWIKE.—A new school has been erected in High Street, Heckmondwike. It is a handsome building, inside and out, and the accommodation afforded is all that can be desired. Throughout, the class rooms and corridors are excellently lighted and ventilated, and the conditions generally under which the scholars will work are as healthy and agreeable as it is possible to make them. The architect is Mr. A. A. Stott, of Heckmondwike, and the accommodation comprises places for 1090 scholars. The school has been erected at an inclusive cost of something like £18,000. There are chemical laboratories provided, Science and Art class rooms, lecture rooms, and eleven class rooms for elementary instruction.

INVERNESS.—The first scheme of additions to the asylum at Inverness is now completed at a cost of over £12,000. Messrs. Ross and MacBeth are the architects. Various improvements are to be carried out at an estimated cost of £18,000.

LIVERPOOL.—The new open-air swimming bath and gymnasium built in Gore Street for the free use of boys at the south end of Liverpool have been formally opened. The establishment is situate at the junction of Gore Street and Brassy Street, off Stanhope Street, and is immediately behind and abuts on St. Matthew's Church, Hill Street. It occupies the site of the Maiden's Bower, which consisted of about fifty dwelling-houses, these houses having been condemned as insanitary and pulled down many years ago. The bath and gymnasium cover an area of about 1100 square yards. The main entrance is at the junction of Gore and Brassy Streets. After passing the turnstiles you enter the gymnasium, a building 44ft. long, with an average width of 40ft. The gymnasium is to be provided with the usual "youth's" gymnastic apparatus, such as ladders, climbing ropes and poles, parallel bars, rings, &c. One end of the gymnasium opens on to the swimming bath, which is 75ft. long, 60ft. wide, and contains 70,333 gallons of water, having a water-depth of 2ft. 6in. at the shallow end, and 3ft. 6in. at the deep end. Covered dressing sheds are provided on both sides and ends of the bath, the side-walks averaging over 10ft. wide. The buildings, which are of the most substantial

and complete of their kind, are built with ordinary red bricks, having terra-cotta dressings, the gymnasium and offices being covered with a boarded and slated roof carried on iron principals. The gymnasium has a wood pavement floor, and is lighted from the roof and one end. The establishment was designed by and the work carried out under the supervision of the baths and washhouses engineer and chief superintendent (Mr. W. R. Court). The contractors for the work were Messrs. L. Marr and Son, Liverpool.

LONDON, W.C.—The new and spacious building which is in course of erection for Messrs. A. W. Gamage will be a conspicuous object in Holborn. The new building, which will be entirely faced with Portland stone, will rise to a height of 80ft. above the pavement, and will present a very handsome and imposing appearance, and will be one of the tallest buildings in London for business premises. The frontage towards Holborn is 66ft. in length, and towards Leather Lane 141ft., giving a total length of shop windows of over 200ft. The building is being erected in two sections—front and rear. The whole of the ground floor will be used as shop and sale rooms, whilst the basement will be utilised for warehousing. On the upper floors the front portion will be devoted to showrooms and order departments, the rear portion being used as showrooms, counting-house, and private offices, with dining-rooms for the accommodation of the large staff. It is intended to open a refreshment buffet, with private rooms for ladies. The buildings will have electric lighting throughout, with generating plant in the basement. There will be several passenger and luggage lifts. By an ingenious contrivance for putting in the substructure while supporting the floor of the shop in position, and afterwards building the superstructure over the shop, the whole of the work of rebuilding is being carried out without interrupting the ordinary course of business of the firm, or even depriving them of the use of shop window space for display of samples of their goods. The general contract is being carried out by Mr. J. Carmichael, and Messrs. Sage and Co. are entrusted with the fitting up of the shop front, Mr. Rendel, of Farringdon Road, fitting the inside fixtures. The works have been designed by and are being carried out under the supervision of Mr. J. Sawyer, F.R.I.B.A., of 63, Chancery Lane.

LOWESTOFT.—The new and handsome Board Schools, built to meet the requirements of the Education Department, and also the increasing requirements of the town of Lowestoft, erected in Lovewell Road, Kirkley, by Mr. Hawes, of Norwich, were opened last week. The new school was designed by Mr. W. Rushworth, of London and Croydon, and will accommodate 796 children—294 infants, 252 girls, and 250 boys. All the school rooms and class rooms are warmed by open fires, supplemented by hot water pipes and radiators, while the ventilation and light are admirable. The floors and staircases are constructed of fire-resisting materials, and the entrance doors swing outwards and inwards. The cost of the two blocks of buildings, with furniture, was £9636.

LONDONDERRY.—The new club-house for the Foyle Rowing Club is now in course of erection. The site of the building is on the Strand Road below the old tennis ground, with a frontage of 80ft. to the river. The club-house is to be fitted with all the most modern improvements, and will have a bath-room and gymnastic requisites. The upper portion of the building will consist of an entertainment room, which will be constructed to accommodate 200 persons. Mr. J. P. McGrath, C.E., Foley Street, is the architect, and Mr. Joseph Ballintine, of Derry, the contractor.

MANCHESTER.—The new Roman Catholic chapel at Victoria Park, Manchester, is near completion. The work is in the fourteenth century French style, and is carried out in red

brick with terra-cotta dressings. Mr. W. H. Rawle is architect, and Messrs. Wilson and Toft the contractors.

NEWCASTLE.—The Guildhall and Exchange is about to be re-opened after alterations and improvements. Various structural alterations have been effected, the principal being the substitution of steel girders and stanchions for the heavy stone piers which carried the north wall and the Guildhall floor, and the lowering of the Exchange floor. Messrs. Armstrong and Kurdoles were the architects, and Mr. W. R. Dodds, Jarrow, carried out the plaster work, the general contractor being Mr. Thomas Lumsden, of Jarrow.

NORWICH.—The Church of St. Peter Mancroft has been reopened after restoration. In January the following report on the chancel floor levels was made by Messrs. W. Bucknall and G. N. Cowper, architects, of 19, Old Queen Street, Westminster, who completed the restoration of the tower some few years ago:—"The levels of the chancel floor of St. Peter Mancroft, Norwich, as they are at present, are very evidently not the original levels. They are, moreover, very detrimental to the dignity of the church. The great height of the Presbytery floor, which remains very nearly at its original level, is very unusual in an English parish church. It is, of course, accounted for by the passage beneath this part of the church, which is now no longer used. Besides St. Peter Mancroft, two other notable examples of this feature in Norfolk churches may be mentioned, viz.: St. Gregory's in Norwich, and the parish church of Walpole St. Peter. In both these churches the Presbytery floor is even higher, and it is accounted for in the same way, viz.: by the existence of a passage underneath. But, unlike St. Peter Mancroft, the levels in these cases appear to remain very much as they originally were, and they are therefore valuable examples to be borne in mind in the present instance. The chief point of difference between the levels of these two chancels and the present levels of St. Peter Mancroft is that, in the former, the main flight of steps occurs eastwards of the choir stalls. Thus the higher level is confined to the Presbytery, and much greater dignity is given to the whole appearance of the church. A raised Presbytery was, as already implied, a thing avoided in English parish churches, while a raised choir would seem to have been unknown to them. But where the former exists it is a misfortune that the dignified effect of which it is capable should be spoilt by placing the choir stalls on the same level. It is, therefore, proposed to bring these down to what was, beyond all doubt, their original level of one or at the most two steps above the level of the nave, and at the same time to reclaim for their use the westernmost bay of the chancel, which, to the great destruction of the dignity of this very fine church, has been utilised for some of the nave seats. It is quite evident from the bases of the pillars that the original levels at St. Peter Mancroft were similar to those of the above-mentioned churches. There are also indications showing that the present floor of the Presbytery is at its highest part some 7in. lower than the original level. This can either be restored at the same time, or left as it is, as far westwards as the temporary wooden floor, which should in either case be removed. As regards the material of the floor and steps, we should recommend that the existing stones should be used as far as possible, and that the rest should be made up in plain stone to match. Of far more importance than any elaborate pavement is the restoration of the old levels, and the cost of a small portion of elaborate pavement would go far towards meeting the expense of this. Moreover, in the two above-mentioned churches the chancel floor is all of plain stone; and so it is in most churches of this date. And whether their original floors were or were not more elaborate, the plain stone is eminently satisfactory and at home in England. If, however, money for it is forthcoming, some bands of small glazed green and yellow tiles in elaborate patterns would be the most

desirable form of enrichment at present at disposal for the fabric of the floor. Marble and Italian mosaic should be rejected as unsuitable to England, and entirely out of keeping with this most typical English church. But we should recommend, as of the next importance to the restoration of the levels of the floor, a decoration which can be added to it in the form of some really fine and suitable ancient Oriental carpet, such as is to be seen in the northern pictures contemporary with the church. Such a carpet may occasionally still be met with, and would furnish the church better, and be finer in colour than any decorated pavement; and however elaborate the pavement may be, it does not dispense with the need of a carpet."—It was unanimously agreed by the vestry to authorise the vicar and the churchwardens to apply at the Consistory Court for a faculty for carrying out the work of the restoration of the chancel to the original levels on the lines of Messrs. Bucknall and Cowper's report, and also to form a side chapel on the north side of the church for daily service, and this has since been done, and the work completed, the chancel floor having been generally restored to what is believed to have been its original level, and the side chapel formed as desired. In the course of the operations an interesting discovery was made of a staircase leading from what is believed to have been the priests' chamber under the organ, and leading up to the altar. The remains of this staircase have been preserved, and an iron grating placed above them. Practically the whole of the work, which has been carried out in a very satisfactory manner, has been executed by Messrs. J. Downing and Son, and everyone appears to be agreed that a very great improvement has been effected.

PENSHURST.—The result of the competition instituted by the Sevenoaks District Council, for the best set of drawings for workmen's cottages, has been won by Messrs. Taylor and Sons, of Aylesbury. Mr. Edgar Wood, F.R.I.B.A., of Manchester, was the assessor, and had sixty sets of drawings to adjudicate.

STANLEY.—The ceremony of dedicating the newly-erected Episcopal Church at Stanley was performed recently. The work was entrusted to Messrs. Spiers & Co., Glasgow. The site is conveniently situated near the centre of Stanley on the main road to Perth. The church itself has a pleasing appearance. It is a composite structure in an English half-timber style of Architecture. The foundation is of brick, the lower outer walls being creosoted weather boarding, and the upper walls are finely lined and panelled. The entrance porch and vestry are in harmony with the main building.

The Clacton-on-Sea Urban Council has resolved that any householder requiring a supply of salt water for the purposes of baths, flushing, &c., shall be allowed to connect with the sea-water main, where convenient, free of charge.

A PROJECT is under consideration for securing the waters of the Upper Derwent for the supply of Mid-Derbyshire, the Corporation of Derby, Nottingham, Leicester, and Sheffield, at a cost of £23,000,000, to yield 14,000,000 per diem.

The Master Plumbers and Plumbers' Union of Ottawa have appointed a committee to interview the Council and learn why the plumbing by-law passed in 1893 has not been enforced. The by-law calls upon every master plumber to take out a license at 2 dollars per year, and to give a bond of 200 dollars as a guarantee of good work; the license fee for journeymen plumbers is 25 cents. It is claimed that the health of the citizens has suffered because of defective plumbing-work done by incompetent and irresponsible firms, and the Council will be urged to enforce the law for the future and to incorporate in it a provision that iron pipe in houses should be carried through the foundation and protected by a stone arch, so that when the foundation sets the drain still remains unimpaired.

CARBOLINEUM AVENARIUS

(REGISTERED),

PATENT WOOD PRESERVATIVE.

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TENDERS.

Information from accredited sources should be sent to "The Editor." No results of tenders can be accepted unless they contain the name of the Architect or Surveyor for the Work.

AYLESBURY (Bucks).—For alterations and repairs to Walton Villas, Aylesbury, for Mr. T. Horwood. Mr. Ernest Hazell, architect, 23, Moorgate-street, E.C.:—
Seth Grist, Limited ... £1,078 | S. Mayne and Son ... £1,024
J. S. Holland ... 1,091 | Webster and Cannon* ... 984

BRENTWOOD.—For reflooring the boys' playroom at Hackney Schools, Brentwood, Essex, for the Guardians of the Hackney Union. Mr. W. A. Finch, architect, 76, Finsbury-pavement, E.C.:—
Barrett & Power, Hackney* ... £179 | S. R. Lambel† ... £169
† Amended, £219.

BURNLEY.—For additions to the workhouse, for the Union Guardians. Mr. S. Kitchley, architect, Nicholas-street, Burnley. Quantities by the architect:—
Masonry and Bricklaying.—Smith Brothers, Burnley ... £9,940
Joinery.—Nuttall and Whittaker, Burnley ... 2,139
Slating.—William Staworth, Burnley ... 496
Concrete.—Phoenix Fireproof Company, Manchester ... 1,125
Plumbing.—George E. Whitehead, Burnley ... 1,434
Plastering.—J. Laycock, Colne ... 544
Painting.—Jas. Holt, Burnley ... 210

FERNDALE.—For the rebuilding of two shops and premises in High-street, for W. A. Davis, Esq. Messrs. Edgar Down, A.R.I.B.A., and A. J. Jones, joint architects, 1, City-chambers, Queen-street, Cardiff:—
Jenkins ... £1,355 | Morris* ... £1,020

HONITON.—For erecting a new bank for the Devon and Cornwall Banking Company, at Honiton, Devon. Messrs. Ralling and Tonar, architects, Bedford-circus, Exeter:—
Williams ... £3,400 | Nix ... £2,953
Brown ... 3,173 | Turner ... 2,907
Bird & Pippard ... 3,120 | J. W. & H. Childs, Yeovil* ... 2,879

HULL.—For the erection of stabling and workshops, for Mr. C. Roemer, Hull. Mr. E. Whitlock, architect, 26, Scale-lane, Hull. Quantities by the architect:—
Bricklaying.—J. Stephenson, 66, Durham-street ... £105 4 6
Joinery.—Jones & Sanderson, Craven-street ... 34 0 0
Slating.—Mark Woodcock, 25, Stanley-street ... 23 9 6
Plumbing.—H. Halmshaw, 82, Copan-street ... 11 4 0
Masonry.—Wrigglesworth, 161, Walton-street ... 9 10 6
Painting.—R. Monaghan, Barnston-street ... 8 15 0

KINGSTON-ON-THAMES.—For erecting new offices and disinfecting chambers, for the Guardians of the Kingston Union. Mr. Wm. H. Hope, architect, Portsmouth-road, Kingston-on-Thames:—

	Offices.	Disinfecting Chambers.
H. J. Shelley ...	£6,447	£381 12 6
J. H. Jarvis ...	6,335	—
J. W. Brooking ...	6,354	358 0 0
Dockerill and Sons ...	6,326	348 12 4
Speechey and Smith ...	6,289	354 0 0
General Builders, Limited ...	6,260	338 13 7
McCarthy E. Fitt ...	6,077	348 0 0
Wm. C. Cheshire ...	6,046	350 0 0
Merrifield and Wort ...	5,999	331 0 0

LANCASTER.—For alterations, &c., to Wilson's Endowed Schools, Over-Kellet. Mr. J. Parkinson, architect, 67, Church-street, Lancaster:—

Masonry.—R. T. Constable, Carnforth ...	£269 0 0
Joinery.—Wm. Brearey, Carnforth ...	142 11 6
Plumbing.—Billington and Son, Carnforth ...	26 0 0
Slating.—Hall and Son, Lancaster ...	68 0 0

LONDON.—For work at the "Nell Gwynne," Strand. Mr. Horace Wakeley, architect:—
Lane ... £197 0 0 | Leman ... £193 11 6
Learman ... 187 0 0 | A. Bush ... 180 0 0

LONDON.—For alterations to heating apparatus at Hackney Union Infirmary, Homerton, N.E., for the Guardians of the Hackney Union. Mr. W. A. Finch, architect, 76, Finsbury-pavement, E.C.:—
W. J. Fraser and Co., Commercial-road ... £391
Nos. 50, West India Dock-road, and 2, Pennyfields, E., for Messrs. T. Westhorp and Co. Mr. W. A. Finch, architect, 76, Finsbury-pavement, E.C.:—
W. Silk and Son ... £2,437 | Kilby and Gayford ... £1,992
Barrett and Power ... 2,117 | J. H. Johnson, Limehouse (accepted) ... 1,725
S. R. Lambel ... 2,061 | house (accepted) ... 1,725

LONDON.—Accepted for erecting ladies' cloak-room and lavatory on the recreation ground, Earlam Grove House, for Wood Green District Council. Mr. J. Gunyon, engineer:—
Jas. Pavey, Wood Green ... £220

LONDON.—For alterations at 11, Westbourne-grove, W., for Mr. Nathaniel Abrahams. Messrs. Clark and Hutchinson, architects, 28, John-street, Bedford-row, W.C.:—
A. P. Mitchell ... £553 | E. Sandon ... £485
Robert Smith (accepted) 487

LONDON.—Accepted for works at the "Blenheim," Cale-street, Chelsea, for the New Westminster Brewery Company. Mr. H. W. Budd, architect, 75, Vincent-square, S.W.:—
Fittings and Fixtures.—Drew and Cadman ... £382 0
Gasfittings.—Buckley and Beach ... 142 18
Peatery.—Buckley and Beach ... 134 18

LONDONDERRY.—Accepted for the erection of new club-house at Quay, for the Trustees of Foyle Rowing Club. Mr. J. P. McGrath, C.E., architect, Commercial-buildings, Foyle-street, Derry:—
Joseph Ballintine, Londonderry ... £500

NAZING.—For the erection of a villa residence at Old House Farm, Nazing, Essex, for Mr. John A. Rufus. Mr. J. Williams Dunford, architect, 100c, Queen Victoria-street, E.C.:—
Lawrence ... £1,258 | Fuller ... £965
Matthews ... 1,133 | Merridew and Wort ... 934
Burrage ... 1,036 | Winch* ... 830
Hampton ... 970 | * Accepted.

NEWPORT (Mon.).—For the rebuilding of Central Schools, Powells-place, for the School Board. Messrs. Morgan and Hodge, architects and surveyors, Prudential-buildings, Newport:—

T. G. Diamond ...	£2,885	E. Richards ...	£2,470
Jno. Moore ...	2,845	J. Phillips and Sons ...	2,467
Jno. Linton ...	2,725	C. H. Reed ...	2,400
Smith Bros. ...	2,604	Jas. Davies ...	2,399
E. C. Jordan ...	2,620	Tom Westacott ...	2,393
W. A. Linton ...	2,600	D. Jones ...	2,340
Wm. Moore ...	2,590	J. T. Morris ...	2,300
J. Charles ...	2,541	* Accepted.	

NEWSTEAD (Notts).—For the erection of Wesleyan Chapel and boundary walls. Mr. J. E. Goodacre, architect, Stockwell-gate, Mansfield:—
Greenwood ... £1,600 0 | Pogson and Tate ... £1,359 3
J. F. Price ... 1,572 18 | Thomason ... 1,350 0
Gilbert & Gabbetas ... 1,470 0 | Fisher Bros. ... 1,336 0
Wm. Rigley ... 1,402 0 | W. Bains, East Kirkby* ... 1,338 6

NORTHWOOD (Middlesex).—For the erection of a house, for Mr. Sampner. Mr. W. A. Aikman, architect, 34, Gresham-street, E.C.:—
F. Hill ... £874 | C. Eames, Watford* ... £829
* Accepted.

PLYMOUTH.—For the rebuilding of a store at the rear of George-street, for Messrs. Hicks and Co. Messrs. Keats and Coath Adams, architects, Plymouth:—
Griffin ... £740 19 | Goad and Co. ... £700 0
Andrews ... 735 0 | Lethbridge & Son* ... 654 0
Pearn and Son ... 715 0 | * Accepted.

PRESTON (Lancs).—For additions to workhouse, Fulwood, for the Union Guardians. Mr. Whitwell, Engineer, Union Offices, Preston:—

Contract No. 1.—Buildings.		Contract No. 2.—Heating and Ventilating.	
Wm. Hothersall ...	£1,799 0 0	J. Cartmell & Son ...	£1,537 0 0
Topping Brothers ...	1,670 0 0	M. Shorrock, Preston (accepted) ...	1,522 0 0
Fazackerley ...	1,127 6 11	B. D. Holmes ...	£650 0 0
Darque, Griffiths and Co. ...	487 11 0	C. Seward and Co., Preston* ...	422 0 0

SOUTHAMPTON.—For the execution of private street works, Regent's Park-road, &c., for the Corporation. Mr. W. B. G. Bennett, Borough Engineer, Municipal Offices, Southampton:—

Regent's Park-road.		Herrypool Estate.	
W. H. Bull ...	£3,488 0 0	F. Osman, Southampton* ...	£3,275 0 0
S. Nichols ...	3,313 0 0	H. W. Bull ...	1,666 0 0
S. Nichols ...	£1,722 7 11	F. Osman, Southampton* ...	£1,614 0 0

THEYDON BOIS.—Accepted for the erection of dairy, &c., at "Purleigh," Theydon Bois, Essex, for Mr. E. A. King. Mr. W. A. Finch, architect, 76, Finsbury-pavement, E.C.:—

S. R. Lambel, Kentish Town ...	£295
WALTON-ON-NOVE.—For alterations and additions at the Victoria Hall, Hoe-street, Walthamstow, and building new Empress Theatre adjoining, for Messrs. Charles O'Malley and Warwick Buckland. Mr. Bertie Crewe, architect, Savoy Mansions, Savoy. Quantities by Mr. Harry E. Pollard, architect, 6, York-buildings, Adelphi:—	
Dearing and Son ...	£17,368
Johnson and Co. ...	£16,690
Patman and Fotheringham ...	17,065
Bateman ...	15,987
Kilby and Gayford ...	16,950
Gray, Hill, and Co. ...	15,990
Knigh and Son ...	16,813
Wattinson and Son ...	15,743

WANSFORD.—For additions, &c., to a house, for the Wansford-in-England Lodge of Oddfellows. Mr. J. C. Traylen, architect, No. 16, Broad-street, Stamford:—
L. C. Gilbert ... £235
Coates and Son, Thrapston (accepted) ... 210

WHITCHURCH (Devon).—For the erection of green-houses at "Hollybank," the residence of Mr. Edmund Coppin. Messrs. Keats and Coath Adams, architects:—
H. B. Fuge, Horrabridge ... £300

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THE WORKS AT HEYSHAM HARBOUR.

ALTHOUGH, no doubt, the Midland Railway does a not inconsiderable share of the carrying trade of the great ports of London and Liverpool, it stands almost alone among the great trunk railways in having no maritime interests of its own. This disadvantage of the Midland's has long been recognised by the public, as no doubt also by the Company's directors; for, at various times during the past twenty years, the Stock Exchange has been agitated by the rumour that the Midland was about to buy up the Furness line with a view to getting hold of Barrow, or to absorb the Hull and Barnsley as a means of capturing the great port on the Humber. Whether there ever was anything in these rumours is a state secret with the directors; but now a new departure is to be made, and in a few years the Midland will be in possession of a port which, with wise and liberal management, may soon take rank among the most important on our coast. However, everything which the Midland takes in hand in the way of works it does well, and the Chairman of the Company assured the shareholders, at their meeting a few weeks ago, that the works at Heysham harbour would be pushed on with the energy which is traditional of the board at Derby. The works at Heysham are already a mighty attraction to the thousands who this summer have sought for health and change of environment at Morecambe. Even to the Bank Holiday tripper a drive to Dawson City and Klondyke, the two navy camps which mark the two extremities of the scene of operations, has been very often the chief item in the day's excursion. And there is, indeed, plenty to be seen, and abundant room for imaginative conjecture as to what it all means. The first step towards the construction of a harbour was to make a railway to it, and this has so far been accomplished that Messrs. Price and Wills, of London, the contractors for the harbour works, have had the use of one set of rails for some months past. The line leaves the existing railway from Lancaster to Morecambe at a point about midway between the two towns, and then proceeds in a south-westerly direction almost in a straight line until it nears the shore a mile south of Heysham Church. No provision has yet been made for passenger stations, but the opening of the line for passenger traffic is pretty certain to result in the rapid exploitation of a considerable area of land in the neighbourhood of Heysham for building purposes, and it will be a good thing for the future if the local authority will from the beginning take broad views and insist upon a comprehensive and liberal scheme of roads and drainage. The place selected for the new harbour works is that bit of the coast comprised between the Near Naze on the north and the Red Nab on the south, the two points being about a mile apart. The two rocky points—reckoning the Far and Near Naze as one, the Red Nab being the other—form the bases from which spring two sea walls or embankments stretching out towards the west will ultimately nearly meet, like two in-curved horns, at a point rather more than half a mile from the shore. These two breakwaters will ultimately enclose a water area of 180 acres. They are very similar in shape, but the northern embankment will be 700ft. wide at the "root," and will gradually taper off to 50ft. in width at its seaward extremity; while the southern horn will only be 500ft. wide at the root, will stretch out rather further seaward, and will also be 50ft. wide at its outer extremity. In this way the head of the southern pier will almost mask the entrance to the harbour from the sea, and will give greater protection from the south-westerly swell. But the opening between the two pier heads will be 300ft., amply wide enough for vessels of large size to enter in any weather. The energies of Messrs. Price and Wills are now being directed to pushing forward the outlines at least of the

two embankments to their ultimate terminals, and to filling up the gap between the two pier heads by a temporary dam of clay and rock. The harbour bottom will then be covered by a network of railways, half a score of steam navvies will be set to work, and the two million cubic yards of excavation will be drawn out by locomotives, and tipped in train loads at the back of the present embankments. Although the contractors did not make a beginning until October last, they have already greatly altered the aspect of the ground in the vicinity of the new harbour. Some seven miles of substantial railway, connecting with the permanent line from Lancaster, have been laid down already by the contractors, so that the heaviest plant can be moved readily to any part of the works. About 600 men and an army of steam cranes are working night and day. A double line of rails has been laid along the shore at the base of the cliffs—if the word is admissible—and, as the rock is broken up by blasting, some dozen or fifteen steam cranes are loading it into wagons, which are rapidly drawn away by locomotives and run out to the extremity of one or other of the two breakwaters, and there "tipped." The largest rocks, masses of two to six tons, are selected for the outer face of the banks, which, of course, will have to bear the brunt of the autumn and winter gales. The stripping or "baring" of the rock is done by three steam navvies. Away out to sea the work of driving the piles where the embankment will ultimately be closed is progressing fast. Just now they look like a garden fence, but when the embankments have been made sufficiently solid and high to keep out the sea, the openings in the fence will be filled up. Sluices, by which the water may be drained off at low tide, but which will prevent its return with the rising tide, will be provided, and in this way the area within will be kept dry. The excavation of the harbour and the completion of the breakwaters will then proceed without fear of interruption. About forty-six acres of the harbour will be excavated to a depth of 14ft. at dead low water, the rest of the area being only partially deepened. Immediately opposite the entrance to the harbour a masonry pier stretching out 1000ft. from the shore, and having a width of 160ft., is to be built. This pier will have on it a passenger station, with lifts and subways to enable passengers to reach the steamers comfortably at low tide. There will also be separate subways and inclines for the landing of cattle at the root of the pier. On the inner side of the northern breakwater will be a quay for vessels engaged in the Scotch pig-iron traffic. The various cranes and capstans on the quays will probably be worked by hydraulic power, and the harbour will be lighted by electric light. The engineers responsible for the harbour works are Mr. G. N. Abefnethy, M.I.C.E., and Mr. J. Allen Macdonald, the Midland Company's chief engineer. Mr. Gerald Fitz-Gibbon is their resident engineer, and Mr. Fred V. Furniss is the representative of Messrs. Price and Wills, the contractors.

We wonder if the time will ever come when the Press will have no occasion to pay periodical attention to "the pollutions of the River Lea." They are old friends which turn up with the regularity of Christmas whenever there is a dry season. Of course, they are with us again, and are taking their most important share in producing the present "water famine," so called, in East London. The Company could get plenty of water from the Lea, but it is "so polluted, that only a very limited quantity can be dealt with by the filter-beds." Other causes of the failure of the water supply there are in those parts which must not be overlooked. The companies have great difficulty in communicating with one another, for one thing, which surely is a removable cause of drought. A much more serious trouble arises from the inability of the poorer inhabitants to find storage for water in their houses, and then from their incorrigibly wasteful habits.

THE EAST LONDON WATER SUPPLY.

THE East London Waterworks have discontinued their constant supply. Practically, the district served by the East London Waterworks is the only London water district that has a constant supply, and it is a very great question whether a constant water supply is an unmixed blessing after all. In all other parts of London the usual form of supply is what is called the intermittent supply. The water is delivered into cisterns, and it is calculated that these cisterns contain sufficient water for the daily wants of one family. This is, indeed, admittedly the case. Now we read that the East London Water Company has been compelled to reduce its supply to an average of 26 gallons per head of the population. When we take into consideration that in these districts people are not in the habit of taking a bath every day, and the male part of the population are generally employed out of doors, we shall at once see that this is not short commons, and cannot be described as a famine. The fact is there is a water famine, not only in London, but practically all over the length and breadth of England. The occurrences of these water famines in times of drought are very serious. Some people imagine that the whole question could be settled by tapping the lake districts and by supplying England with the waters of Welsh and other lakes. Apart from the great expense which this would entail, we doubt whether it would really provide a solution of the problem. What we have really to fight against is the wilful waste of water which goes on continually in our large towns, and goes on in proportions of which we do not form even an approximate idea. Dr. Smee, medical adviser to the Gresham Life Assurance Society, in a letter to the Times, maintains that "Constant service leads to waste," and that "it is impossible to prevent thoughtless people from leaving their taps running. A garden sprinkler," he says, "under ordinary pressure, will waste in twenty-four hours 10,000 gallons. Few people have any idea of the amount of water which is daily wasted. If only one tap was left running full bore in each house in London, it would require a daily supply of no less than 8600 million gallons, a quantity which the Thames and the whole of the rivers south of the Humber combined at the present period would be unable to provide." Dr. Smee very properly says: "It is absurd for persons to call a water supply reduced from 45 gallons to 25 gallons per head a water famine. There are many towns and districts in England that never exceed that quantity. The inconvenience of an intermittent supply has been caused solely from the want of adequate house storage. It is the jerry builders who, to increase their own profits, neglect to put into the houses they build proper cisterns. No house should be permitted to be inhabited which did not contain at least one galvanised iron cistern, protected against dirt, capable of holding 200 gallons, which would be sufficient with care for two days' supply for five people in an emergency. It is little short of criminal folly for school managers to build schools without providing adequate water storage; children attending schools should never be placed in a position of being without water because of a temporary failure of a supply, which may occur at any time, by a burst main, frost, or other cause. On the Continent the authorities compel householders to provide themselves with a tank of very large dimensions." The Local Government Board, it appears, does not require water companies to supply more than 20 gallons per head per population, and that is indeed a very sufficient quantity. When, however, we consider the enormous waste of water which is going on daily in our large towns, we shall be compelled to admit that this is becoming a very grave question.

THE SANITARY INSTITUTE CONGRESS.

PROGRAMME OF ARRANGEMENTS.

THE programme of the local arrangements for the forthcoming congress of the Sanitary Institute has now been definitely settled, and will shortly be ready for issue. The Sanitary Institute was founded twenty-two years ago, and incorporated in 1888. Sixteen congresses have already been held, and this year's meeting, which is to be held in Birmingham, will commence on September 27th, and terminate on October 1st. The objects of the Institute are to promote the advancement of sanitary science in all or any of its branches, and to diffuse knowledge relating to sanitation. With this end in view sessional meetings of the Institute are periodically held in London for the reading of papers and for discussions upon subjects connected with sanitary science. Papers and lectures having a distinct bearing on the subject are also read and discussed at the annual congress and sessional meetings, reports of which are printed and supplied gratuitously to the fellows, members, and associates of the Institute. With other information, including notes of Parliamentary blue-books and reports, the book forms a record of the most recent progress in sanitary science generally.

AS AN EDUCATIONAL INSTITUTION

the Institute does a valuable work. Courses of lectures and demonstrations for sanitary officers, specially adapted for candidates preparing for the Institute's examination for inspectors of nuisances, are held twice a year in London, and at intervals in the provinces. Other lectures on sanitary matters, such as sanitation of industries, and meteorology in relation to hygiene, are arranged by the Council from time to time. The study of the science is also facilitated by the Parkes Museum, which contains a great variety of the most approved forms of apparatus and appliances relating to health and domestic comfort, and a large library of valuable sanitary literature. For the convenience of visitors attending the congress the general reception room will be in the Town Hall. The conferences and sections will be held in the Mason University College, and the lecture to congress and the closing general meeting will also take place within the same building. The President's inaugural address and the popular lecture will be delivered in the large lecture hall of the Birmingham and Midland Institute, and the Council Chamber will be used for the reception of members of the congress. The formal reception by the Lord Mayor of the members will be made at half-past twelve o'clock on Tuesday, September 27th. For an hour later a public luncheon has been arranged at the Grand Hotel; and in the afternoon the President (Sir Joseph Fayrer, Bart) will deliver his inaugural address. In the evening there will be a large attendance at Bingley Hall, when the Lord Mayor will open

THE HEALTH EXHIBITION.

On the following day the members will settle down to business, and devote six hours to conference work. One section, over which the Lady Mayoress will preside, will deal with the important subject of "Domestic Hygiene." This conference is open to all ladies interested in the work. In the evening the Lord Mayor will give a conversation and reception in the Council House. The sectional meetings, three in number, commence in Mason College on the Thursday. The first will be devoted to the study of "Sanitary Science and Preventive Medicine," and will be presided over by Dr. Alfred Hill (city medical officer). "Engineering and Architecture" is the title of the subject in Section II., at which Mr. W. Henman will preside; and in the third section discussions will take place, having relation to "Physics, Chemistry, and Biology." This meeting will be held in the Biology Theatre, and the chair occupied by Dr. G. Sims Woodhead. In the afternoon the whole of the

members will reassemble, and attend, at the invitation of the chairman (Alderman Cook) and members of the Health Committee of the City Corporation, a garden party at the Botanical Gardens, Edgbaston. The same night Dr. Christopher Childs (Lecturer on Bacteriology in Relation to Hygiene at University College, London) will deliver a lecture to the congress. Friday, which concludes

THE PRACTICAL PART OF THE CONGRESS, will perhaps be the busiest day. The papers and discussions opened in the sections on the previous day will be continued. In the afternoon excursions will be made to Dudley Castle and the Wren's Nest, the Whitacre Pumping Station and filter beds, and Shustoke reservoirs and the Saltley Sewage Farm. At the respective places tea will be provided by the Earl of Dudley in the courtyard of the castle; Alderman Lawley Parker (chairman of the Water Committee), and Alderman Baker (chairman of the Tame and Rea District Drainage Board). The closing general meeting of the congress is arranged for five o'clock, and at half-past eight Dr. Alec Hill (master of Downing College and Vice-Chancellor of Cambridge University) will deliver a popular lecture. The chair is to be taken by the Lord Mayor. Saturday, on which day the congress terminates, will doubtless be interesting and enjoyable, excursions having been arranged for Stratford-on-Avon and Warwick, Malvern, and the Croft Granite, Brick, and Concrete Company, Leicester. At Stratford-on-Avon various places of public interest will be visited, including Shakespeare's birthplace and the Shakespeare Memorial buildings. The journey will then be continued to Warwick, where, at the Court House, in the afternoon the members will partake of the hospitality of the Mayor (Councillor Glover). His worship will act as conductor of the party at Warwick Castle. The visitors to Malvern will inspect the Abbey, British Camp, sewage farm, and waterworks. At the invitation of Earl Beauchamp and other residents, the members will take tea at the Imperial Hotel. Similar refreshment will also be provided at the Croft Works by the directors of the Company. The local General Committee, of which the Lord Mayor is the chairman, have made arrangements that members may visit the public institutions of the city and

A NUMBER OF MANUFACTORIES.

The latter include Messrs. S. Allcock and Co., Redditch (manufacturer of fishhooks, tackle, &c.); The Birmingham Small Arms Company (gunmaking), The Birmingham Electric Supply Company (power station), Messrs. Brinton, Kidderminster (worsted-spinning and carpet-making), Messrs. Cochrane and Co., Dudley (bridge and engineering work), Messrs. J. Cartland and Co. (brassfoundry and art-metal work), Birmingham Sewage Interception Department, Windsor Street Gasworks, the Dalton Street power station of the water department, the Central Fire Station, the Bradford Street Meat Market, Messrs. A. R. Dean (furnishers and decorators), Messrs. Elkington and Co. (electro-plate and art work), Messrs. J. Gillott and Sons (steel pen-making), Messrs. F. and C. Osler (glass blowing and cutting), Messrs. Osmund (cycle works), Messrs. Perry and Co. (pen-making), the Webley and Scott Revolver and Arms Company, the guardians of the Birmingham Proof House (testing of guns and all parts of small arms), Messrs. J. Hardman and Co. (stained glass painting), Messrs. A. Hickman, Limited, Bilston (pig-iron making and steel-making by the basic process), Messrs. Icke and Sharp, Limited (manufacture of confections), Messrs. Middlemore and Lamplugh (curriers' work, &c.). In the reception room ample arrangements have been made for the convenience of the visitors; and a special rate has been agreed upon by the railway companies for the conveyance of visitors within fifty miles of Birmingham.

EXTENSIVE improvements are to be made on the Mid-Kent (South-Eastern Railway) line, including new stations at New Beckenham and Lower Sydenham, the total cost to be about £10,000. The work has just been commenced.

Surveying and Sanitary Notes.

LONDON is by no means alone in the fear of approaching water scarcity. Official circulars have been sent out to Parisian householders intimating that in the event of a continuance of the hot weather the supply of spring water will have to be diminished or discontinued. The Parisians have in a large measure themselves to thank for this, since, with the advent of summer heat, they are given to a prodigal use of water for cooling purposes. In this case the punishment fits the crime very aptly, since the alternative is a recourse to the fragrant waters of the Seine, a fluid clear enough to look at, but absolutely poisonous in its impurity.

THE drainage question in Kingston is taking an unexpected turn. Some weeks ago we called attention to the prospective heavy outlay by the Corporation, necessary, according to the statements of members of the Drainage Committee, to meet the more stringent requirements of the Thames Conservancy, who were assumed to have raised their standard of purity for sewage effluents discharging into the Thames. This week, however, trustworthy information throws an entirely different light on the question. A prominent Kingstonian recently tackled a well-known member of the Conservancy Board on the subject, protesting warmly against the injustice of the Conservators in allowing the Corporation to erect sewage disposal works at an enormous outlay, accepting the effluent as satisfactory for ten years or more, and then suddenly raising the standard of purity and entailing further heavy expenditure on the already overburdened ratepayers of the borough. The Kingstonian was very much disconcerted by the reply of the Conservator, who denied that the standard of purity had been raised, and declared that if the Corporation would give them as good an effluent as they did ten years ago, the Conservators would be perfectly satisfied, but as a matter of fact the effluent had been deteriorating, and crude sewage had frequently been turned into the river. This is turning the tables on the Corporation with a vengeance, and the ratepayers will very properly want to know why they should be put to further outlay, when the existing works are capable of producing a satisfactory effluent, if proper supervision is ensured.

THOSE who drink water from a well had better not inquire too closely into what lies at the bottom thereof. When the sanitary officials at Dummer, near Basingstoke, cleaned out two of the village wells which had been open to the air of heaven for half a century, they brought to the surface no fewer than sixty-eight buckets, of all sizes and shapes, eight cartloads of bricks, and loads of rubbish of a miscellaneous and unsavoury sort. A little auction was held to dispose of the buckets. What is strange is that the health of the village has not suffered from impure water drinking, and the wells have always enjoyed a good reputation.

THE Strand has once more assumed its normal aspect, and one of the most popular thoroughfares in the world again resounds with the rumble of vehicular traffic. This year the time occupied in completing the re-paving of the thoroughfare was the shortest on record, namely, twelve working days, on two of which the workman enjoyed his Saturday's respite from toil. So speedy an execution of a necessary, though inconvenient, work is due largely to the elaborate preparations made by the Vestry of St. Martin-in-the-Fields. That authority wisely determined to defer the commencement of the operations until the whole of the 200,000 creosoted deal blocks were delivered in the Strand, or were within easy reach of it. By this means the delay experienced in some previous years through inadequate supply of materials was obviated.

VENTILATION.

By W. N. TWELVETREES, M.I.M.E., M.S.I.

(Continued from page xxix.)

CARBURETTED, phosphoretted, and sulphuretted hydrogen are frequently found in air which has been heated in its passage over stoves or pipes of high temperature. These gases are then produced by the decomposition of floating particles of extraneous matter contained in the air. Carburetted hydrogen is frequently given out by gas stoves, in consequence of the escape of a portion of unconsumed gas.

The use of extremely hot pipes for warming in some instances causes decomposition of water, thus liberating oxygen and hydrogen.

Hydrogen in any form is injurious, as shown by the results of a self-inflicted experiment by a devoted investigator. In this case the inhalation of 30 cubic inches of hydrogen almost immediately produced oppressive difficulty of breathing, abundant perspiration, tremour, nausea, headache, and indistinctness both of vision and of hearing. Some of these symptoms lasted for a considerable time, and were not easily removed.

Another suicidal investigation, relating to carburetted hydrogen, resulted in numbness of the chest, loss of sensation other than a terrible oppression of the chest, followed by complete collapse, and very nearly by the death of the operator.

Ammonia occurs in the atmosphere in very minute quantities, from '0001 to '0006 per cent., and traces of other volatile substances



FIG. 6.

are also found, which may be regarded as accidental impurities due to local, but frequently undesirable, causes.

Vapour of water or moisture is invariably present in the atmosphere, where its influence is of the highest importance. By its aid the warmth of the earth is in great measure retained, and undue evaporation of moisture from the human body is prevented. The quantities of vapour in air vary considerably, in accordance with temperature and with local circumstances, but the capacity of air for moisture is dependent on temperature alone. In Fig. 5, the weight of water which a cubic

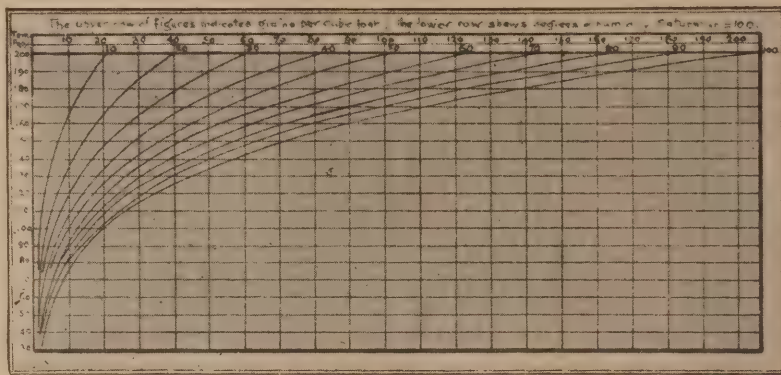


FIG. 5.

foot of dry air is capable of absorbing is indicated in grains for various temperatures by the lowest curve, whilst the other curves represent varying weights of water and degrees of humidity. When air is fully saturated it is said to be at its dew point, which represents 100 degrees of humidity; in England, at the greatest recorded dryness, air was found to retain 23 degrees of moisture, whilst in winter time it is frequently fully saturated. The following table, where saturation = 100 degrees, shows the sensible impression produced by various degrees of humidity:—

TABLE I.

85°	...	...	Damp.
65°	...	...	Moderately dry.
50°	...	...	Dry.
35°	...	...	Very dry.
25°	...	...	Excessively dry.

The mean humidity of air at Greenwich during the year will be seen by a reference to Table II. Saturation is, of course, represented by 100 degrees as before.

TABLE II.

Month.	Mean of 24 hours.	Mean of Daytime.	
		9 a.m. to 6 p.m.	2 p.m. and 3 p.m.
January	89°	86°	84°
February	85	85	81
March	82	79	75
April	79	68	64
May	76	71	66
June	74	62	58
July	76	67	63
August	77	70	66
September	81	76	68
October	87	81	76
November	89	86	85
December	89	86	84
Whole Year	82	76	72

In practice, the most convenient means of ascertaining the humidity of the air is by the aid of a hygrometer (Fig. 6), which consists essentially of two thermometers, one having the bulb covered with muslin, which is kept moist by capillary attraction through a thread or wick connecting it with a small water vessel. The degree of cold produced by evaporation of moisture in the muslin depends on the quantity of vapour in the air, and shows the percentage of humidity in accordance with Table III. Another form of hygrometer in which the linear expansion or contraction of a hair is utilized for indicating humidity is illustrated in Fig. 7.

It is sometimes recommended that in regulating the humidity of air in artificially heated rooms we should follow the example set by Nature. As a general maxim this may be excellent advice, but Nature working on the principles of true political economy does not invariably succeed in satisfying individual idiosyncrasies. Modifications become necessary because the aged, infirm, and sick usually require a degree of humidity higher than is necessary for the young and healthy. In hospitals, workhouses, and infirmaries, the most careful attention should therefore be paid to this point. Excessive dryness of air is in any case injurious, tending to cause a sense of fulness in the head, flushing, confusion of

ideas, besides coldness and langour in the extremities.

On the other hand, too great a percentage of moisture, combined with high temperature, is

TABLE III.—HUMIDITY INDICATED BY HYGROMETER (SATURATION=100°).

Degrees of cold.	Temperature of Air in degrees Fahr.						
	32°	42°	52°	62°	72°	82°	92°
1	87	92	93	94	94	95	95
2	75	85	86	88	89	90	90
3	—	78	80	82	84	85	85
4	—	72	74	77	79	80	81
5	—	66	69	72	74	76	77
6	—	60	64	67	69	72	73
7	—	54	59	62	65	68	70
8	—	49	54	58	61	64	66
9	—	44	50	54	57	60	62
10	—	40	46	50	54	57	59
11	—	36	42	47	51	54	56
12	—	33	39	44	48	51	53
13	—	30	36	41	45	48	50
14	—	27	33	38	42	45	47
15	—	—	30	35	39	42	45
16	—	—	27	32	36	40	43
17	—	—	25	30	34	38	41
18	—	—	—	28	32	35	38
19	—	—	—	26	30	33	36
20	—	—	—	24	28	31	34

equally prejudicial to health, owing to its interference with proper and natural evaporation from the skin and lungs.

As a general rule, from 50 to 70 degrees of humidity will render the air of a room com-

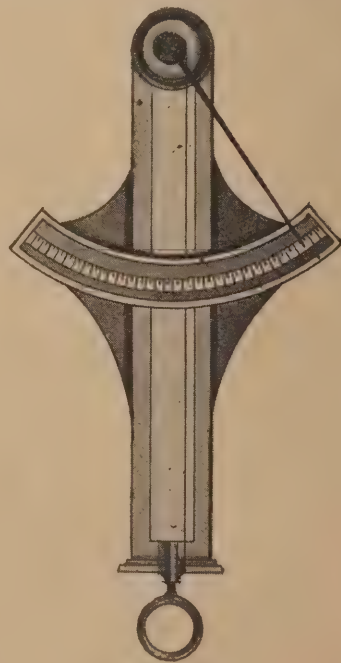


FIG. 7.

fortable and pleasant to its inmates, and the requisite moisture may always be readily furnished by the employment of evaporating pans and similar appliances.

Before passing away from the natural and foreign constituents of air, reference must be made to floating particles and organisms. The first-named are of a most cosmopolitan character, including soot and minute fragments

The electrical condition of the air exercises a considerable influence upon the inhabitants of dwelling-rooms, and it has been demonstrated that the amount of electricity existing in the atmosphere is by no means inconsiderable.

TABLE IV.—SUMMARY OF EXPERIMENTS BY DR. PERCY FRANKLAND.

Place.	Conditions.	Germes per sq. ft. per minute.
South Kensington Museum	During varying winds	851 to 1302
	After rain, ground, &c., wet	60 to 66
	During thick white fog	26 to 32
Royal Society Conversazioni, Burlington House	Commencement	240
	Later with increase of guests	318
	Next day, room empty	109
National History Museum, Kensington	Morning, small attendance	30
	Afternoon, larger attendance	293
	Whit-Monday, crowded attendance	1755
Hospital for Consumption, Brompton	Morning, few moving about	18
	Afternoon, more moving about	66
Norwich Cathedral	Spire, 300ft. elevation	49
	Tower, 180ft. elevation	107
	Ground level	354
St. Paul's Cathedral	Golden gallery	115
	Stone gallery	125
	Churchyard	188
Primrose Hill	Top	12
	Bottom	57

of animal and vegetable matter. As a rule such substances are so impalpable as to attract no special attention, although they become both visible and tangible in times of fog. Every perfect system of ventilation should provide for the efficient cleansing of air on its entrance into the building, and the adoption of appliances for this purpose will largely diminish if it does not absolutely eliminate micro-organisms.

Some of the latter are harmless, but other varieties are directly responsible for the spread of diseases, and both exist in varying numbers in the open air, in dwelling rooms and in public buildings.

Experiments made by Dr. Frankland furnish the interesting results, quoted in Table IV., as to the numbers of organisms falling per minute per square foot. From these data it

The earth is negatively electrical in relation to the air; and the air under normal conditions is positively electrical. In badly ventilated rooms the latter state is reversed, and thus the human body becomes charged with electricity which the air is not competent to carry off. The provision of abundant supplies of fresh air, possessing a proper degree of humidity, will always prevent any of the ill-effects which may otherwise be distinctly traceable to the cause here referred to.

Having now examined the constitution and characteristics of air, so far as physiological conditions are concerned, it is necessary to enquire as to the quantity of air required, under varying circumstances, to ensure entirely adequate ventilation.

In the determination of this point various factors must be taken into account. Amongst

TABLE V.

Condition.	Temp.	Oxygen.	Nitrogen.	Vapour.	Carbon Dioxide.	Total parts.
Before respiration	60°	20·26	78·00	1·70	0·04	100
After	90°	16·00	75·00	5·00	4·00	100

is abundantly clear that air intended for ventilation should either be drawn from a considerable elevation or washed before use. The effect produced by the increase of inmates in a room points to the desirability of providing spray-producing apparatus for use in hospitals, so that the air may be freed from dust and germs at certain periods.

internal causes of vitiation are classed the act of respiration and the action of lighting apparatus, in both of which oxygen is consumed in the production of carbonic acid and of water. Natural exhalation from the skin has also to be considered. In each case the gases and vapours given off are accompanied by heat, which requires a certain volume of

air for its removal. Under normal circumstances the changes effected in the constitution of air in a room by the function of respiration, are approximately shown in the subjoined table:—

External causes of vitiation, as affecting the relative proportions of oxygen, carbon dioxide, and vapour, must be borne in mind in every system of ventilation, as also the possible contamination of outer air by volatile and suspended products from chimneys, by the decomposition of animal and vegetable matter, and by miasmas sewer gases and fogs.

(To be continued.)

Trade and Craft.

“DENSITAS” CANE SANITARY WARE.

Messrs. Morrison, Ingram, and Co. Ltd., have just completed important additions, which have been in hand for nearly twelve months, at their Midway Pottery Works, Swadlincote, Derbyshire. These extensions, and the equipment of the works with up-to-date machinery, will enable the firm to double this branch of their business. The patterns have practically all been remodelled, and a great number of new designs added. It may be of interest to the trade and profession to learn that recent experiments prove that the Midway “Densitas” Cane Clay is, of all bodies, pre-eminently suitable for the manufacture of sanitary vessels. It is a clean, compact body, of nearly double the strength of fireclay, whilst its porosity is about a fourth less. It is anticipated that the “Densitas” Cane ware will occupy an important position in the future, as it is now evident it can be suitably substituted for iron in a variety of articles.

DR. S. W. WHEATON has presented to the Local Government Board a report with reference to the sources of water supply for Carnarvon, which has for some years past been unsatisfactory. The supply is obtained from the River Gwyrfa, which issues from Llyn-y-Gader as a large stream, and, three miles lower down the valley, falls into Lyn Quellyn. At the intake the water flows from a dam through copper gauze screens directly into an iron pipe, by which it is conveyed, without filtration, to a reservoir constructed 2½ miles outside the borough. Dr. Wheaton's inquiries led him to the conclusion that the work of preventing pollution of the Carnarvon water supply is a difficult undertaking, requiring constant vigilance over a very large area. Doubting whether filtration, as ordinarily carried out, can be trusted to secure a uniformly wholesome water, he indicates the further measures which are necessary, but expresses his preference for Lyn-y-Aywarthen as a source of supply which is almost entirely free from risk of pollution. At the present time the water of the last-mentioned lake is not used for any purpose.

COMPLETE LIST OF CONTRACTS OPEN.

DATE OF DELIVERY.	WORK TO BE EXECUTED.	FOR WHOM.	FROM WHOM FORMS OF TENDER MAY BE OBTAINED.
BUILDINGS—			
Sept. 10	Cromer—Conveniences	Urban District Council	A. F. Scott, Surveyor to the Council, Cromer.
10	Dartmouth—Converting	W. A. Hawke	E. H. Back, Dartmouth.
10	Ellon—Addition to Hospital		County Engineer, County Buildings, Aberdeen.
10	Falmouth—Country Residence	F. J. Bouch-Tremayne	H. W. Collins, Penryn-street, Redruth.
10	Nottingham—Boreholes	Water Committee	General Manager, St. Peter's Churchside, Nottingham.
10	Bury St. Edmunds—Electric Light Works	Corporation	C. Smith, Borough Surveyor, Bury St. Edmunds.
10	Halifax—Additions to Gasworks		Jackson and Fox, 22, George-street, Halifax.
10	Whalley and Read—Repairs of Bridge	County Council	W. H. Radford, 19, Brazenose-street, Manchester.
10	Whitby—Two Villas		J. J. Milligan, 77, Baxtergate, Whitby.
10	Ramsgate—Office Buildings	Corporation	W. A. McI. Valon, Town Hall, Ramsgate.
12	Southgate—Twelve Cottages	Urban District Council	Surveyor, Council Offices, Southgate.
12	London, W.—Laundry	Workhouse Guardians	E. T. Hall, 57, Moorgate-street, E.C.
12	Widnes—Relief Offices	Guardians, Prescott Union	J. P. Fraser, 4, Bold-street, Warrington.
12	Blackburn—Alterations to Slaughter-houses	Health Committee	W. Stubbs, Municipal Offices, Blackburn.
12	Cardiff—Extensions to Sanatorium	Corporation	W. Harper, Borough Engineer, Cardiff.
12	Dewsbury—Fittings, &c.		Holtom and Fox, Westgate, Dewsbury.
12	London, N.—Cottage	Urban District Council	W. M. Ellenor, Council's Offices, Palmer's-green, N.
12	Omagh—Houses	Great Northern Railway Co.	Company's Engineer, Amiens-street-terminus, Dublin.
12	Oundle—Town Hall		J. B. Corby, Stamford.
12	Pentre—Alterations to Schools	School Board	J. Rees, Hillside Cottage, Pentre.
12	Glasgow—Bridge	Corporation	C. Forman, 160, Hope-street, Glasgow

COMPLETE LIST OF CONTRACTS OPEN—continued.

DATE OF DELIVERY.	WORK TO BE EXECUTED.	FOR WHOM.	FROM WHOM FORMS OF TENDER MAY BE OBTAINED.
BUILDINGS—Continued.			
Sept. 13	Stokesley—Rebuilding Bridge	School Board	W. Stead, County Surveyor, Northallerton.
" 13	Walthamstow—School Buildings	Town Council	W. A. Longmore, 7, Great Alie-street, E.
" 13	Dover—Workshop, &c.	Urban District Council	H. E. Stilgoe, Town Hall, Dover.
" 13	Weston-super-Mare—Alterations to Baths	Rural District Council	Price and Wilde, 15, Waterloo-street, Weston-super-Mare.
" 14	Epping—Hospital Ward	Lighthouse Commissioners	E. Egan, Holmdale, Loughdon.
" 15	Termoncarragh—Lightkeepers' Dwellings	Guardians	Irish Lights Office, Dublin.
" 16	Easingwold—Vagrant Cells, &c.	Joint Hospital Board	F. T. H. Robinson, Easingwold.
" 17	Brantree—Hospital	Central London School District	H. H. Nankivell, Surveyor, Brantree.
" 17	London, E.C.—School Buildings	School Board	Newman and Jacques, 2, Fenchurch-court, E.C.
" 19	Menston—Farm Residence	Corporation	J. V. Edwards, County Hall, Wakefield.
" 19	Swansea—Board School	School Board	G. E. T. Laurence, 181, Queen Victoria-street, E.C.
" 19	Wethersfield—School Alterations	School Board	F. Wendon, Ivanhoe House, Wethersfield.
" 19	Gloucester—Electricity Works	Burial Board	H. A. Dancy, 26, Clarence-street, Gloucester.
" 20	Enfield—Schools	County Council	G. E. T. Laurence, 181, Queen Victoria-street, E.C.
" 20	Godalming—Cemetery Chapels, &c.	Guardians	Wellman and Street, Church-street, Godalming.
" 21	Leek—School	Collieries Company	W. Sugden and Sons, Leek.
" 23	Lewes—Buildings at Asylum	Greenhithe Brick and Land Co. Ltd.	H. Card, County Hall, Lewes.
" 30	Port Talbot—Hotel	Dysart and District Building Co. Ltd.	G. E. Robinson, Cardiff.
Oct. 3	Kew—Bridge	T. E. Yorke	A. C. Brereton, 21, Delahay-street, Westminster.
" 3	Westbury-on-Seven—Workhouse Additions	W. Morvill	W. F. Jones, 21, George-street, Gloucester.
" 12	London, W.—Laundry at Workhouse	School Board	E. T. Hall, 57, Moorgate-street, E.C.
No date.	Abercrave—Ten Cottages	Corporation	Abercrave Colliery, Swansea Valley.
"	Ashton-under-Lyne—Alterations to Hotel	School Board	J. Eaton, Sons, and Cantrell, Ashton-under-Lyne.
"	Benrhydding—Additions to Residence	Town Council	Oliver and Dodgshun, 3, East Parade, Leeds.
"	Dartford—Fifty Cottages	Carpet Manufacturing Co.	The Company's Office, 9, Southampton Row, W.C.
"	Bradford—Warehouse	Gaslight Company Limited	R. Drake, 142, Allerton-road, Allerton, Bradford.
"	Bootle—Station Buildings	Port and Harbour Commissioners	Bootle Station.
"	Buxton—Business Premises	Corporation	Garlick and Flint, Terrace-road, Buxton.
"	Carlisle—Plasterers' Work	Corporation	R. Little, Builder, Carlisle.
"	Dysart—Tenements, &c.	Corporation	Swanston and Legge, 196, High-street, Kirkcaldy.
"	Gouthwaite—Farmstead	Corporation	Bland and Bown, North Park-road, Harrogate.
"	Wrexham—Alterations to Buildings	Corporation	W. Slater, 9, High-street, Wrexham.
"	Knottingley—Alterations and Additions to Villa	Corporation	Tennant and Bagley, Ropergate, Pontefract.
"	Leeds—Workshops, &c.	Corporation	W. Bakewell, 38, Park-square, Leeds.
"	Levenshulme—Cottages	Corporation	W. Swallows, 28, Barlow-road, Levenshulme.
"	London, N.W.—Block of Flats	Corporation	Palgrave and Co., 28, Victoria-street, S.W.
"	Nelson—Shops, &c.	Corporation	H. Whitaker, 21, Market-square, Nelson.
"	Swansea—Cricket Pavilion Additions	Corporation	Margrave and Peacock, 19, Metal Exchange, Swansea.
"	West Bridgford—School	Corporation	F. Ball, King-street, Nottingham.
"	Northumberland—Chapel	Corporation	Rev. J. Lewis, The Manse, Kirkwhelpington.
"	Carlton—Four Houses	Corporation	J. Wilson, 17, King-street, York.
"	Sheffield—Church	Corporation	Hemsolt and Paterson, 18, Norfolk-road, Sheffield.
"	Seacombe—Two Houses	Corporation	Storey and Hulms, 20, North John-street, Liverpool.
"	Dunkinfield—Town Hall	Corporation	J. Eaton, Sons, and Co., Ashton-under-Lyne.
"	Durham—Three Shops and Two Houses	Corporation	W. Forster, Clifford-road, Stanley.
"	Kidderminster—Additions to Factory	Corporation	J. M. Gething, Oxford-chambers, Kidderminster.
ENGINEERING—			
Sept. 10	Corbridge-on-Tyne—Gasholder Tank	Gaslight Company Limited	H. Lees, Gasworks, Hexham.
" 10	Hartlepool—Tribal Lighthouse, &c.	Port and Harbour Commissioners	A. Nagel, Harbour Engineer, Hartlepool.
" 12	Glasgow—Bridge	Corporation	C. Forman, 160, Hope-street, Glasgow.
" 13	Birmingham—Aqueduct	Corporation	J. Mansergh, 5, Victoria-street, Westminster.
" 15	Dijon—Weir, &c.	Corporation	Prefecture, Dijon.
" 17	Downpatrick—Reservoir Works	Union Guardians	County Surveyor, Downpatrick.
" 20	Barking—Steam-road Roller	Urban District Council	Surveyor's Department, Public Offices, Barking.
" 27	Hastings—Two Wells	Corporation	P. H. Palmer, Town Hall, Hastings.
" 27	Hastings—Reservoirs	Corporation	P. H. Palmer, Town Hall, Hastings.
Oct. 17	Edinburgh—Gasholder Tank, &c.	Gas Commissioners	Gas Engineer, New-street, Edinburgh.
Nov. 10	Belem (Para, Brazil)—Water Supply	Government	Brazilian Consulate, England.
No date.	Dunbar—Dredging Harbour	Commissioners	Borough Surveyor, Dunbar.
"	East Kent—River Cleansing, &c.	Commissioners	"C., c/o Leathwaite & Simmons, 1, Pope's Head-alley, E.C.
IRON AND STEEL—			
Sept. 13	Hastings—Supply Cast-iron Pipes	Corporation	P. H. Palmer, Town Hall, Hastings.
" 14	Hull—Iron and Steel Roofs	North-Eastern Railway Co.	T. M. Newell, Dock Office, Hull.
ROADS—			
Sept. 10	Bolsover—Asphalting	Urban District Council	J. Hunter, Clerk to the Council, Bolsover.
" 10	Eastbourne—Improvement Works	Highways and Drainage Committee	R. M. Gloyne, Town Hall, Eastbourne.
" 10	Godmanchester—Carting	Urban District Council	Borough Surveyor, Godmanchester.
" 10	Oswaldtwistle—Street Works	Highways and Drainage Committee	R. N. Hunter, Town Hall, Oswaldtwistle.
" 12	Bexley—Road Materials	Urban District Council	T. Vickers, Public Hall, Bexley Heath.
" 14	London, E.C.—Paving Works	St. Luke's Vestry	G. W. Preston, St. Luke's Vestry Hall, City-road, E.C.
" 14	Wallsend—Street Works	Urban District Council	G. Hollings, High-street, Wallsend.
" 17	Staines—Street Works	Urban District Council	E. J. Barrett, Town Hall, Staines.
" 17	Walton-on-the-Naze—Road Works	Urban District Council	Clerk of the Council, Walton-on-the-Naze.
" 17	Staines—Supply Granite	Urban District Council	E. J. Barrett, Town Hall, Staines.
" 19	London, N.—Road Works	Hornsey Urban District Council	E. J. Lovegrove, Southwood-lane, Highgate, N.
" 19	Wimbledon—Street Works	Rural District Council	Borough Surveyor, The Broadway, Wimbledon.
" 21	Medlar-with-Wesham—Street Works	Urban District Council	G. Gregson, 102, Fishergate, Preston.
" 26	Beckenham—Widening Roads	Urban District Council	J. A. Angell, Surveyor, Beckenham.
Oct. 4	Bracknell—Street Works	Rural District Council	C. J. Cave, Bracknell, Berks.
SANITARY—			
Sept. 10	Ellon—Sewer	Managers, S. Metropoim. School District	J. D. Watson, County Engineer, Aberdeen.
" 12	Sutton—Drainage, &c.	Urban District Council	Mr. Hooper, Brighton-road School, Sutton, Surrey.
" 13	Rugby—Sewer	St. Luke Vestry	D. G. Macdonald, Surveyor, Rugby.
" 14	London, E.C.—Convenience	Police Commissioners	Surveyor, St. Luke's Vestry Hall, City-road, E.C.
" 16	Ratray—Sewage Disposal Works	City Council	J. M. Hodge, Bank-buildings, Ratray.
" 17	Nottingham—Sewer	Urban District Council	A. Brown, Guildhall, Nottingham.
" 19	Lytham—Sewer	Rural District Council	Messrs. Newton, 17, Cooper-street, Manchester.
" 26	Witney—Drainage Works		N. Lally, 16, Great George-street, Westminster, S.W.
No date.	Monkwash—Drainage Schemes		E. J. Williams, 14, High-street, Cardiff.
PAINTING AND PLUMBING—			
Sept. 10	Hereford—Painting, &c.	Standing Joint Committee	H. T. Wakelan, Shirehall, Hereford.
No date.	Dewsbury—Painting		T. Crowther, 3, Ashworth-road, Dewsbury.

COMPETITIONS.

DATE DESIGNS TO BE SENT IN.	DESIGNS REQUIRED.	AMOUNT OF PREMIUM.	BY WHOM ADVERTISED.
Sept. 24	Plymouth—Shops, &c.	£250	Plymouth Town Council.
" 29	Wivenhoe—Water Supply and Drainage Schemes		Wivenhoe Urban District Council.
Oct. 3	Liverpool—New Buildings for Royal Institution	£32 10s., £21	Harold Waterhouse, Hon. Sec., 3, Cook-street, Liverpool.
" 3	Godalming—Football Stand (150 seats—£150 limit)	£3 3s.	Secretary, Recreation Club, Godalming.
" 3	Leamington—Free Library and Technical Institute	£105 (merged), £52 10s.	H. Consett Passman, Town Clerk, Leamington.
" 6	Rotherham—Extension Baptist Schoolroom (£600 limit)		A. Crowcroft, Clifton-crescent, South Rotherham.
" 6	Reigate—Municipal Buildings		Reigate Town Council.

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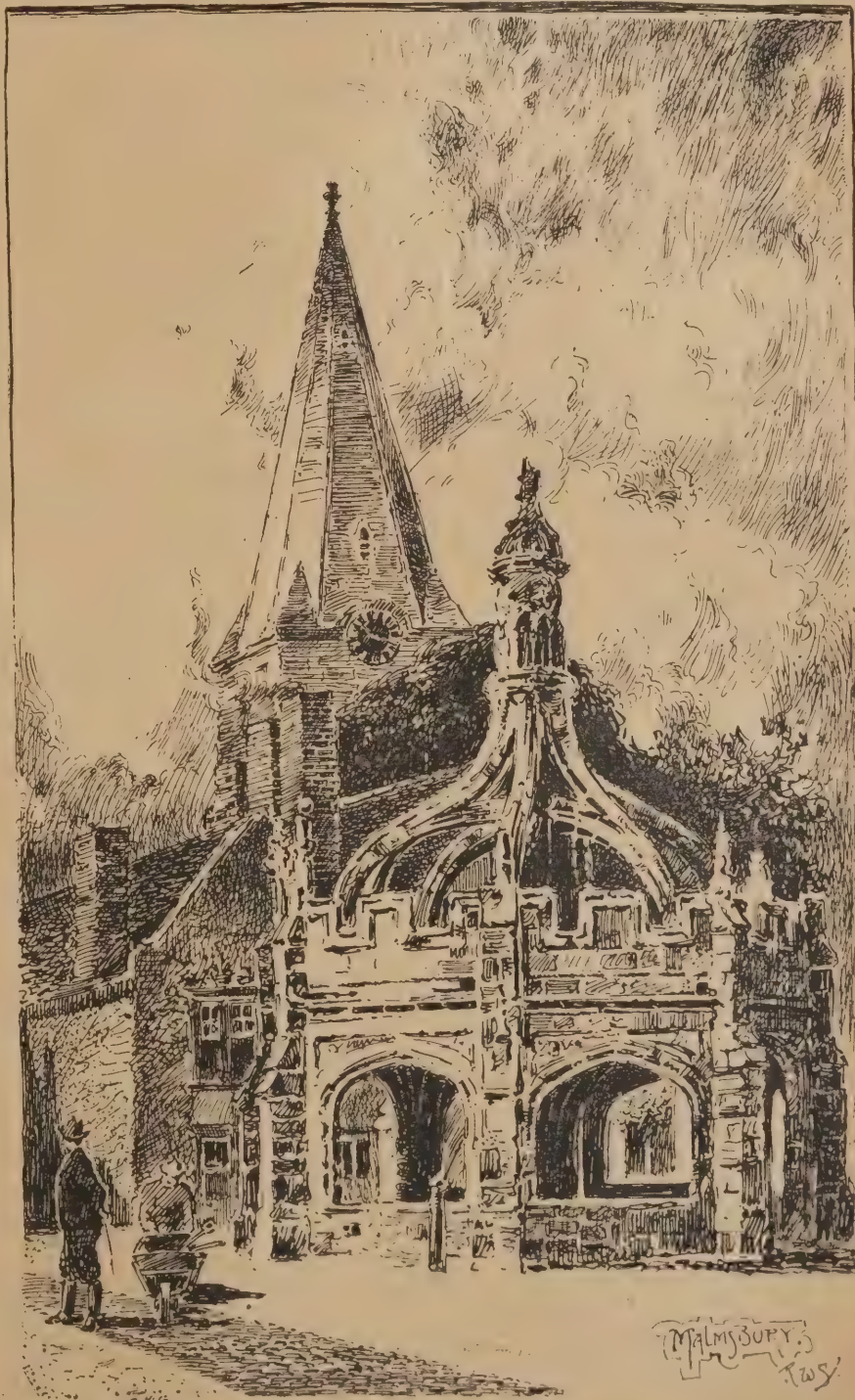
An Architectural Causerie.

Some Side-Door Views of Architecture.

PASSING through the streets of a fine residential city, or along country lanes, dotted with picturesque cottages, one is sometimes reminded of how large a part the labour of women has played in the maintenance of beautiful dwellings. Down by the garden gate stands the old housewife, who for fifty years has "kept the home together," as we say in a phrase of more than figurative meaning, and to whose daily scouring and polishing the preservation of the interior at all events is due. In and out of the side-door of the well-kept mansion flit one and another of the long train of housemaids, in whose hands the architect must finally leave no inconsiderable portion of his work, and on whose labour—unskilled and trivial though he may deem it—the future of the fabric will, to some extent, depend. Around our quiet old London chambers clatters the pail of the antique "laundress," so careful of the dull domestic traditions of the place, so jealous of the intrusion of sacrilegious residents into the Inn. Even the hallowed pavements of our churches have been worn, not only by saints' knees and pilgrims' feet, but by the hands of indefatigable "sisters" washing them from year to year, or at the worst, of those poor pensioners whose labours in the Sanctuary determine their place in the list for blankets and coals. In every branch of Architecture, but more especially in dwelling-houses, the woman's care of the finished structure counts for something in its history, and it is regrettable that her toil, so arduous and well-meant, has often been mechanical and unintelligent, sometimes even mischievous and disfiguring, and generally devoid of any appreciation of the building from the æsthetic side. There is undoubtedly a charm in the lightly curtained window and clean scrubbed floor, but who shall win woman from the sepulchral white hearthstone with which she smears our beautiful old grey doorsteps on a Sunday morn? Who will convert her from the use of the crude red ochre which she daubs upon the window-sill, or up the little brick path to the front door? To these queries Woman might perhaps retort that these pastes and washes were first devised to conceal the sins of the builder, Man, in putting down job lots of bricks and cheap cement where he should have used good stones or tiles. But the use of them has become a habit—one of the hall-marks of the careful housewife, making too often to the artist's eye a jarring note on some restful old frontage, rich in its own harmonious weather stains. This is but one instance of the misapplied labour which women often put into "keeping house." Their devotion to these services is chiefly of a sentimental nature, and their pride in a home has scarcely yet grown beyond the elementary virtues of cleanliness and order, supplemented by a primitive instinct for promiscuous ornament. Ignorant of the beauties of honest material (having been brought up, it must be remembered, on shams and veneers), and, without any sense of the properties of materials and the right treatment of differing surfaces, they go through a set routine of

scrubbing and "tidying" as their grandmothers taught them, till the routine becomes a tradition, which will need several generations of iconoclasts to break it down. It must be admitted that our house-builders have not until lately been at any pains to simplify the work of keeping the interior clean; assuming probably that the women occupants have nothing better to do. But, on the other hand, the architect may plead the general conservatism of woman in domestic arrangements, and her unreasoning suspicion of new ideas. Happily, however, a better understanding is now springing up between the housewife and the architect, owing largely to the better instruction of women in art and craftsmanship, and to their increasing interest in domestic hygiene on the one hand, and in decoration of the broader kind upon the other. Generally speaking, our middle-class homes are growing perceptibly more healthy and artistic year by year, though there are one or two points on which reversion might be made. Where, for example, is the broad interior window-sill of

old days on which one's book or work-basket could be comfortably laid; or, better still, the commodious window-seat wherein Mariana, and all our favourite heroines, were wont to sit? And are the narrow shelves of to-day a sort of vengeance for our grandmothers' habit of crowding the broad ones with knick-knacks and horrible objects under glass shades? Certainly their cupboards were more spacious and soundly built, with deep shelves and recesses suited to their larger and heavier wardrobes than ours. We take root less deeply, perhaps, than they did, and burden ourselves less with best china and superfluous clothes; but we should like what we significantly call our "spare" property to be well housed when out of sight, and to this end a good supply of cupboards appeals strongly to the feminine mind. But for the benefit of the household and visitors alike, the architect should make some clear distinction between the doors of cupboards and those affording entrance to a room. Who does not know the embarrassment of making (as he thinks) a speedy exit



AN ARCHITECT'S HOLIDAY ON A BICYCLE. MALMSBURY. SKETCHED BY E. W. SAMPSON.

from the house, and finding himself in the coal cellar? Who, stranded in the upper floors of a friend's house, has not fumbled vainly among a series of panels, and mistaken the linen closet for the lavatory? Again, it should hardly be necessary to insist that cupboards in the roof and under the stairs should be well lined against dust and soot, and open as nearly as possible opposite a window, that the contents and their condition may be clearly seen. Yet, after all, what can a man know of the ravages of dust in a house so long as Woman stands between him and that most insidious foe? Day by day she sweeps his floors and passages, dusts his mantelpiece, his chairs, his books and papers (waging eternal warfare with his own careful arrangement of them overnight). What if the kitchen flues leak a little into the rooms above, and the cupboards receive all the stray dust of the house?—the woman is sure to like tidying up, and besides, it is all in her time. So at least argues the speculative builder, whom both men and women are beginning to fight on common ground. Nothing could be more chastening to the youthful architect than to take a practical woman over his house and wait for her comments on his original designs. Probably the dainty little devices of structure or decoration on which he prided himself most will pass unnoticed, or be viewed from the grossest utilitarian standpoint. The fair critic will want to know "how you propose to clean that window," or "what about carrying a tea-tray round that corner of the stairs?" No doubt it is very good for us to have these stern checks put upon our adventurous fancy, and a committee of housemaids might profitably have a voice in the passing of our architectural plans. Yet what if these were to disagree, and a majority of "new" women block the bill by insisting on automatic window-cleaners and self-sweeping floors? The minority might then commission a house to be built on good old-fashioned lines, to prove that *they* were not afraid of house-work, and that scrubbed deal and polished mahogany might be put to worse uses than to keep "revolting daughters" in their sphere. No: the committee of housemaids would certainly disagree. A better alternative must be sought for; our architects must be encouraged to marry young. Unaccustomed, perhaps, to take more than a drawing-room interest in women's work, and never having had to wrestle at the price of breakfast with a smoky chimney or an obstinate range, they do not realise how much of the comfort and happiness of a household depends on the fitting-up of the kitchen and the ground floor. In the interests of the Profession and of domestic peace, we must wed them to a race of homely, middle-class girls, who will teach them in that best of schools, the family circle, the importance of building well-placed cupboards, walls that will hold nails, and chimneys that will "draw." E. W.

MR. ROBERTS, who was for several years borough surveyor of Oswestry, has resigned his office on his appointment as engineer of Cape Town.

PLANS have been submitted by four local architects to the Smethwick Technical Education Board for the new technical schools in Crockett's Lane.

THE site of the monastery of the Greyfriars at Winchester, which has since the Reformation been used as a field or a market garden, is now being utilised for building private houses.

SOME two years ago the Queen's statue at Bombay was defaced, and the stains could not be removed. Professor Gajjar, late of the School of Art, Baroda, has now deleted a large portion of the spots, and will in a short time restore the head and crown to their pristine state.

AN ANCIENT LIGHTHOUSE.

ABOUT 300 years ago a fire tower was set up at Tynemouth Castle for the warning and guidance of mariners passing along the coast or entering the Tyne. The lighthouse was purchased in 1840 by the Corporation of Trinity House under the Act of William IV. for the enormous sum of £124,678. Throughout nearly the whole of this lengthened period wood and coal fires have blazed and smoked from a tower in Tynemouth Castle, and it is said that for a time the light was maintained

ON THE TOP OF A CHURCH.

The fireplace is described by an old writer as "partly open and partly close and of a peculiar disposition. It is close at the top and towards the land, but open towards the sea with iron bars (in the nature of net-work, but without glass), through which the wind blows up the fire." In the early part of the present century the coal light was replaced by an oil light made up of several lamps with plated reflectors. This arrangement of lamps and reflectors, with various improvements introduced from time to time, has been in use ever since, and is, says a Times correspondent, one of the last remaining examples of the catoptric system in our coast lighthouses. The present four-sided tower, erected probably about 1777, is a conspicuous object from the sea, forming a familiar landmark and useful guide for all navigators frequenting that part of the coast. But, in spite of its usefulness, its antiquity, and the historic associations connected with it,

THE LIGHTHOUSE IS DOOMED.

The Tyne entrance has to be defended against a possible invader, and the easternmost point of land on the northern bank of the river, upon which stands the Castle, affords suitable area and position for defensive works. A tall, conspicuous tower, such as a lighthouse, would be a desirable mark for the enemy, and the military authorities have decreed that it must come down. Moreover, the firing of heavy guns close by is not conducive to the retention of quiet, order, and careful adjustment of lighting apparatus necessary in a lighthouse. It is said also that several ominous cracks have developed in the tower since the Woolwich infants have been playing around, all of which afford weighty reasons for the removal of the lighthouse. The Trinity Board was not disposed to abandon altogether the idea of a coast light in the vicinity, and, therefore, determined that they would

REPLACE THE TYNEMOUTH CASTLE LIGHT

with one of modern character with all the latest improvements. Accordingly a site three and a half miles to the northward was selected for a new lighthouse, on a tiny islet named St. Mary's, just off Curry Point, a rather more prominent headland than that of Tynemouth Castle. On this islet a noble tower, cylindrical in shape, has now been erected, 120ft. in height, surmounted by a dioptric illuminating apparatus of elaborate design and admirable execution. The characteristic of the light is that it will show two powerful flashes in quick succession every twenty seconds, the intensity of each flash at full power being calculated as 121,500 candles. The illuminant is mineral oil, with a flash point of 145deg. Fahrenheit, burning in a lamp with five concentric wicks. The flame of this burner is adjusted to the centre of the splendid optical apparatus surrounding it; and, by means of refraction and condensation, the issuing flashes are brought up to the power mentioned. This system of group flashing is that invented by the late Dr. Hopkinson. The huge structure of glass and gun metal, weighing about 3½ tons, is caused to revolve in a circular trough of mercury, the mercury necessary for floating this great weight being only 7cwt. 2qr. 10lb. Friction is thus reduced to a minimum, and the apparatus can be rotated by a push of the finger, when its own momentum will carry it round two or three times. The light in clear weather should be visible seventeen miles. The manufacturers of the optical apparatus are Messrs. Chance Brothers and Co. Limited, of Birmingham.

IS LONDON BEAUTIFUL?

WAS is not Ouida who wrote an article some little time ago complaining of the ugliness of London? Many people fresh from Paris and from other Continental capitals find a pleasure in drawing unfavourable comparisons between them and our vast metropolis. I have no sympathy, says a writer in the Echo, with criticism which is simply captious and conceited, and thinks it a mark of superiority to differ from other people and to cultivate an attitude of *nil admirari*. Is there not, however, some truth in this criticism? Would anyone say that the word beautiful can be applied to five-sixths of

THIS VAST WILDERNESS OF A CITY?

Paris supplies the obvious comparison. Now Paris is undoubtedly a far more beautiful city than London. She does not give such an impression of Imperial power and incalculable wealth as is afforded by London, but she is pre-eminently picturesque even to her remotest outskirts. The Parisian slums, however dilapidated and tawdry, are never hideous and squalid. Their tattered balconies and broken stucco have always a touch of elegance just as the poorest Parisienne retains in her rags or coiffure some relic of taste and fashion. The houses are so built originally that they are

PICTURESQUE IN THEIR RUINS.

You will look in vain throughout the length and breadth of Paris for anything so hideous and slummy as the Blackfriars Road or the New Cut, with their mean and meaningless brickwork, their shocking uniformity and their depressing alternation of shop and public-house. To me the most revolting spectacle in London, the real authentic deformity, is your gin-palace, with its foul contrast of splendour and squalor, its lurid glare, vulgar and vicious as the paint on a harlot's cheek. The old-fashioned coffee-house or tavern is

RAPIDLY BECOMING OBSOLETE,

its place being taken by the glittering bar and the voluptuous saloon. I am often annoyed by the sight of a certain public-house which I will not mention. The building is itself quite a beautiful architectural study, startling in its contrast with the mean slums around. Its long and elegant windows, its beautiful decoration, its air ever of mystery and romance, would make it worthy of the streets of Verona. It might be the home of an artist or some wealthy burgher with artistic tastes. But look below. Its ground-floor is ablaze with a well-lit drinking-bar, in which poor folks are fuddling themselves with glasses of beer.

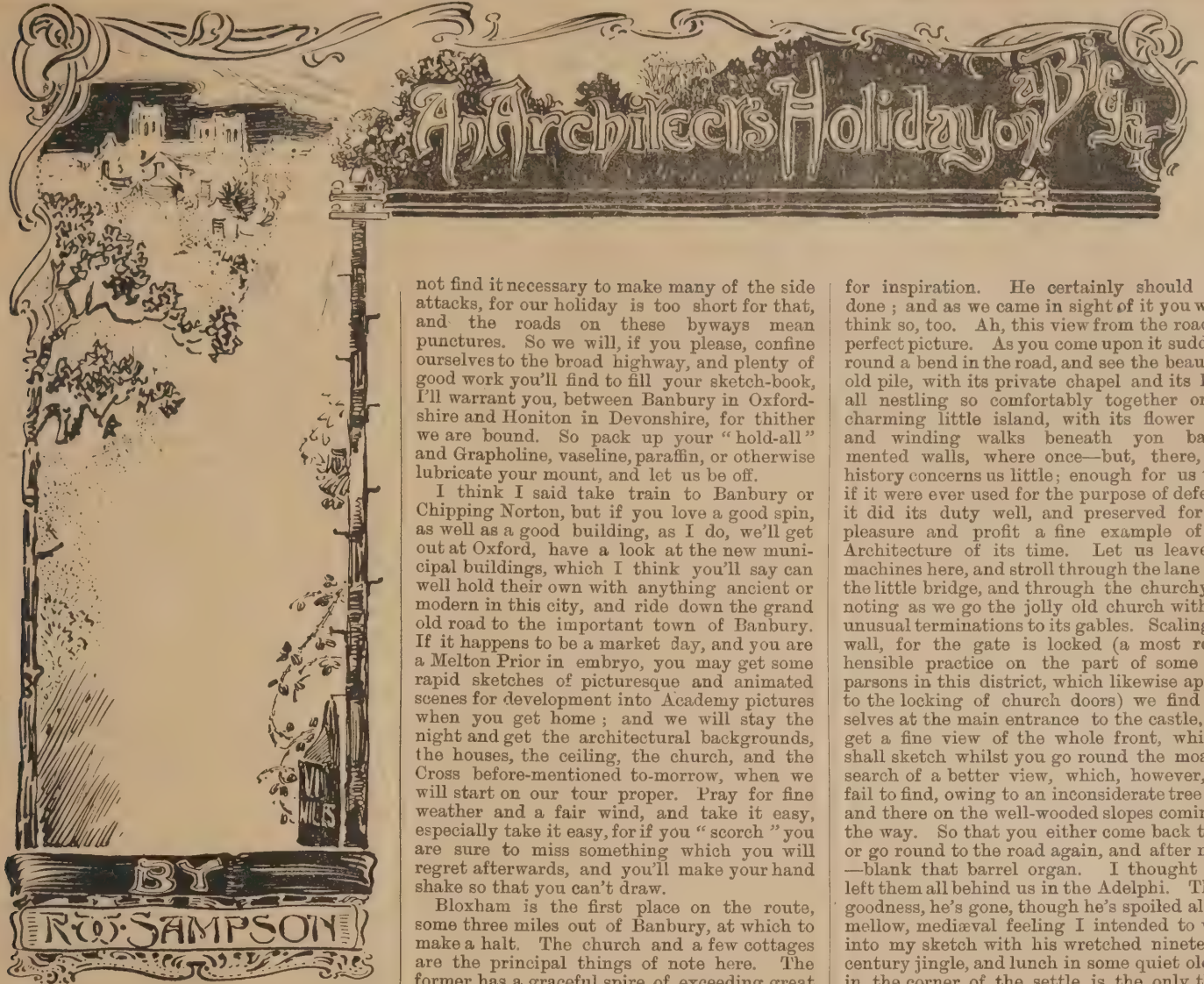
ABOVE IS ART AND BEAUTY

and mystery; below is squalor, and drink, and glare. The relics of London's former beauty are rapidly disappearing. We know how beautiful Cheapside was three centuries ago. The City has developed at a terrible expense of interesting and beautiful Architecture. It is no use complaining. These sacrifices have been inevitable. But surely we may express a hope that we shall not always consider a regard for beauty as a foolish and impracticable sentiment, nor be content that our great Imperial and commercial Metropolis shall embrace so many dark and dismal places.

SIR WILLIAM HARCOURT, on October 26th will open the new portion of the University College of Wales at Aberystwyth, erected at a cost of nearly £20,000.

THE Local Government Board has sanctioned the borrowing of £100,000 by the Liverpool Corporation, to be expended on the extension of the museum and new technical schools.

The rebuilding of Whitfield's Tabernacle, Tottenham Court Road, is proceeding apace, and the foundations have been laid in concrete several feet thick. It has been discovered that the original building was erected on mud with timber placed upon it. Consequently the wisdom of pulling it down is held to have been abundantly justified. The hall under the church will soon be completed, and the foundation stone will probably be laid in October.



not find it necessary to make many of the side attacks, for our holiday is too short for that, and the roads on these byways mean punctures. So we will, if you please, confine ourselves to the broad highway, and plenty of good work you'll find to fill your sketch-book, I'll warrant you, between Banbury in Oxfordshire and Honiton in Devonshire, for thither we are bound. So pack up your "hold-all" and Grapholine, vaseline, paraffin, or otherwise lubricate your mount, and let us be off.

I think I said take train to Banbury or Chipping Norton, but if you love a good spin, as well as a good building, as I do, we'll get out at Oxford, have a look at the new municipal buildings, which I think you'll say can well hold their own with anything ancient or modern in this city, and ride down the grand old road to the important town of Banbury. If it happens to be a market day, and you are a Melton Prior in embryo, you may get some rapid sketches of picturesque and animated scenes for development into Academy pictures when you get home; and we will stay the night and get the architectural backgrounds, the houses, the ceiling, the church, and the Cross before-mentioned to-morrow, when we will start on our tour proper. Pray for fine weather and a fair wind, and take it easy, especially take it easy, for if you "scorch" you are sure to miss something which you will regret afterwards, and you'll make your hand shake so that you can't draw.

Bloxham is the first place on the route, some three miles out of Banbury, at which to make a halt. The church and a few cottages are the principal things of note here. The former has a graceful spire of exceeding great height. As the local sage hath it who composed the lines which run: "Bloxham for length, Adderbury for strength, and Sutton for beauty," it is open to question whether these sentiments so expressed are actually justified, and if you like to satisfy yourself on the subject you may easily do so, for Adderbury is but three miles to the left of us, and King's Sutton five. By-the-way, you passed through Adderbury on the road from Oxford, but may not have noticed the church, which is somewhat round the corner from the main road. However, as we really must make a digression to the right of us, and go one mile off the main road to Broughton, perhaps you'll take my word for it that the aforesaid local sage was near enough to the truth to satisfy the man in the street. Adderbury is certainly strong, Bloxham is decidedly long, and Sutton—well, is pretty. Bloxham, taken all round, is the best of the three; built in the latest period of the Gothic age, there is originality, and at the same time, a feeling of decadence in the detail, such as you may have noticed in some other churches in this district. Chipping Campden is one that occurs to me, buildings which seem to me to possess the germ, though quite undeveloped, of the work we all admire so much of the late Sedding. Yes, certainly, it is worth sketching. The difficulty is to know whether to take it from the bridge at the bottom of the hill or from the other side near the railway station. Then I shall go round the corner to that charming old moated grange, Broughton Castle.

Talking of moated granges reminds me of a yarn of the early days of Christmas cards. A printer was showing some of his specimens to a gentleman, who remarked, on looking at one of the Leader sunset order, that the designer must be a clever artist. "Well," says the printer; "I dunno about being a hartist, but 'e's the finest moated grangest in the trade!" Well, I wonder if he came to Broughton Castle

for inspiration. He certainly should have done; and as we came in sight of it you would think so, too. Ah, this view from the road is a perfect picture. As you come upon it suddenly round a bend in the road, and see the beautiful old pile, with its private chapel and its keep, all nestling so comfortably together on its charming little island, with its flower beds and winding walks beneath yon battle-mented walls, where once—but, there, the history concerns us little; enough for us that, if it were ever used for the purpose of defence, it did its duty well, and preserved for our pleasure and profit a fine example of the Architecture of its time. Let us leave the machines here, and stroll through the lane over the little bridge, and through the churchyard, noting as we go the jolly old church with the unusual terminations to its gables. Scaling the wall, for the gate is locked (a most reprehensible practice on the part of some few parsons in this district, which likewise applies to the locking of church doors) we find ourselves at the main entrance to the castle, and get a fine view of the whole front, which I shall sketch whilst you go round the moat in search of a better view, which, however, you fail to find, owing to an inconsiderate tree here and there on the well-wooded slopes coming in the way. So that you either come back to me or go round to the road again, and after much—blank that barrel organ. I thought we'd left them all behind us in the Adelphi. Thank goodness, he's gone, though he's spoiled all the mellow, mediæval feeling I intended to work into my sketch with his wretched nineteenth century jingle, and lunch in some quiet old inn in the corner of the settle, is the only thing that will bring us back to the frame of mind for the true appreciation of these grand old works of our forefathers.

Having refreshed ourselves after our labours at Bloxham and Broughton, we will proceed on our way to Chipping Norton, a distance of eight miles or so. We only pass through one village on the way, which does not seem to call for our special notice. Just this side of Chipping Norton we shall pass the demesne of Mr. Albert Brassey, where you may see one of Sir Arthur Blomfield's scholarly churches, and also some of Mr. Waterhouse's equally circumspect design in the house; but as that is hardly what we came out to see, we will jog on to Chipping Norton, an ancient market town, with a mayor and corporation. There are cloth mills here too, but little of architectural interest to detain us; the one wide street, the market-place, can hardly be called picturesque, though there is a certain old world air about it; so, unless you are tired, and prefer to stay this night at the White Hart, we will get on to Shipton. We may go either by Churchill, or more directly by the Shipton and Burford road; the latter, I think, is our best way. Churchill is a nice little village, but as you have, no doubt, seen and sketched Magdalen Tower in Oxford, you won't be interested in seeing a more or less good copy of it to a small scale at Churchill, and that is its principal feature from our point of view.

Shipton—which to save confusion with the many other Shiptons—is called Shipton-under-Wychwood, will give you plenty to do if you care to stay. There is the Court, a stately old mansion, out of which many of the mullions have been cut from the windows to make room for great staring sashes; nevertheless, there is much left which is worth noting. There is a somewhat formal garden and a very fine avenue and some good bits of ironwork about.

The church (one of Mr. Street's earliest restorations) with a fine Early English spire,

If you have a week to spare, or, better still, two, a bicycle, and an artistic thirst which can only be quenched by long and deep draughts of the elixir of life contained in the architectural vintages of the Middle Ages, take my advice and put yourself and all that is portable of these things in the train at Paddington, and take them down to Chipping Norton Junction, or perhaps Banbury, and follow me through country and over roads which, with but few exceptions, seem to have been constructed in those far off days of their making for the architectural cyclist.

Banbury, of course, you know by heart. If, however, you don't, you will be disappointed at the start by the poorness of the Cross you heard so much about in your childhood, and furthermore, ladies on white horses are things of the past. But the church, reminding one so much of the City of London churches, and a good one at that, is well worth seeing, though, to my mind, a classic church of so severe a type, is out of place in a country town; but you will find some jolly old houses, with shops beneath, wherein cakes of the original description may be had, that will compensate you for any disappointment the church or the cross may afford you, and a room with a glorious ceiling at the inn, wherein one of the Charles (I forget which) held council, is worth much travel to behold.

Perhaps before starting on the journey you would like to know where it is going to end. Well, the road I purpose traversing runs through no less than five counties, and the distance is about 150 miles, more or less, according to the number of digressions we may make to see something which is only just over there, as one may say, which may mean anything from a mile to five, though we shall



with a very large ball on the top and a very small vane, is of interest, and well worthy of your attention; and the Crown Inn has a well shaped Tudor arch to its entrance, which is all very interesting. To Burford is a ride of five miles over the Downs, where, to the right of us, at a distance of about a mile, are the quarries which claim to have supplied much of the stone for the interior of St. Paul's Cathedral. Fullbrook, with its tiny little church lately restored, is passed, and Burford comes in sight climbing up the hillside yonder, on the top of which runs the old London road. As we get nearer we make out the grand old church—one of the finest we shall meet with—with its long nave and chancel and graceful tower and spire, which alone decides you to make a long halt, even if you are not aware of the other treasures in the Priory and in every street which are to be found there. Yes, you may stay here some time, one, two, or three days if you like, and still find plenty to interest you. Perhaps the best way will be when you are refreshed, and have had a general look round, to call on the Vicar, the Rev. Mr. Cass, whom you will find a genial and instructive as well as a willing guide, full of wit and good humour, with stories of Street and Morris, the former of whom restored the church, to be practically damned by the latter for his manner of so doing. The church is a veritable treasure house, and in it there are examples of every period from the Norman arches to the tower, to the Grinling-Gibbons looking monuments on the walls. I shall sketch that one in the corner of the south transept, behind the organ; it is a sweet bit of modelling, although the cherubs have a somewhat Irish cast of features and their melancholy expressions—doubtless in accordance with the feelings of the bereaved ones. These cherubs are somewhat apt to appeal to the sense of humour in the ordinary beholder, and cause him to smile. In the meantime you may go and make a note of the south porch, with its groined ceiling, or the fine old Perpendicular family pew over there, or that peculiar corbel in the south aisle, or all or any of the fine work this church contains, and, when you've done, we'll walk up the street, and look at those beautiful old gables just above the Bull Hotel and the Gate House at the corner of the road opposite, along which we shall take our way to our next stopping place. It is in Shipton we see the finest specimen of the blacksmith's art we are likely to meet with on this journey—those railings and gate, now doing duty at the entrance to a Wesleyan chapel, of all places in the world, though, fortunately, it is only the name of these enemies to Architecture that jars on one, for with the gates they took the house behind which is a good old place enough, with its fluted, Corinthian pilasters and its well proportioned door and windows.

(To be continued.)

MEMOIRS OF AN OLD STREET.

KING STREET, Westminster, once one of the most famous streets in the world, has for a long time been under an eclipse. For several centuries the pageantry connected with Court, Parliament, and Abbey, with sterner and sadder processions associated with Westminster Hall and the Abbey, passed along its narrow way and through the two picturesque gates which spanned it. Holders of some of the most notable names in history have here found a lodging; but when Parliament Street was cut across the old Privy Garden, King Street, shorn of more than half its length, became a mere back street, the very existence of which was forgotten by most people. Aggas's map, *temp.* Queen Elizabeth, shows us that King Street extended from the Tilt Yard (opposite the site on which Inigo Jones built

THE NOBLE BANQUETING HOUSE

as a first instalment of the magnificent palace projected by Charles I.) to nearly where it ends at the present time. Holbein's beautiful gate (sometimes called the Cock-pit Gate) stood at the Tilt Yard end, and was not demolished till the year 1759; the second gate, known as King Street Gate or Westminster Gate, stood at the southern end of the Privy Garden. The Countess of Buckingham, mother of George Villiers, Duke of Buckingham, whom Felton stabbed to death, had

lodgings in this gate, and hence her body was borne to be buried in the Abbey. The Earl of Rochester was a later dweller in the gate, which stood till 1723. Opposite the south end of King Street was a third gate, sometimes known as

WESTMINSTER HALL GATE,

which gave entrance to Palace Yard. In the space in front of this gate the pillory was often set up. One of our earliest printers—the fourth chronologically—Julian Notary, was “dwellynge in Kynges Street, A.D. 1500,” when he printed the “Book of Devotions.” Elizabeth's famous admiral, Lord Howard of Effingham, lived here, and the meetings of the Privy Council often took place in his house. In 1611 Sir Henry Wotton had a lodging here, where, with his few books, he passed his time, “more attending the study of truth than of humour.” Another bookish resident was Bishop Goodman, when spending his days with the Cottonian Manuscripts in Ashburnham House near at hand. Poetry has representatives in Edmund Spenser, the poet's poet, who died here—“for lake of bread,” Thomas Carew, the friend of Ben Jonson and Suckling; and that Earl of Dorset whose name lives in “To all you ladies now on land,” and other lyrics; Erasmus Dryden, brother of “glorious John,” dealt here as a grocer before he became a baronet. Science claims Dr. Sydenham; the stage, Anne Oldfield. Dudley, Lord North, who died in 1677, had a “sorry” house in King Street, remarkable for being

THE FIRST AND ONLY BRICK HOUSE

in that street for many years. Oliver Cromwell had a house here, traditionally said to have been near Downing Street; it was here he wrote to his wife from Dunbar; and here, too, in April, 1648, that he vainly strove to reconcile the chiefs of the Parliament and the Army. “They would not draw together at all.” Cromwell's mother also was lodged in a house to the north of the gateway entrance to Blue Boar Yard, and she was borne hence to be buried in the Abbey. The house has long since disappeared; the Blue Boar was rebuilt in the eighteenth century, but the yard and its entrance still exist, so that the site can still be exactly located. The memoirs of an old street like this, says the Westminster Gazette, summon before us innumerable phantoms of the past, and bring us into touch with the burning question and momentous incidents of bygone days. The north side of King Street has been already demolished, together with the greater part of Parliament Street. The rest is to follow to make a site for the new Government offices, to be built from the designs of Mr. Brydon.



A NEW Baptist Church in Florence Road, Preston Park, Brighton, has been opened.



BROUGHTON CASTLE

EAST RIDING ANTIQUARIAN SOCIETY.

MONUMENTAL EFFIGIES: WATTON ABBEY.

THE annual general meeting of the East Riding Antiquarian Society took place last week. The business routine was prefaced by a public dinner, at which Mr. St. John Hope made some interesting remarks on the subject of effigies. Mr. St. John Hope said the Society of Antiquaries were anxious to compile a list of the monumental effigies which existed in this country. There had been published a charming book on "The Monumental Brasses of England and Wales," by the Rev. Herbert Haines, but no such book had been written on monumental effigies. The county of Yorkshire was rich in those interesting memorials. Indeed, one of the minor schools of sculpture in England appeared to have been in Yorkshire—it may have been in York, but there was no record. He had accompanied that society on a number of their excursions, and he had been surprised and pleased to see the number of

INTERESTING AND CURIOUS EFFIGIES that existed in the East Riding. It would be a most useful thing if, whenever the society visited a church which contained an effigy, certain members would undertake to record the circumstance and photograph the monument. The Society of Antiquaries did not wish to restrict their list simply to the recumbent figure; they wished it to include everything that represented a man's head or his effigy generally—anything that partook of the nature of effigies down to what he might call the present-day postage-stamp busts on the walls of churches. The scheme covered a wide field, and he commended the subject to the notice of the society. By way of helping matters forward, a small committee had been appointed to draw up a sort of handbook on the study of monumental effigies which would classify different types of armour, different types of ecclesiastical figures, and different types of secular figures, and suggest the best ways of describing them. The President had spoken of parish registers. The interest in a parish register was purely local,

and it mattered little outside a particular village what the register contained. But there was one interesting set of parish books which was often, indeed almost universally, overlooked. He referred to the ancient churchwardens' accounts, which contained a good deal that was of more than local interest. They gave information as to local customs, of which we had in some cases no other record, as to church furniture, and as to the cost of work upon the buildings. There were many examples in which antiquaries would give almost anything to have the churchwardens' accounts—he need only mention St. Mary's, Beverley, for one. It would be well if the society made a systematic inquiry after the churchwardens' accounts in the churches they visited.—During subsequent proceedings Mr. St. John Hope gave an address on the interesting subject of Watton Abbey, the foundations of which were disclosed by excavations two or three years ago. Mr. Hope said there were yet many points in the history of the abbey to be cleared up, and before the paper which he had promised the society could be written and put into a final and readable form, it would be necessary

TO CARRY OUT FURTHER EXCAVATIONS.

The abbey had belonged to the remarkable Gilbertine Order, which was originated by a rector of Sempringham, in Lincolnshire, who provided this foundation for some ladies of his parish who were desirous of leading a religious life. This monastery, if it might be called so, was literally a place of entire seclusion, and those ladies having retired to it never left it. In order that they might receive the necessities of life certain lay sisters were appointed to wait upon them, and those sisters brought food to the nuns and put it through a small window or hole in the outer wall of the monastery. But Gilbert, the founder, concluded that this was not a desirable state of things, as it made it possible for the lay sisters to hold conversations with the secluded ladies on secular matters, and disturb the current of their thoughts towards higher things. Thus it came that the lay sisters also entered the monastery to perform their duties within, and without they were replaced by a number of lay brothers who attended to the external affairs of the nuns. But that arrangement also raised

difficulties. It occurred to Gilbert to get over them by attempting to model his new establishment on the lines of the great Cistercian Order, which was then in a flourishing condition. He applied to that Order to take those sisters under their charge, but the abbots of the Order refused. Gilbert then drew up a code of rules based on those of the Cistercians. But in the case of the Cistercians a certain number of monks were priests who ministered to the wants of the community, but in the case of the ladies that was a difficulty that had to be got over. Gilbert decided to attach to each of his foundations—for that at Watton was only one of seven—a small college of from seven to thirty canons. Those chaplains were bound by the rule of St. Austin or Augustin. The rule was extremely exacting in laying down restrictions that were framed to keep the two sexes apart. In the church a wall was built between the canons and the nuns so that the one sex could not see the other. The Gilbertine Order did not appear to have made great progress in England. Only twenty-six monasteries of the Order existed; half of them were mixed. At the dissolution of monasteries only three existed as double houses, and of these three Watton was one.—Mr. Hope then proceeded to describe in detail the excavations at Watton.

THE floor of a room in a bookseller's shop in Holywell Street fell through recently into the smoking room of the Opera Comique. The room had been used for the storage of paper, some five tons of which were precipitated through the ceiling below.

MR. G. J. FRAMPTON has just submitted for the Queen's inspection the small model of the colossal statue of Her Majesty which he has been commissioned to execute for Calcutta. The statue will, when completed, be erected in front of the Government House. It will be the Jubilee memorial provided by British and native subjects of the Queen in India.

A FEW days ago a large portion of the front of the Branksome Hotel, Bournemouth, which is being converted into shops, fell into the street. The sound of the downfall of hundreds of tons of brickwork and masonry alarmed and attracted a large crowd. Fortunately no one was injured. The structure was being underpinned, and a foundation pier gave way.

ART IN ENGLISH CHURCHES.

CHURCH CONGRESS week, which commences at Bradford on September 27th, will give the Clergy and Artists' Association another opportunity of exhibiting samples of work executed under their auspices. This will be the third year of the exhibition. The Association aims at raising the standard of Art in English churches. Anything from an embroidered stole to a steeple comes within their scope, which is practically unlimited, and it is for the purpose of showing what great improvements can be effected both in the interior and exterior of churches that this exhibition of working drawings will be held. It is an indisputable fact that many of our churches are devoid of that grace of outline and interior decoration which ought

To ADORN ALL SACRED EDIFICES, and the Association have set to work to gradually bring about a much-needed reform by submitting to those who ask for advice the names of artists whose work "is really representative of the new impulse which is growing up to a more living Art in churches." And as such famous artists as Sir W. B. Richmond, Mr. G. F. Watts, and Mr. Holman Hunt take a keen interest in the Association, the commendable task should be attended with success. Since the Association was started three years

ago, upwards of a hundred applications for advice as to church decoration have been dealt with. The committee merely recommend an artist; they do not, of course, tell the artist what to do, and in all the instances that have come under the notice of the Association a material improvement has been effected. All this must eventually lead to

THE REMOVAL OF UGLY STRUCTURES and tawdry interior decoration. The display of things beautiful will go a great way towards persuading people to abolish the unsightly—particularly what Mr. Holman Hunt calls the "galvanised puppets." In the forthcoming exhibition, which will be held in the Bradford Art Gallery, a large variety of drawings will be on view. They will include, says the Daily Mail, drawings for a pulpit, cartoons for stained glass, sketches for decoration of a chancel, designs for an altarpiece, sketches for windows, plaster models, embroideries, and photographs. Artists are invited to submit examples of their work. Altogether the exhibition should be fruitful of valuable results and help to increase the Association's sphere of usefulness.

AFTER having been radically altered, completely redecorated internally, and greatly improved, St. Patrick's Roman Catholic Church, Edinburgh, has been reopened.

Public Hall Decoration at Glasgow.

THE redecoration of the interior of St. Andrew's Halls, Glasgow, has just been completed by Messrs. J. B. Bennett and Sons. In the redecoration special care has been taken to harmonize the colours with the brilliancy of the electric light. No less thoughtfully have the entrances been treated. The main entrance is richly decorated with blue panelings on the ceiling, relieved with gold and ivory bands. The cornicing is of crimson and gold, with neutral tints painted on the bands. The walls are wholly painted a Pompeiian red and the woodwork dado as rich teak, while the highly decorated architraves are of ivory colour, with a background of gilded ornament and bands of gold. The other entrances are similarly treated. Coming now to the interior of the hall,

THE GENERAL SCHEME OF DECORATION

there is indicated by a vellum tone of background throughout. The panels of the ceiling are gilded solid, with stencilled Greek ornaments thereon, relieving bands of red and profuse ornamental work in gold and silver alternately. The three central ventilators, utilized as electroliers, are very handsomely ornamented in gold and turquoise blue, adding materially to the ornate appearance of the ceiling, which is brightness itself. The cornicing and entablature are relieved with blue paneling and red and blue bands, with ornamental work gilded solid. The side walls of the balcony are each divided into seven panels, divided by pilasters, and filled in with tripods on either side, festoons hanging therefrom, and a harp in the centre, each harp overhanging the name of a celebrated musician, author, artist, or sculptor. The dado offers a delicate contrast. It is divided into twelve panels, with a diaper pattern overall in three shades of ash-green, relieved with gold. The woodwork of the gallery is treated as teak. The front of the balcony is tastefully in keeping with the above, giving an ensemble to

THE WALL SCHEME,

which carries the eye upward with unbroken harmony. It is divided into small panels, filled in with solid gilding and Greek ornamental work, with lines of sienna and the fieldings filled in with blue. The lower part is painted with bands of ash-green and maroon, relieved with blue and gold and silver lines. All the capitals of the columns supporting the gallery are bronzed, while the columns themselves are treated as ironwork relieved with gold. The floors of the gallery underneath are divided into 24 panels relieved with red and blue lines; the cornicing is of old gold, vellum and red; and all the woodwork of the walls below is treated as teak. The chief feature of the entire scheme is the magnificent treatment of the large organ case. The two caryatides supporting the central entablature and the angel above are elaborately treated with gold and silver richly shaded. The pipes are alternately of gold, silver, and ivory,

WITH ORNAMENTAL VARIATIONS,

which place each in adequate relief. The panels and the upper cornicing are filled in gold and a red margin with stencilled ornamental work, while the lower panels are of blue and silver. The dancing figures in bas-relief on the supports of the main barrels are of a dainty ivory colour, relieved with a background of gold, while the columns, capitals, and enrichments are, like the centre pipes, treated with gold, silver, and ivory. The base of the instrument is over all of a red and green diaper pattern, and the organ case proper is painted to represent teak, in keeping with the rest of the woodwork. Next in importance, as a separate feature of the decorations, is the skilful treatment of the entablature over the rear balcony, supported by eight columns and four pilasters. The capitals of the pillars are gilded solid. The upper shafts are ivory coloured, and the lower ash-green, with red bands and gold and silver ornamental relief work. The bases are teak, and the mouldings thereof a rich bronze.



BLOXHAM. FROM A COLOURED DRAWING BY R. W. SAMPSON.

Correspondence.

THE R.I.B.A. AND THE GOVERNMENT.

To the Editor of THE BUILDERS' JOURNAL.

DEAR SIR,—Mr. Woodward asks me to name the gentlemen who are not members of the Institute whom I consider to be the best men, and he will be very glad to break a lance with me on the matter.

I regret that I must decline this challenge, as it seems to me that such a proceeding would hardly be agreeable to the gentlemen concerned, and that the introduction of personalities tends to lower such a discussion to a vulgar wrangle over individual reputations.

It is not, either, as if I were alone in my opinion, and Mr. Woodward really needed information; there are at least three names that would occur to anyone.

I should be most happy, at any time, to discuss this or any other matter with Mr. Woodward, so long as the discussion can be kept on general lines, and personalities avoided.—Faithfully yours, A. R. JEMMETT.

Views and Reviews.

THE CROMER EXPRESS.

We have received a copy of a little brochure entitled "The Cromer Express," issued by the Great Eastern Railway Company. The work, which is very prettily got up and illustrated, details a journey from the Liverpool Street terminus to Cromer, starting at 1.30 p.m., and reaching the Norfolk watering place at 4.25. This run of 138 miles in 175 minutes may be reckoned as satisfactory travelling. Descriptions, enlivened with anecdotes, of various places of interest on the route are given, their distance from London and the time of passing being set down in the margin. The little views of Dedham Lock and Repp's Avenue, near Cromer, carry with them the conviction that there is scenery in East Anglia equal to any in other parts of England.

LESSONS FROM FIRE AND PANIC.*

It is eminently satisfactory that so much attention is now being given to the long-neglected subject of fire-prevention, and that an earnest effort is at last being made to benefit by the lessons of past fires and panics. The British Fire Prevention Committee has, in its infancy, accomplished much useful work, and it is very largely through its agency that this important question has of late been brought so prominently to the front. It can hardly be doubted that the Committee's programme of preventative measures, as revealed in the several publications already issued under its auspices, is based on the soundest principles, the propagation of which can be attended only by beneficial results. The latest publication of the Committee is a paper on "Lessons from Fire and Panic," by Thomas Blashill, superintending architect to the London County Council. An authority better worth listening to on such a subject we cannot readily recall, for the chief building official of the metropolis brings to bear a vast—perhaps unrivalled—experience with the matters of which he treats. The sense of security induced by the consciousness that the great question of fire prevention is stringently dealt with by a large administrative body like the London County Council—that Building Acts are in operation for our protection—is no doubt responsible for the prevailing belief that fire-risks are less to-day than they were a dozen years ago. Yet is it so? Buildings, especially commercial buildings, are getting more lofty, more closely crowded together, and more thickly inhabited. There is more machinery actuated by heat. The timber we use is more easily combustible, fittings are lighter, and everything is kept warmer and drier. In fact, most of our brick or stone and slate houses are nothing else than grates, in which their contents can be most conveniently burned.

Hence, it is evident that the construction and arrangement of modern buildings ought to be greatly improved. It is true that streets cannot be widened, and that unoccupied areas cannot be increased. But what can be done is to diminish the chances of fire and to delay its progress, to prevent its passage from room to room and from house to house, so to arrange the building that a fire may be more easily put out, and as regards the safety of the inmates, to provide the best means of escape. Mr. Blashill gives invaluable suggestions as to how these improvements can be effected. He suggests that openings in external walls where the streets or back areas are narrow should be provided with fire-resisting blinds. This would delay the passage of the fire from within and without. Floors should be made, as in Paris, fireproof, and roofs should be incombustible. As to partitions, lath and plaster should be quite abandoned, for a half-brick wall in cement is as easily constructed. Next he deals critically with old structures, and with the question of arrangement of buildings with the view of preventing loss of life from fire. By the Factory Act of 1891 every new factory in which more than forty persons are employed must be provided with means of escape in case of fire. The Factory Act of 1895 extends these provisions to certain workshops and laundries. Mr. Blashill enumerates the best kinds of fire-escapes for different cases, according to the circumstances, under these Acts. He also gives a lucid explanation of the new regulations of the L.C.C., and he justifies their stringency. In conclusion, he appeals to architects to feel that it is a moral duty for everyone charged with the erection or care of a building to make it as secure in case of fire and panic as he can.

* Lessons from Fire and Panic. A paper by Thomas Blashill, F.R.I.B.A., F.S.I., superintending architect to the London County Council. Edited by Edwin O. Sachs. Issued at the offices of the British Fire Prevention Committee, 1, Waterloo Place, Pall Mall, W. 1s.

CARLISLE CATHEDRAL.*

Carlisle Cathedral was at no time of the first importance, either for size or beauty. Burnt out in 1292, it suffered again from fire in 1392. Then it was partly destroyed in 1646, when the city surrendered to General Lesley, and in 1746 we find it used as a prison for captured Highlanders. A "restoration" carried out by Bishop Lyttleton seems to have completed the destruction. From this it will be seen that the chief interest of the building to-day is antiquarian, rather than artistic; and this is the point of view which the author of this handbook seems to have chosen. He tells us all there is to know of the settlement by the Romans, and of the life of the town till it was refounded by William II., and of the first ecclesiastical establishment under Henry I., and so on through the history of the various buildings, up to the present time. This account is clearly and pleasantly written, and is illustrated by numerous pen and ink sketches, which, however, are hardly up to the level of first-class contemporary work. However, they serve their purpose. The book is nicely got up; paper, printing, and binding are all that can be desired.

* Carlisle Cathedral. By The Worshipful R. S. Ferguson, F.S.A., Chancellor of Carlisle. Illustrated by Alexander Ansted. London: Isbister and Co. Ltd.

THE Old West Gate at Southampton has been restored, and is to be used as a museum.

MR. PERCY ADAMS has prepared plans for new infirmary buildings in connection with the Dorking Workhouse.

MESSRS. GREGORY BROS. are about to erect a few bungalow residences, from plans prepared in their own office, in the quaint old-world village of Anthony's, Woking.

THE new Palace Theatre, Plymouth, to which we have previously referred in these columns, was opened on Monday week. Messrs. J. T. Wimperis and Arber are the architects.

THE Bournemouth Town Council has adopted a resolution to make application to the Board of Trade for a provisional order to authorise the Council to supply electricity for any public or private purposes within the borough.

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EFFINGHAM HOUSE,
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Bricks and Mortar.

EFFINGHAM HOUSE, ARUNDEL STREET,

September 14th, 1898.

"I know what it is to live in a cottage with a deal floor and roof, and a hearth of mica slats; and I know it to be in many respects healthier and happier than living between a Turkey carpet and a gilded ceiling, beside a steel grate and a polished fender. I do not say that such things have not their place and propriety; but I say this, emphatically, that the tenth part of the expense which is sacrificed in domestic vanities, if not absolutely and meaninglessly lost in domestic discomforts and incumbrances, would, if collectively offered and wisely employed, build a marble church for every town in England; such a church as it should be a joy and a blessing ever to pass near in our daily ways and walks, as it would bring the light into the eyes to see from afar, lifting its fair height above the purple crowd of humble roofs."—JOHN RUSKIN.

A CURIOUS circumstance lately brought to light in Paris is the inequality of the towers of Notre Dame. To the casual observer they appear equal, but there is a difference in the size of the bays. The explanation is curious. It seems that long ago the cathedral of a suffragan was not entitled to two towers of equal size, and for centuries Paris was suffragan to the Archbishop of Sens.

It may or may not be true that it was Rossetti who urged Burne-Jones, when at the outset of his career, to connect with a hyphen "Burne" and "Jones," says William Sharp in the September Atlantic. "'Jones' is nobody," Rossetti would declare, "only a particle of a vast multiple; but Burne-Jones—that is unmistakable!" It was an amusing trait in Rossetti that he was wont to designate the good work of this or that friend as the work of —, and he would mention the most distinctive name or part-name of the person concerned. Thus he would say, "Yes, that is Burne-Jones, but this, this here, you know, is only Jones"; or, "That, now, is the real Holman Hunt, but this here is only Hunt"; or, "You can hear Tennyson in that, but Alfred wrote the other lines."

MR. SHARP recalls two amusing instances where Burne-Jones more or less unconsciously adopted the same method. He was asked once if he thought William Bell Scott more eminent as a poet or as an artist. "I never thought very highly of Bell," he replied; then, seeing a look of surprise, added, with a humorous twinkle, "I like old Bell Scott—old Scotus, as we always called him—immensely, and I think William Bell Scott wrote some very fine verse, but I always thought it was a pity that Bell took to painting!" The other instance occurred when someone remarked to him that "Parnell was only an agitator." "Charles Stuart Parnell," he replied with emphasis, "was one of the greatest public men of our day, and far and away the ablest Irish leader."

THE largest statue in the world is Bartholdi's "Liberty Enlightening the World," at the entrance to New York harbour, presented by France to America in 1885. The cost of the statue was about £8000; its height from the base to the top of the torch held high above the head of the goddess is 151ft. The statue, standing on a pedestal 88ft. high, is made of repoussé copper, and is so large that forty persons can be accommodated in the head, while the torch, reached by a spiral staircase, will hold twelve.

THE munificence of Lord Grimthorpe in the restoration of St. Alban's Abbey has been one of the most memorable things in this age of church building and restoration. His interest in it has been maintained for many years, and has suffered no abatement, notwithstanding the varied opposition he has met with. The restoration has been conducted also on a princely scale. It is said that during the twenty years he has been at work on the fabric he has spent no less than £250,000.

THE home of John Keats at Hampstead is in imminent peril at the hands of the speculative builder. "Swiftly and surely," writes Mr. D. H. Parry, "a band of red brick is closing round the garden where the immortal 'Ode to a Nightingale' was penned on those loose sheets which were hidden behind the shelves of the bookcase. The 'melodious plot of beechen green' has vanished; the nightingales have long ago gone, but the house still stands, with its recently-affixed tablet, and it will be a lasting disgrace to every British man and woman of letters if it is allowed to fall. Charming in itself as it nestles retired from the road amid a pleasant stretch of velvet lawn, it is hallowed by the memories of the poet's unhappy passion, by his illness so soon to prove fatal, by the visits of some of his most distinguished contemporaries. It is a shrine which should be saved from the desecration with which it is threatened, but if anything is to be done it must be done at once, and if you, sir, through the medium of your columns, could set the ball rolling to a successful issue, it would be to earn the gratitude of all lovers of one of the youngest and one of the greatest poets in the English language."

M. FELICIEN ROPS, who died a few days ago, was a painter and etcher of a most extraordinary character. His canvases were the weirdest and most horrible productions in Art since the semi-insane dreams of Wiertz took form in the pictures now in Brussels. He was wild, ghoulish, Satanic. Somebody once, not untruly, called him "the explorer of dark feelings." In his long and industrious career he gave to the world some beautiful interiors and studies from Nature, which are far enough removed from the fantastic efforts which have come to be associated with his name. It is for the latter, no doubt, that he will be remembered—"Les Diaboliques," "Le Vice Suprême," "Curieux," and the amazing "Sataniques"—in which he has ranged through nearly every circle of the human Inferno.

No one has rendered so well as he has the hallucination of perverse passion. And, as usual, there was the most violent contrast between his Art and the conditions of his private life. He was a peaceful grower of roses on the hills of Essonne. For the last two years he gave up his Paris studio, and worked in the "Demi-Lune," a little lonely hermitage of a place cut out in the hillside on the site of a former quarry.

THE west front of the Llandaff Cathedral is by far the most beautiful feature of the sacred edifice, and it is now proposed to adorn it still further. The three central windows, as well as the gable window of the western façade, are about to be filled with stained glass of very beautiful character, from the designs of Mr. J. P. Seddon. The filling in of these windows with stained glass has been suggested upon more than one occasion as memorials to departed ecclesiastics at one time or other members of the Chapter.

It is many long years ago since any ornaments in the form of a cross, candlesticks, &c., adorned the altar of Llandaff Cathedral; in fact, the altar has been perfectly bare since the restoration of the ancient fane in the "fifties." There were certainly none in the Italian temple erected within the ruins in 1752, but there can be no doubt that they were there at some time or other. Llandaff has been in centuries past plundered so often that these ornaments, set as they were with precious

stones, formed valuable booty to the marauders. This century has brought about many marvellous changes in the cathedral, and it is now an open secret that it is intended to present to the cathedral a magnificent brass cross and pair of stately candlesticks designed by Mr. J. D. Seddon.

It seems that the builder is intruding along the Cornish coast, and the local correspondent is up in arms:—"Several big hotels and golf links are just now springing up in some of the grandest and loneliest spots of Mount's Bay, and the other day I noticed that the cliff path was cut right in two by some excavations attendant on building. Already the side of this footpath nearest the Lizard is overgrown with brambles, so as to be in danger of being lost to view. Suppose the rambler meanwhile gets into the way of following another path, we all know the kind of thing that is liable to happen. After a time, when the old cliff path is quite lost, the rambler who uses the temporary path will be told he is a trespasser—as he really is—and so vanishes an ancient right of way for ever."

"THESE are cases for the British public. Local feeling, owing to the scanty population in the wildest spots, is helpless, especially as the people of most local influence are generally amongst the speculators. Indeed, several recent appearances of railings, barbed wire, little enclosures, absence of whitewash on some of the cliff stones, and other signs, almost lead me to think that a day of general grab is not altogether unexpected on this coast. Now is the time for the local Parish Council to rise nobly to the occasion and put an extra coat of whitewash on every big stone that denotes a cliff path on this portion of the Cornish coast. We have nothing whatever against hotels and golf links, but this is, as all ramblers know, a case where a few 'stitches in time' may save no end of pother."

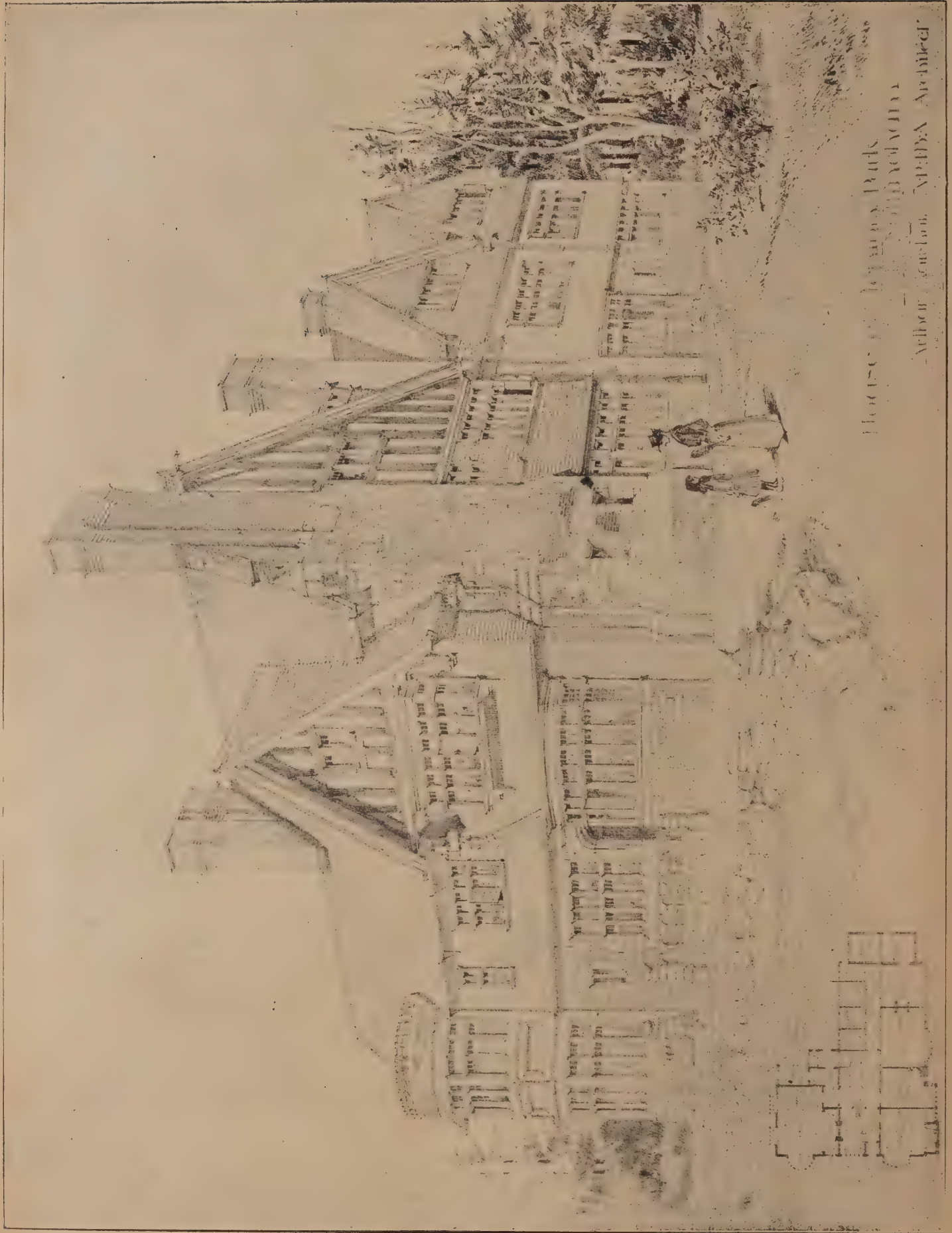
THE announcement that the old military barracks at Bethnal Green are to be sold is not received altogether favourably by the residents of the locality. The building is also known to a much wider public from the fact that they have visited its locality when looking up the few spots in Bethnal Green of historic interest. Dickens has thrown an interest over the neighbourhood, for Bill Sikes lived here; and here, too, Nancy spent her last terrible moments. It was close by that, if the Percy ballads be correct, there lived a personage of whom, after six hundred years, traditions still linger in the locality. After the battle of Evesham Henry de Montford, son of the slain Earl, was found lying among the dead sorely wounded. He was rescued by his lady-love, and they afterwards lived in secret at Bethnal Green. Pretty Bessie, their daughter, says in the ballad:

My father, shee said, is soon to be seene;
The seeley blind beggar of Bethnal Green,
That dayle sits begging for charitie,
He is the good father of pretty Bessie.

The turreted house in which they were supposed to have lived was pointed out until a few years ago. The Militia headquarters have now been removed to Woolwich.

A SCHEME is being arranged for the organisation in London of a Society of Pastel Painters, and a meeting to discuss the project is about to be held. Several well-known artists, among them Mr. G. F. Watts, Mr. Clausen, Mr. J. M. Swan, and Mr. Walter Crane, have allied themselves with the movement, and are giving it active support. That such a society would be an artistic success seems probable enough, but whether it would pay its way would depend very much upon the attitude of the public towards it. The medium which the association would exist to encourage is one of infinite possibilities, and gives results that are full of charm; but it would not seem, judging by the experience of another Pastel Society, which some years ago held exhibitions at the Grosvenor Gallery, to be greatly favoured by picture collectors. Things, however, may have improved since then.

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HOUSE AT LENNON PARK,
NOTTINGHAM.
ARTHUR MARSHALL, ARCHITECT.

HOUSE AT LENNON PARK, NOTTINGHAM. ARTHUR MARSHALL, ARCHITECT.

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UNIVERSITY OF ILLINOIS

THERE seems to be a vast amount of excitement in France over the arrangements just announced for housing works of Art in the 1900 Exhibition. Something like a strike is threatened by the Society of French Artists, who in solemn conclave have declared that they will not exhibit unless the building now being erected is altered in accordance with their views. The chief expression of dissatisfaction seems to be about the amount of space provided, which is asserted to be entirely inadequate; but complaint is also made that the rooms into which the Art gallery is to be divided are so small that large pictures cannot be properly shown in them. It will be interesting to see what will come of this ferment. That the artists are right in agitating for the fullest possible consideration of their claims is, of course, says the *Globe*, indisputable; but it is just possible that they take an exaggerated view of the position of affairs. They may, perhaps, change their minds, as they did once before when a similar outcry was raised concerning the selection of the *Palais des Machines* as a temporary home for the two Salons.

CERTAINLY the Government in providing space for nearly 3000 pictures would appear to have done all that is necessary. It is true that this space has to be divided into sections, one for foreign Art of all countries, another for French Art of the nineteenth century, and the third for works by living French masters; but even with these sub-divisions the total display will be quite considerable enough for the comfort of the average visitor to the show; and there will be no fear that really important canvases will have to be excluded for want of space. With more walls to fill the danger lest the jury of selection might descend from a high standard and accept works not entirely representative would always be present; and any lowering in the level of the exhibition as a whole would be matter for regret.

MESSRS. ROGERS, CHAPMAN, AND THOMAS commenced on Tuesday week the five days' sale of the contents of the residence of the late Mr. Edmund Coulthurst (for many years a partner in the firm of Coutts and Co.), Streatham Lodge, Lower Streatham. Good prices were realised. There were some important articles, chiefly objects of art and decorative furniture, in Wednesday's sale, the principal lot being a French walnut-wood and ormolu mounted and inlaid *marqueterie* *escri-toire* commode, with black marble top, the sides and front panels beautifully inlaid in flowers, festoons, and vases, the interior fitted with inlaid shelves and drawers, 4ft. high and 3ft. wide—295 guineas (Harding). This beautiful piece of furniture was in the Strawberry Hill collection of Horace Walpole, and is said to have been bought in at that sale for about £25, and to have come into the possession of the Coulthurst family by private purchase; until it left the Strawberry Hill collection the top was of porphyry marble, and this has been changed since for black marble.

THE more important of the other articles in the same portion were as follows:—A nearly new richly-coloured and bordered Turkey carpet, 22½ ft. by 14ft., and a Turkey rug *en suite*, £35 5s.; an elegant lac-japan and heavily embossed cabinet, ormolu mounted and brass bound, fitted with drawers, and on an elaborately-carved Indian rosewood stand, 26 guineas; a rosewood and ormolu mounted dwarf book-case, on carved plinth, fitted with shelves and enclosed by three glass doors—£26; a *bleu-de-roi* gilt Sèvres china bowl, cover, and stand, painted with birds—42 guineas; a Dresden china stand, surmounted by a clock, with figures, birds, and flowers in relief—£20; a pair of elegant Sèvres cabinet cups and saucers, *bleu-de-roi* richly gilt, and raised gilt panels, hand painted in medallions of Louis Philippe I., of the Grande Duchesse de Montpensier, on metal stands and under glass shades—60 guineas; this choice pair was presented to an uncle of the late owner, Mr. W. M. Coulthurst, by Louis Philippe himself,

and the purchaser was a nephew of the late Mr. E. Coulthurst. A *suite de cheminée*, comprising five Dresden vases with handles and covers, richly gilt and festooned, and painted in medallions of Greek Emperors, &c.—£14; a handsome Oriental china centre vase, with cover (which is slightly damaged), the whole massively mounted in ormolu—£40 8s.; a tortoiseshell and gold-mounted snuff box, with the lid beautifully painted in miniature of a lady reclining against draperies, and landscape with temple in the background, 22 guineas.

THE second day's sale included the library, which is chiefly remarkable for an original subscriber's copy of a complete series of the magnificent ornithological works of the late John Gould, F.R.S., 44 imperial folio volumes in all, with over 3100 coloured plates; this exceptionally fine set, catalogued in twelve lots, was sold *en bloc*, bidding commencing at 100 guineas, and the hammer falling at £430, the name of the purchaser not transpiring. This magnificent work does not appear to fully maintain its former price; in 1888 a well-known bookseller catalogued a set at £1000, in November last year the same firm offered a set at £650. The other books in the sale included "Engravings from the Works of Sir Joshua Reynolds," in three volumes, £50; and "Engravings from the Choicest Works of Sir Thomas Lawrence," by Henry Grave, £38. The pictures included "The Surrey Hunt," with figures of hounds and portrait of Daniel Haigh, the well-known master, on horseback, 50 guineas; T. Creswick, R.A., the original frontispiece to the *Sporting Magazine*, on panel, £18 18s.; a series of six portrait miniatures, five of ladies and one of a gentleman, 200 guineas; a beautifully painted miniature portrait of a lady, mounted in gold and set in gilt frame, £33; and a large portfolio containing a fine collection of 179 engravings after the old masters, including Raffaele, Reynolds, Rubens, Van Dyck, Watteau, Wouwerman, Titian, Landseer, etc., £46.

As the outcome of a coroner's enquiry last week it was ascertained that the death of a child was due to a movable coal box having been placed against the guard rail of a fifth-floor landing in some model lodging-houses. The result was to reduce the height of the guard from 4ft. to 18in., and the child having clambered on to the coal box, overbalanced, and was picked up dead. The superintendent of the buildings explained that had any danger been anticipated, the coal boxes could have been made fixtures on another part of the landing.

ACTON CHURCH, Nantwich, Cheshire, which is one of the most ancient churches in the country, has been re-opened by the Bishop of Chester, after being completely restored. The estimated cost of the alterations, the carrying out of which was entrusted to Mr. Austin, of Lancaster, was £2500, but the decayed condition of the fabric rendered further restoration necessary, and the total cost was increased to about £6500. The restoration embraced the removal of the wall of the north aisle and its re-erection exactly in the original style, the removal of the old debased brick-lined clerestories, and the substitution of handsome walls and windows; the erection of a fine oak and leaden roof, the strengthening of the tower, the erection of modern oak seats in place of the old-fashioned square pews, and a new pulpit. The work of restoring the chancel was undertaken by Lord Tolle-mache, the lay rector of Acton Church, at a cost of £1300, the work embracing the erection of an oak roof covered with stone flags, and the renewing of the interesting Jacobean woodwork which remained from a former restoration.

SOME important work being carried on at the Church of St. Giles, Cripplegate, has resulted in the discovery of a portion of what is probably the doorway of the original church, built in 1090 by one Alfune. At that time the whole district to the immediate north,

where Islington and Hackney now stand, was one dreary and impassable swamp. The present structure, which dates from 1892, is the third building on the site. Five years ago, at the renovation, the portion around the organ was left untouched, and it is in removing the instrument now from the north to the south aisle that the discovery of the ancient doorway has been made.

SUBURBAN theatres are especially in evidence in South London, where quite a number of places of amusement are now in course of erection. The first to be opened will be the Crown Theatre, High Street, Peckham, which will be ready for occupation in about five weeks. It will be capable of accommodating 3000 persons, and it is claimed that the stage will be the largest in the suburbs, being 141ft. long by 40ft. deep. Rapid progress is being made with the Kennington Theatre, and already the white stone walls form a prominent landmark. The opening is definitely fixed for Boxing Day. The Terriss Theatre, nearly opposite the Town Hall, Rotherhithe, and capable of seating 4000 persons, and the Royal Duchess Theatre, Balham, will both, it is hoped, be ready early in the spring.

A COLOSSAL granite monument is being made by an Aberdeen firm to the order of the Transvaal Government for erection at Pretoria as a national memorial of the repulse of the Jameson raid and a recognition of President Kruger's patriotism and valuable services to the Republic. Considerable reticence is observed with regard to the work, as the contractors, it seems, are bound under their agreement not to disclose particulars, but some details have become known. The monument is composed of red Peterhead granite, and is enclosed by a substructure of about 80ft. diameter. Access is obtained to the main structure by four broad flight of steps. The monument is octagonal in form, 36ft. across and the same in height, forming a solid mass of masonry, on the top of which, it is believed, a statue of the President will be placed.

WHEN the Marylebone Vestry erects its new town hall and municipal offices the old court house—one of the most ancient buildings in the borough—will be demolished. The court house and watch house were built as far back as 1729. They were rebuilt in 1804, but were soon found too small for carrying on the parish business conveniently, and a new court house, adjoining the old watch house, was built in 1825. Both these are still standing. The basement contains two cells in which prisoners were immured. They have the old thick oaken doors and barred windows.

IN these days of multitudinous memorials, it is strange that not one of the four greatest of our English poets has yet received the recognition of an adequate statue in London. Yet all of them were Londoners, either by birth or residence or intimate association. Chaucer, Milton, and Shakespeare are, indeed, placed all together round a fountain near Hyde Park. The fitting site of Charterhouse Square still lacks its monument to Spencer, who was educated at Merchant Taylors' School just opposite. It has been suggested that a statue of Milton should be placed in the churchyard of St. Giles, Cripplegate, within which the poet lies buried. It is perhaps not the best position that might have been selected; but both "Paradise Regained" and "Samson Agonistes" were written in Bunhill Row, and "Paradise Lost," though begun in York Street, Westminster, was mostly written in Jewin Street. Where Shakespeare's monument might well have been placed the statue of King William IV. is now, on the site of the Old Boar's Head Tavern, and within view of that spot across the Thames where the Globe Theatre once stood. A bust of Shakespeare was, it is true, recently placed in the churchyard of St. Mary, Aldermanbury; but that was more in honour of his first editors than of

himself. Is this comparative neglect owing to the fact that no sculptor is sufficiently daring to carve a likeness of the man who has left so little that is authentic (and that little contradictory) of his own personality, or are we merely as forgetful of our benefits as the Dublin Corporation?

THE Gloucester School Board recently had to adopt plans and select architects for certain proposed new schools. After the matter had been subjected to fair competition amongst the architects of the City, and the award of the adjudicator made known, the selection became a very simple one. So at least it appeared, for an award of this character ought not to be reversed without extremely good reasons. But the chairman of the Board had the temerity to suggest that another adjudicator *might* have arrived at a different conclusion; and this was neither just to the winner of the premium nor complimentary to the Board's good sense, which should require some substantial reasons to be adduced before reconsidering the judgment of the duly appointed and impartial adjudicator. The chairman appeared to lose sight of the interests involved, for it was the Board's duty to put aside all partiality for individual architects, and to base its decisions on considerations of efficiency and economy. The majority of the Board acted in this sense in sticking to the award, and appointing Mr. Dunn as architect of the new schools. It is a pity their action was challenged at all.

AN interesting link with the past is the old inn which is snugly enclosed between the two new entrances of the Metropolitan. In the year 1524 there existed in the pleasant little rural village of Padynton (afterwards Paddington), about a mile from Tyburn Gate, a celebrated village hostelry, yclept the "White Lion." Wayfarers and villagers, as well as merry-makers, made it their rendezvous; and here, to the accompaniment of pipe and tabor, the happy country folk would make holiday. To-day the "White Lion" still exists, but upon and around its site is built the Metropolitan Theatre of Varieties. It combines the present with the past.

MAY it be suggested that some attention should be given to the decorated ceilings in the façade of St. George's Hall, Liverpool, as those portions at the south end are in a dilapidated condition? The surprise is that this work was not included in the expenditure which recently took place on the embellishment of the interior of the building. Again, what is to be done with regard to improving the appearance of the fine allegorical group in the southern pediment of the hall? Some time ago it was resolved by the authorities that the sculpture should be thoroughly examined by experts; and as the first lot of panels erected on the front of the building have undergone a process which, it is stated, is durable, would it not be well to treat the pediment figures in a similar manner?

EVERY year sees London creeping further up the northern heights, and leaving in its trail rows of houses and macadam streets in place of the trees and greensward disturbed. Before long, says London, we may expect to see the extensive sweep of green around the Alexandra Palace blotted out by bricks. At various points building is proceeding apace, and now an extensive estate at Muswell Hill, which has kept one quarter green for years, has just come into the market to be let for building purposes. With the disposal of this estate it is possible that Tom Moore's cottage "Lalla Rookh" may be swept away. The cottage stands in its own grounds at the foot of the hill, not far from the Palace. Here Moore wrote a good part, if not all, of "Lalla Rookh." It is certain the poem was finished here, for Moore was living in the cottage in 1817, when Messrs. Longman paid him the unusual price of £7000 for the copyright. Most frequent among visitors to "Lalla Rookh" was Lord Byron, delighting as much in Moore's company as Moore (who "dearly loved a lord") delighted in his. In later years

Moore quitted Muswell Hill for Wiltshire, where he occupied a house adjoining Lord Lansdowne's park at Bowood until his death in 1852.

THE members of the Bradford Historical and Antiquarian Society have made their last excursion of the summer, visiting the town of Knaresborough. The party first visited the church, where the president read an account of some features of the history of the building. This statement the president supplemented with some interesting particulars of the visits of Cromwell to Knaresborough, and a defence of the part which he played in local history, the latter being called forth by some curious gossip about "the tyrant Cromwell," the alleged stabling of his horses in the church, and of his "orders" for the burning of the building, which the good lady who acts as custodian told with belated anti-Republican animosity. Subsequently the party gained the south bank of the river, and walked through the charming avenue called the Long Walk to the Dropping Well, afterwards returning to the Castle. A visit was also paid to the keep of the Castle.

THE archæological world is thrown into a state of great perturbation over the approaching visit of the Emperor of Germany to Jerusalem. It would seem that the Sultan, in his zeal to make things agreeable for his august guest, threatens to pull down the Jaffa Gate and a part of the ancient walls, so that the Kaiser may make his entry into the Holy City on horseback. The Jaffa Gate, although very ancient and picturesque, is exceedingly narrow, and quite inadequate—at least to the mind of the Sultan—for the occasion in question, although it did well enough for the State entries of Richard Cœur-de-Lion and Godfroi de Bouillon.

A BODY of about fifty workmen are busily engaged in repainting and renovating the iron work in St. Paul's Cathedral, and painting the railings, &c., in the churchyard. Every autumn parts of the Cathedral are overhauled, cleaned and painted, but this year the work is being done in a more thorough manner than is usually the case. The Dean and Chapter of the cathedral have decided this year to put a new face to the clock, and last week half-a-dozen skilled workmen took out the sections of frosted glass from the centre of the dial, and after removing the massive gilded hands, took out the interlaced rods of steel into which the glass had been fixed. A strong T-shaped scaffolding was fixed over the clock, and upon this the men worked. The work will cost a considerable sum of money.

A COLOSSAL amusement and convention hall is about to be erected at Chicago, rivalling the recently destroyed Coliseum in size and capacity. The building will be 600ft. by 348ft. The inside arena will be 472ft. by 260ft. This portion will be entirely free of pillars or obstructions to the view. The seating capacity will be 25,000. For convention purposes the arena can be furnished with chairs, making the total seating capacity of the planned structure 27,000. The height will be 100ft. The principal material to be used in the construction will be iron and steel. The exterior treatment will be Gothic.

QUITE a small display is made at the Manchester Corporation Gallery, where the total of works brought together is less than 250. One room is occupied by the pictures of the group of artists who hold the annual landscape exhibition in the Dudley Gallery, Messrs. J. S. Hill, E. A. Waterlow, A. D. Peppercorn, J. Aumonier, E. W. Allan, and Leslie Thomson; and with their contributions are shown a small series by the late T. Hope McLachlan. In the other rooms the chief exhibits are Mr. Coutts Michie's "Haytime in the Fens," Mr. A. C. Gow's "The Signal," Mr. G. H. Boughton's "When the Dead Leaves Fall," Mr. David Murray's "A Summer Day," Mr. W. L. Wyllie's "The Winding Medway," and Mr. E. A. Abbey's "Hamlet."

DURING the present recess the Bernini bust of Cromwell, which Mr. Wertheimer has presented to the Westminster Palace, is to be moved from the position it has temporarily occupied into a more suitable and appropriate place. Mr. Wertheimer, by way of making his gift as complete as possible, has expressed his intention of providing a pedestal which shall be thoroughly in keeping artistically with the bust itself; and this pedestal will probably be available by the time the transference is made.

THE splendid service of steamers run throughout the Highlands by Mr. David Macbrayne represents the apotheosis of comfort and sea convenience. These steamers cruise by some of the finest coast scenery in the kingdom, where colour, atmosphere, and contour can be studied and sketched in that perfect natural *ensemble*—the true background of all Art. By castles, with their towers and bastions, by the turrets and interesting roof-lines of the Scottish baronial homes, these steamers pass. One may enjoy a delightful excursion to the indigenous and purely natural Architecture of such caves as those of Staffa, where glossy pillars tower above, taking Gothic and Classic forms. Or, at Iona, one may trace the ground plan of one of the first Christian foundations in the kingdom. From the engineering achievements and experiments of the Clyde to the crofters' humble architecture and thatching, the whole gamut of Scottish Architecture is within hail or within vision of the artist's pencil. Nothing more delightful than a combination of sketch book and camera, with always the wonderful groundwork, in purple, blue, and grey, of the Scottish seas, can be imagined. Mr. David Macbrayne's steamers become the more popular with each year.

THE work of erecting a lofty tower on Brandon Hill, Bristol, in memory of the discovery in 1497 of North America by John Cabot and a crew of Bristol sailors, was commenced on June 24th, 1897. The work was only recently completed, and the opening ceremony took place a few days ago. The tower, which has been erected in the centre of the platform upon which the guns captured in the Crimean War stood, is a square structure of ornamental character. It has buttresses at the angles from base to summit. There are two stages, each of which is relieved with an ornamental balcony, which add much to the appearance of the tower. The floor of the upper balcony is 75ft. from the base, and above this there is an octagonal spire of 35ft., making the total height 105ft. The tower is ascended by means of a circular staircase of good width to the first stage, and above that there is a spiral staircase to the second stage. The style of the design furnished by Mr. W. V. Gough is typical of the style prevalent in England at the time of Henry VII. The spire of freestone is surmounted by a gilded figure mounted on a globe, also gilded. The platform on which the tower is erected is square, and is 42ft. across, and at the angles there are eapaultments occupied by the Russian trophy guns. From the top of the tower, which is 364ft. above sea-level, a magnificent panoramic view can be obtained of Bristol and neighbourhood. At the base of the structure there are panels for the reception of bas reliefs bearing inscriptions. Over the panel at the main entrance is the Bristol coat of arms, whilst on the east side is the Royal coat of arms of Henry VII. On the west side the panel is surmounted by the coat of arms of Venice. Brass plates have been affixed to the balustrades of the upper balcony indicating the direction and distances of various cities in England and abroad, and also pointing out the buildings of interest to be seen from the balcony. On the plates, too, are engravings of the buildings mentioned, and also an indication of the height of the balcony, viz., 334ft. above ordnance survey datum. Amongst the names of places on the plate on the west side is that of "Canada," which, it is stated, is about 2400 miles distant, and is the land first seen by Cabot, A.D. 1497.

BRITISH ASSOCIATION.

EXPERIMENTAL RESEARCH IN
ENGINEERING.

PREHISTORIC PEEPS.

THE BRITISH ASSOCIATION opened its annual meeting at Bristol last week.

Sir John Wolfe Barry presided over the section dealing with mechanical science, and in the latter part of his address referred to the recent and future demands for dock accommodation at Bristol and throughout the kingdom, and finally dealt with the necessity for experimental research as the basis of engineering science. On this latter head Sir John said:—

The anxieties of engineers have often been unnecessarily increased and public alarm gratuitously, though honestly, aroused. When the designs, of the Forth Bridge—of which the nation, and, indeed, the world, is proud—had been adopted both by the railway companies, who were to find the capital, and by Parliament, a most distinguished man of science—the then Astronomer Royal—came to the conclusion that the engineers had neglected certain laws which he enunciated respecting the resisting power of long struts to buckling, and that

THE BRIDGE OUGHT NOT TO BE CONSTRUCTED,

as he considered that, to use his own words, "we may reasonably expect the destruction of the Forth Bridge in a lighter gale than that which destroyed the Tay Bridge." All this was stated, no doubt from a strong view of public duty, in a letter to a public newspaper by Sir George Airy. If the bases of his calculations were right, the conclusion might have been correct; but the fact was, that there was no foundation worthy of the name for the reasoning. Another example of hasty generalisation occurs to me, and that is on the important question of wind pressure. Tredgold, who undoubtedly was one of the soundest of engineers, laid down in 1840 that a pressure of 40lb. per square foot should be provided for, reasoning, no doubt, from the fact that such a pressure had in this country been registered on a wind gauge of a square foot or less in area. As a consequence he assumed that the same force could be exerted by the wind on areas of any dimensions. Thus roofs and bridges, wherever any calculations of wind pressure were made, were designed for a pressure of 40lb. per square foot of the whole exposed surface, and under the alarm caused by the fall of the Tay Bridge in 1879, the piers of which were not probably strong enough to resist a horizontal pressure of one-fifth of such an amount,

A FURTHER GENERAL ASSUMPTION

was made, and railway bridges throughout the kingdom were ordered by the Board of Trade in 1880, acting no doubt on expert advice, to be in future designed, and are designed to this day, to resist 56lb. of horizontal wind pressure on the whole exposed area with the ordinary factors of safety for the materials employed, as if such horizontal strain were a working load. It had, for a long time previously to this order of Government being issued, been suspected that these small-gauge experiments were untrustworthy, and subsequent experiments at the Forth Bridge, on two wind gauges of 300 square feet and of 1½ square feet respectively, indicated that with an increase of area the unit of pressure fell off in a very marked degree. Under the same conditions of wind and exposure the larger gauge registered a pressure 38·7 per cent. less per square foot than the smaller gauge. I have been able to carry experiments further at the Tower Bridge by observing the pressure on the surface of the bascules of the bridge as evidenced by the power exerted by the actuating engines. In this case we have a wind gauge of some 5000ft. in area, and it has been shown that, while small anemometers placed on the fixed parts of the bridge adjoining the bascules register from 6lb. to 9lb. per square foot, the wind pressure on the bascules is only from 1lb. to 1½lb. per square foot. It

is difficult to imagine the amount of money which has been wasted in

UNNECESSARY PROVISION AGAINST WIND
STRAINS

of 56lb. per square foot on large areas in consequence of this hurried generalisation from insufficient data. I know something of what the provision for 56lb. on the square foot for wind cost at the Tower Bridge, and I do not wish to mention it; but if the public had been told that the dictum of experts, arrived at however hastily in 1880, was to be set aside in the construction of that bridge, all confidence would have been beforehand destroyed in it, and I suppose no committee of Parliament would have passed the Act. I have mentioned these matters, which could be added to by many similar instances in other branches of applied science, not for the sake of reviving old controversies, or of throwing a stone at highly distinguished men, honoured in their lifetime and honoured in their memory, nor for the sake of criticising more modern scientists or a Government department. Still less do I wish to question the necessity and value of mathematical calculations as applied to the daily work of engineering science, but I recall the circumstances for the purpose of bespeaking the utmost caution against our being tempted to lay down laws based on unascertained data. We know the tendency there has been at all times to generalise and to seek refuge in formulae, and we cannot but know that it is not at an end now. We ought to recognise and remember how few physical questions had been exhaustively examined sixty years ago, and may I say how comparatively few have even now been fundamentally dealt with by experiment under true scientific conditions? The investigation of physical facts under all the various conditions which confront an engineer requires much care, intelligence, time, and last, not least, not a little money. In urging the vital necessity of investigations, I am sure that I shall not be understood as decrying the value of the exact analysis of mathematics, but we must be quite sure that the premises are right before we set to work to reason upon them. We should, then, exert all our influence against rules or calculations based merely on hypothesis, and not be content with assumptions when facts can be ascertained, even if such ascertainment be laborious and costly. In connection with this subject, I may congratulate the association generally, and this section in particular, that there is now more hope for experimental science and some endowment of research in this country than at any former time. Last year a highly influential deputation waited on the Premier to urge that England should have

A PUBLIC PHYSICAL LABORATORY

at which facts could be arrived at, constants determined, and instruments standardised. The importance of the questions which could be determined at such an institution in their influence on the trade and prosperity of the country, independently of the advancement of purely scientific knowledge, cannot well be exaggerated. Our Government, while somewhat limiting the scope of the inquiry, appointed a small Committee to examine and report on this highly important subject. It is no breach of confidence to say that the Committee, after taking much evidence, visiting a similar and highly successful institution on the Continent, and studying the question in all its bearings, were convinced of the great public benefits which may be expected from such an institution, and have unanimously reported in favour of its establishment. I feel sure that we shall all earnestly hope that Government will carry out the views of the Committee, and I venture to suggest that each of us should use what influence he may have to induce the Chancellor of the Exchequer to find adequate funds for an institution which may be of the greatest benefit not merely to scientific research, but to the commerce of these islands, threatened as it is on all sides by foreign competition of the most vigorous description—a competition which is supported by every weapon which the science of other lands can forge for use in the struggle.

The first paper following the address was by Mr. R. C. H. Davison, who described the new works recently constructed at Barry Dock. He gave technical details of the manner in which the work of construction was carried out, an interesting feature being the method of dealing with the water which flowed in through fissures during the excavation. Among the features described in the paper were the deep-sea lock; the island railway, which connects Barry Station and the lock; a new graving dock, having a width of 60ft.; a similar double graving dock and a new single graving dock; and a new dock of 34 acres for coal export and for imports.—A paper by Messrs. W. J. Dibdin and George Thudicum on the conditions necessary for the successful treatment of sewage bacteria was next read. The authors, after giving certain historical details as to the origin of the modern theory that the natural destruction of waste organic material is effected solely through

THE AGENCY OF LIVING ORGANISMS,

proceeded to quote the conclusions arrived at by the State authorities of Massachusetts as a result of their experiments. The work done in America, although of importance from a theoretical point of view, failed to indicate the conditions necessary for practical working, and to discover these the London County Council instituted a series of experiments at Barking. The result was to demonstrate the practicability of purifying large quantities of sewage effluent on an area of filter which would make the adoption of the method possible from an economic point of view, and it was believed that crude sewage might be similarly treated. Reference having been made to the work of others in this direction, the authors proceeded to discuss the problem in detail, dividing the subject into seven different sections as follows: (1) Air supply, or its absence in the case of the septic tank; (2) temperature; (3) admission or exclusion of light; (4) reaction to test-paper of the sewage to be purified; (5) time of contact; (6) nature of bed material; (7) depth of bed. The conclusion of the authors was that the process was capable of being applied on a practical scale, although fuller experiments were needed to settle some details of actual working.

In the Anthropological Section, the Presidential Address was delivered by Mr. E. W. Brabrook, C.B., F.S.A. In the course of it he said:

Great as is the diversity of the anthropological sciences, their unity is still more remarkable. The student of man must study the whole man. No true knowledge of any human group, any more than of a human individual, is obtained by observation of physical characters alone. Modes of thought, language, arts and history must also be investigated. This simultaneous investigation involves in each case the same logical methods and processes. It will in general be attended with the same results. If it be true that the order of the universe is expressed in continuity, and not in cataclysm, we shall find the same slow but sure progress evident in each branch of the inquiry. We shall find that nothing is lost, that no race is absolutely destroyed, that everything that has been still exists in a modified form, and contributes some of its elements to that which is. We shall find that this, which no one doubts in regards to physical matters, is equally true of modes of thought. We may trace these to their germs in the small brain of the palæolithic flint-worker, or, if we care to do so, still farther back. This principle has, as I understand, been fully accepted in geology and biology, and throughout the domain of physical science—what should hinder its application to anthropology? It supplies a formula of universal validity, and cannot but add force and sublimity to our imagination of the wisdom of the Creator. It is little more than has been expressed in the familiar words of Tennyson: Yet I doubt not thro' the ages one increasing purpose runs, And the thoughts of men are widen'd with the process of the suns.

From the first moment that man recognised the advantage of using a club or a stone in attack or defence, the direct incentive to a

higher brain development came into existence. The man who first used a spear tipped with a sharp flint became possessed of an irresistible power. In his expeditions for hunting, fishing, gathering fruit, &c., primitive man's acquaintance with the mechanical powers of nature would be gradually extended; and thus, from this vantage point of the possession of a hand, language, thought, reasoning, abstract, ideas would gradually be acquired, and the functions of the hand and the brain be developed in a corresponding manner. I do injustice to Dr. Munro's masterly argument by stating it thus crudely and briefly. It amounts to this—once the erect position is obtained, the action of the man being controlled by a progressive brain, everything follows in due course. The next stage which we are yet able to mark with certainty is

THE PALEOLITHIC,

but there must have been a great many intermediate stages. Before man began to make any implements at all, there must have been a stage of more or less length, during which he used any stick or stone that came to his hands without attempting to fashion the one or the other. Before he acquired the art of fashioning so elaborate an implement as the ordinary palæolithic axe or hammer, there must have been other stages in which he would have been content with such an improvement on the natural block of flint as a single fracture would produce, and would proceed to two or three or more fractures by degrees. It must have been long before he could have acquired the eye for symmetry and the sense of design, of adaptation of means to end, which are expressed in the fashioning of a complete palæolithic implement. It is probable that such rude implements as he would construct in this interval would be in general hardly distinguishable from

FLINTS NATURALLY FRACTURED.

Hence the uncertainty that attaches to such discoveries of the kind as have hitherto been made public. Professor McKenny Hughes, who speaks with very high authority, concludes a masterly paper in the *Archæological Journal* with the statement that he has "never yet seen any evidence which would justify the inference that any implements older than palæolithic have yet been found." The name "palæolith," which had been suggested for prepalæolithic implements, seems to him unnecessary at present, as there is nothing to which it can be applied, and as it will be long before it can be asserted that we have discovered the very earliest traces of man, he thinks it will probably be long before the word is wanted. An elaborate work on the ruder forms of implement, just published by M. A. Thieullen, of Paris, who has for many years been engaged in collecting these objects, adds materially to our knowledge of the subject. The question is one of great interest, and I hope it will come up for discussion in the present meeting. Another line of argument bearing strongly in the same direction is afforded by the discovery in various places of works of

ART FABRICATED BY EARLY MAN.

The statuettes from Brassempouy, the sculptures representing animals from the Bruniquel, the well-known figure of the mammoth engraved on a piece of ivory from Périgord, and many other specimens of early art attest a facility that it is not possible to associate with the dawn of human intelligence. M. Salomon Reinach tells an amusing story. A statuette in steatite of a woman, resembling in some respects those of Brassempouy, was discovered in one of the caverns of Mentone as far back as 1884, but when the discoverer showed it to a personage in the locality, that authority advised him not to let it be seen lest it should take away from the belief in the antiquity of the caves, it being then thought too artistic to be consistent with early man. The finder acted on this advice, in ignorance of the real interest of the statuette, until April, 1896, when he showed it to M. Reinach and M. Villenois, who promptly interviewed the sage adviser in question, and obtained a confirmation of the statement. Some interesting

additions to our gallery of Prehistoric Art have been recently made by M. Emile Rivière and M. Berthoumeyrou at Cro-Magnon, in the Dordogne. These are a drawing of a bison and another of a human female in profile. Among the other objects found in the same place were

SOME FLINT IMPLEMENTS

brought to a fine point, suitable for engraving on bone or horn. The idea of making in any form a graphic representation of anything seen has never, so far as I know, occurred to any lower animal, and it could hardly have been among the first ideas formed in the gradually developing human brain. When that idea is found carried out with remarkable artistic skill by means of implements well adapted for the purpose, we may surely assume that the result was not obtained till after a long interval of time, and was approached by gradual steps marked by progress in other faculties, as well as in the artistic faculty. It may be that some day all uncertainty on this head will be removed by decisive discoveries. The interval between the palæolithic and neolithic periods rests in the like condition of incertitude. That by some means, and somewhere on the face of the globe, the one period gradually passed into the other we cannot but believe. That the transition between them may have involved innumerable degrees is also highly probable. Where and when and how each step was taken we do not know at present, and possibly never shall know. The problem is not satisfactorily solved by the production of palæolithic implements resembling neolithic forms, or

NEOLITHIC IMPLEMENTS RESEMBLING PALEOLITHIC FORMS,

inasmuch as between the one period and the other an interval of time involving geological and other changes has to be accounted for. In this respect, also, our best authorities are the most cautious and conservative. In the excellent address which Professor Boyd Dawkins delivered to the Royal Archæological Institute at the Dorchester meeting last year on the present phase of prehistoric archæology, he contrasted the few primitive arts, such as sewing and the manufacture of personal ornaments and rude implements of the chase, possessed by the palæolithic hunters, apart from their great proficiency in the delineation of animals—with the variety of arts, such as husbandry, gardening, spinning, weaving, carpentry, boat-building, mining and pottery-making, possessed by the neolithic herdsmen, and held that between the two there is a great gulf fixed. Somewhere that gulf must be bridged over. Professor Boyd Dawkins says that the bridge is not to be found in the caverns of the South of France. It is difficult to meet his argument that the presence of grains of barley and stones of the cultivated plum at Mas d'Azil are evidences of neolithic civilisation. His objections to other discoveries are not so strong as this, but are strong enough

TO MAKE US PAUSE.

The tall, long-headed people, whose remains were found at Cro Magnon, he holds to be early neolithic and not palæolithic, to stand on the near side and not on the far side of the great gulf. These considerations lend importance to the discoveries which have been laid before this association at previous meetings by Mr. Seton-Kerr, and which have also been commented upon by Professor Flinders Petrie and Sir John Evans. If we are compelled to admit a breach of continuity in Europe, is it in Africa that we shall find the missing links? That is another of the great problems yet unsolved, upon which I hope the discussions at the present meeting may throw some light. The evidence we want relates to events which took place at so great a distance of time that we may well wait patiently for it, assured that somewhere or other these missing links in the chain of continuity must have existed and probably are still to be found. The next stage, which comprises the interval between the neolithic and the historic periods, was so ably dealt with by Mr. Arthur J. Evans in his address to this section at the Liverpool meeting that it does not call for any observa-

tions from me. Two committees appointed by the Association in connection with this section touch upon this interval, the committee for investigating

THE LAKE DWELLING AT GLASTONBURY

and the committee for co-operating with the explorers of Silchester in their well-conducted and fruitful investigation of the influence of Roman civilisation on a poor provincial population. I pass on to consider the very great progress that has been made of late years in some of the branches of anthropology other than physical and prehistoric, and especially in that of folk-lore. I do this the more readily because I do not recollect that folk-lore has ever before been prominently referred to in an address to this section. It is beginning to assert itself here, and will in time acquire the conspicuous position to which it is becoming entitled, for the British Association is sensitive to every scientific movement, and responds readily to the demands of a novel investigation. Already, for three or four years, a day has been given at our meetings to folk-lore papers; and at the Liverpool meeting an exceedingly philosophical, and at the same time practical, paper was read by Mr. Gomme, and is printed *in extenso* in the proceedings as an appendix to the report of the ethnographic survey committee.

THE TERM "FOLK-LORE"

Itself is not without a certain charm. It is refreshing to find a science described by two English syllables instead of by some compound Greek word. The late Mr. W. J. Thoms had a happy inspiration when he invented the name. It is just twenty years since the Folk-lore Society was established under his direction. It has accumulated a vast amount of material and published a considerable literature; it is now rightly passing from the stage of collection to that of systematisation, and the works of Mr. J. G. Frazer, Mr. E. Sidney Hartland, and others are pointing the way towards researches of the most absorbing interest and the greatest practical importance. A generalisation for which we are fast accumulating material in folk-lore is that of the tendency of mankind to develop the like fancies and ideas at the like stage of intellectual infancy. This is akin to the generalisation that the stages of the life of an individual man present a marked analogy to the corresponding stages in the history of mankind at large, and to the generalisation that existing savage races present in their intellectual development a marked analogy to the condition of the earlier races of mankind. The fancies and ideas of the child resemble closely the fancies and ideas of the savage, and the

FANCIES AND IDEAS OF PRIMITIVE MAN.

An extensive study of children's games, which had been entered into and pursued by Mrs. Gomme, has been rewarded by the discovery of many facts bearing upon these views. A great number of these games consist of dramatic representations of marriage by capture and marriage by purchase—the idea of exogamy is distinctly embodied in them. You will see a body of children separate themselves into two hostile tribes, establish a boundary line between them, demand the one from the other a selected maiden, and then engage in conflict to determine whether the aggressors can carry her across the boundary or the defenders retain her within it. There can be little doubt that these games go back to a high antiquity, and there is much probability that they are founded upon customs actually existing, or just passing away at the time they were first played. Games of this kind pass down with little change from age to age. Each successive generation of childhood is short; the child who this year is a novice in a game becomes next year a proficient, and the year after an expert, capable of teaching others, and

PROUD OF THE ABILITY

to do so. Even the adult recollects the games of childhood and watches over the purity of the tradition. The child is ever a strong conservative. Upon the same principle, next to children's games children's stories claim our attention. Miss Roalfe Cox has collected, abstracted, and tabulated not fewer than 345

variants of Cinderella, Catskin and Cap o' Rushes. These come from all four quarters of the globe, and some of them are recorded as early as the middle of the sixteenth century. These elaborate stories are still being handed down from generation to generation of children, as they have been for countless generations in the past. Full of detail as they are, they may be reduced to a few primitive ideas. If we view them in their wealth of detail, we shall deem it impossible that they could have been disseminated over the world as they are otherwise than by actual contact of the several peoples with each other. If we view them

IN THEIR SIMPLICITY OF IDEA

we shall be more disposed to think that the mind of man naturally produces the same result in the like circumstances, and that it is not necessary to postulate any communication between the peoples to account for the identity. It does not surprise us that the same complicated physical operations should be performed by far distant peoples without any communication with each other; why should it be more surprising that mental operations not nearly so complex should be produced in the same order by different peoples without any such communication? Where communication is proved or probable it may be accepted as a sufficient explanation; where it is not probable there is no need that we should assume its existence. The simple ideas which are traceable in so many places and so far back are largely in relation with that branch of mythology which personifies the operations of nature. Far be it from me to attempt to define the particular phase of it which is embodied in the figure of Cinderella as she sits among the ashes by the hearth, or to join in the chase after the solar myth in popular tradition. The form of legend which represents some of the forces of nature under the image of a real or fictitious hero capable of working wonders appears to be widely distributed. Lord Bacon, who says "The earliest antiquity lies buried

IN SILENCE AND OBLIVION.

This silence was succeeded by poetical fables, and these at length by the writings we now enjoy, so that the concealed and secret learning of the ancients seems separated from the history and knowledge of the following ages by a veil or partition-wall of fables interposing between the things that are lost and those that remain," has shown in his "Wisdom of the Ancients" that classical mythology was in truth a vast system of nature-worship, and in so doing has done more than even he knew, for he has affiliated it to those ideas which have been so commonly formed among rude and primitive peoples. It is true, he says, fables in general are composed of ductile matter that may be drawn into great variety by a witty talent or an inventive genius, and be delivered of plausible meanings which they never contained. But the argument of most weight with him, he continues, "is that many of these fables by no means appear to have been invented by the persons who relate and divulge them, whether Homer, Hesiod, or others; but whoever attentively considers the thing will find that these fables are delivered down and related by those writers, not as matters then first invented and proposed, but as things received and

EMBRACED IN EARLIER AGES.

The relations drew from the common stock of ancient tradition and varied but in point of embellishment, which is their own. This principally raises my esteem of these fables, which I receive, not as the product of the age or invention of the poets, but as sacred relics, gentle whispers and the breath of better times, that from the traditions of more ancient nations came at length into the flutes and trumpets of the Greeks." Except that he supposes them to be a relic of better times, the poet's dream of a golden age, no doubt still ringing in his ears, Bacon had in this as in many other matters a clear insight into the meaning of things. To return. If continuity be the key that unlocks the receptacle where lie the secrets of man's history—physical, industrial, mental, and moral; if in

each of these respects the like processes are going on, it follows, as I have already said, that the only satisfactory study of man is

A STUDY OF THE WHOLE MAN.

It is for this reason that I ask you to take especial interest in the proceedings of one of the committees of this section, which has adopted such a comprehensive study as the guiding principle of its work. I mean the ethnographical survey committee. I have so often addressed this section and the Conference of Corresponding Societies on the matter since the committee was first appointed at the Edinburgh meeting, on the suggestion of my friend Professor Haddon, that I can hardly now refer to it without repeating what has been already said, or forestalling what will be said when its report is presented to you, but its programme so fully realises that which has been in my mind in all that I have endeavoured to say, that I must make one more effort to enlist your active interest in its work. The scheme of the committee includes the simultaneous recording in various districts of the physical characters, by measurement and by photography, the current traditions and beliefs, the peculiarities of dialect, the monuments and other

REMAINS OF ANCIENT CULTURE,

and the external history of the people. The places in the United Kingdom where this can be done with advantage are such only as have remained unaffected by the great movements of population that have occurred, especially of late years. It might have been thought that such places would be very few; but the preliminary inquiries of the committee resulted in the formation of a list of between 300 and 400. So far, therefore, as the testimony of the very competent persons whose advice was sought by them is to be relied on, it is evident that there is ample scope for their work. At the same time, the process of migration from country to town is going on so rapidly that every year diminishes the number of such places. One thinks with regret how much easier the work would have been one or two or three generations ago; but that consideration should only induce us to put it off no longer. The work done by the lamented Dr. Walter Gregor for this committee in Dumfriesshire and other parts of Scotland is an excellent type of the way in which such work should be done. His collections of physical measurements and of folk-lore have been published in the fourth and fifth reports of the committee. There can be no doubt that few men possess the faculty he had of drawing forth the confidence of the villagers and getting them to tell him their superstitions and their old customs. He succeeded in recording from their lips not fewer than 733 items of folk-lore. They not merely form exceedingly pleasant reading, such as is perhaps not often met with in a British Association report, but they also will be found to throw considerable light on the views which I have ventured to lay before you. It is much to be wished that others who have the like faculty, if even in a lesser degree, could be induced to take up similar work in other districts, now that Dr. Gregor has so well shown the way in which it ought to be done.

THE Autumn Exhibition at the Walker Gallery, Liverpool, opened last week. It includes over 1500 works, many of which are of great importance, and by artists of the first rank. Among the more notable canvases are Mr. T. Austen-Brown's "Benediction of the Sea," Mr. F. Bramley's "Dalesman's Clipping," Mr. E. A. Waterlow's "Lonely Church," Mr. Solomon J. Solomon's great Jubilee picture, Mr. Byam Shaw's "Truth," Miss Kemp Welch's "To Arms," Mr. G. C. Haité's "Bit of Old Chelsea," Sir J. D. Linton's "Roses," Mr. H. J. Draper's "Lament for Icarus," Mr. J. R. Weguelin's "Piper and the Nymphs," Professor Herkomer's "The Guards' Cheer," Mr. David Murray's "Old Shoreham," Mr. G. H. Boughton's "The Road to Camelot," "The Happy Valley," by Mr. William Scott, of Oldham; Mr. F. M. Skipworth's "Signal of Death," and "Perseus," by the late Sir Edward Burne-Jones.

A. A.

LIST OF PRIZE AWARDS.

THE prize list for Session 1897-98 of the Architectural Association is given in the current number of A.A. Notes. The list is appended:

A.A. Travelling Studentship, value £25, and Bronze Medal	H. F. Waring.
Second Prize	Not awarded.
A.A. Medal (Silver Medal and £5 5s.)	F. Dare Clapham.
Second Prize, value £5 5s.	T. Tyrwhitt.
Essay Prize, value £10 10s. and Silver Medal	F. N. Reckitt.
Measured Drawings Prize, value £5 5s.	A. M. Torrance.
Hon. Mention	J. G. N. Clift.
Andrew Oliver Prize, value £5 5s.	A. J. Roddis.
Arthur Cates Scholarship, value £10 10s.	T. Bee.
Discussion Section Prize... Architectural Union Company's Prize	Not awarded.

LECTURES.

DIVISION I.

Silver Medal and A.A. Scholarship, value £6 6s.	S. H. Goodwin.
Bronze Medal	H. S. Barrett.
Hon. Mention	S. Wheeler.

DIVISION II.

Silver Medal	T. G. Lucas.
Bronze Medal	W. M. Settle.
Hon. Mention	H. T. Bromley.

STUDIO.

DIVISION I.

Silver Medal and Certificate	Not awarded.
Bronze Medal	C. H. F. Comyn.

DIVISION II.

Silver Medal and Certificate	C. E. New.
Bronze Medal and Certificate	J. G. N. Clift.

ORDER OF MERIT.

DIVISION I.

GREEK AND ROMAN ORDERS.—S. H. Goodwin, Certificate and Book; C. L. Fleming-Williams, B. J. McAdam.

ELEMENTARY CONSTRUCTION.—S. H. Goodwin, Certificate and Book; H. S. Barrett, A. R. Conder.

ENGLISH ARCHITECTURE.—S. H. Goodwin, Certificate and Book; H. S. Barrett, C. L. Fleming-Williams.

ELEMENTARY PHYSICS, FORMULÆ, AND CALCULATIONS.—S. H. Goodwin, W. J. Davies, Certificate and Book; P. B. Dannatt, S. Wheeler.

PLANE AND SOLID GEOMETRY.—S. H. Goodwin, Certificate and Book; A. R. Conder, H. S. Barrett.

MENSURATION, LAND SURVEYING, AND LEVELLING.—S. H. Goodwin, certificate and book; P. B. Dannatt, C. Bré.

DIVISION II.

CONSTRUCTION.—T. G. Lucas, certificate and book; W. M. Settle, L. I. Wood.

MATERIALS.—T. G. Lucas, certificate and book; R. T. Miller, W. M. Settle.

STRESSES AND STRAINS.—H. T. Bromley, W. H. Collin, certificates; G. H. Smith, T. G. Lucas.

DRAINAGE AND WATER SUPPLY.—T. G. Lucas, certificate; W. H. Collin.

VENTILATION, LIGHTING, AND HEATING.—R. T. Miller, certificate; T. G. Lucas, J. H. A. Phillips.

SPECIFICATIONS AND ESTIMATES.—J. Ormrod, certificate; M. G. Pechell, F. J. O. Smith.

ELEMENTARY CLASS OF DESIGN.—Silver Medal, Certificate, and Scholarship, value £5 5s., A. H. Goslett; Bronze Medal and Certificate, R. H. Butterworth; Hon. Mention, G. Bailey, F. J. Corfield.

ADVANCED CLASS OF DESIGN.—Silver Medal, Certificate, and Scholarship, value £5 5s., C. L. Brierley; Bronze Medal and Certificate, F. N. Reckitt.

Professional Items.

ABERDEEN.—The restoration of St. Mary's Chapel, East Parish Church, Aberdeen, is now nearing completion. The stone flooring in the north transept and nave is now finished, and the last of the mason work connected with the restoration is in progress—the renovation of the apse windows, and the placing in position in the north transept of the granite fountain gifted some time ago. The joiners are now at work laying the diagonal oak flooring in the south transept. The total cost of repairing the chapel is £654.

BEESTON.—It has been decided to enlarge the Beeston Primitive Methodist Chapel, and the work is being carried out from designs by Messrs. Howdill and Howdill, architects, Albion Street, Leeds. The front is being brought forward to the Town Street, and the additional space will give accommodation for 79 persons. The front will be wholly of brick, and will be a simple treatment of the seventeenth-century English Renaissance style of Architecture. The school, two class-rooms, heating chamber, &c., are being added at the back of the chapel. By an arrangement of screens the whole of the premises can be thrown into one assembly room in the form of a Greek cross.

BIRMINGHAM.—A handsome wrought-iron and brass chancel screen has been presented to Handsworth Parish Church, Birmingham, which the Bishop of Lichfield has just formally dedicated. The rood-screen is a fine example of artistic metal-work, from the design of Mr. Chatwin, the architect of the modern portion of the church. The framework is of iron, with gilt decorations, and the figures usually associated with a rood-screen are gilt. There are further introduced some copper embellishments. The makers are Messrs. Thomason and Co., Birmingham.

DEVONPORT.—The clock and chimes placed in the tower of the Municipal Technical Schools, Devonport, have just been presented to the town. The clock tower, which is an addition to the original design of the building, rises to 120ft. above ground level, and its well-proportioned and graceful outline adds materially to the imposing façade of the building. The dials of the clock are 7ft. 6in. in diameter, and the time of day can be distinctly seen for a long distance in all directions. The hour bell weighs one ton, and the four quarter bells range from half a ton downward. The bells are hung in the thickness of the walls, and are visible from the outside, similar to those in church towers at Barnstaple and Northtawton, which are the only instances in Devonshire of bells being hung in this manner. By an automatic arrangement the chimes will be cut off each night from 10 p.m. until 6 a.m.

EDINBURGH.—The day Industrial School, St. John's Hill, the latest addition to the schools under the charge of the Edinburgh School Board, is now in use. The school has been built from designs by Mr. Wilson, architect, Queen Street. Its architectural features are Scottish, dormer windows and crow-stepped gables giving character to it. Its corridors and class-rooms have been lined throughout with red brick with an enamelled face, the floors and doors are pitch pine, and the rooms are all well lighted and well ventilated. On the street floor, on the right of the boys' entrance, there are waiting rooms and bath rooms where they get their first wash. This is duplicated at the east end of the school for girls. The main portion of the ground floor is made into a recreation hall, screened off in the centre into two portions, one for boys and another for girls. This opens upon a swimming or large plunge bath on the south side of the school, which will be used at separate times by the boys and girls. Outside, on the south side, are open concreted courts surrounded by a high wall, forming playgrounds for the children. The class rooms and indus-

trial rooms are on the first and second floors, and on the girls' side are the kitchen, wash-house, and laundry.

HALKYN (Flintshire).—The Duke of Westminster has just given instructions for the alteration and enlargement of the National Schools at Halkyn, Flintshire, at an estimated cost of upwards of £1000. At present the buildings are in the shape of a T, but when the projected additions are completed they will form a square, and provide accommodation for a considerable increased number of children. The Duke is also erecting a complete set of new buildings at Rhesycae—another village on his estate—to replace the present buildings, which are antiquated, dilapidated, and inconvenient. The contractor for both schools is Mr. A. B. Lloyd, builder, Flint, and the architects are Messrs. Douglas and Minshull, Abbey Square, Chester.

HAWARDEN.—The foundation stone laying in connection with the new church at Shotton, near Hawarden, is arranged to take place to-day (the 14th inst.) Messrs. Douglas and Minshull, Chester, are the architects, and Messrs. Isaac Ward and Sons, Uttoxeter, the contractors. The cost is estimated at £4700, which, with other expenses, besides the site, will bring the total amount up to about £5500. The church, which, when completed, will consist of a nave, north and south aisles, chancel, and sacarium terminating in an apse, will be erected in Early English style, the windows being mainly of lancet pattern. Red and white Hollington stone in random courses will be used in construction, and the roof will be covered with pale green Westmoreland slating.

LEEDS.—The new depôt of the Sanitary Department of the Leeds Corporation, which is situated in Dock Street, was opened a few days ago. The building is intended for the stabling of the Corporation horses and sanitary appliances. The site is one of the most convenient that could be chosen. It is bounded on the south by Bowman Lane, on the west by Kendell Street, and on the north by the river Aire. The frontage to the river is 250ft., of which 210ft. is available for unloading boats, &c. The total area is 11,257 square yards, which was purchased by the Corporation for 25s. per yard, and 1000 square yards has been given up for the widening of Bowman Lane and Kendell Street. The stable accommodation is eight blocks, twenty houses in each block, making a total accommodation for 160 horses, whilst there are four loose boxes and five isolation boxes. The eight blocks of stables constitute four separate buildings, separated from each other on the two sides by paved yards 40ft. in width, and at one end of the yard 30ft. in width. Adequate arrangements have been made for the management of the depôt, offices for officials and shops for workmen having been constructed on commodious lines. The building has been completed by ten different firms of contractors, and is in every way adapted for the purposes for which it is required.

LIVERPOOL.—At the last monthly meeting of the Liverpool Library, Museum and Arts Committee, Sir William Forwood in the chair, it was stated that Mr. C. Dyall, curator of the Walker Art Gallery, had prepared a scheme for the extension of the buildings. The City Surveyor said Mr. Dyall's plan, which proposed additions to the rear of the existing gallery, was an admirable one; it would nearly double the size of the building, and would cost £29,000.—The Chairman remarked that, while Mr. Dyall's scheme was very complete and perfect, it was too ambitious for the committee to undertake at the present time. The committee felt the necessity for an extension, but their idea was to construct a building which would cost some £8000 independently of the site.—The Surveyor pointed out that the existing gallery covered an area of 16,000 square feet, Mr. Dyall's proposed addition would cover an area of 14,000 square feet.—After some conversation, the surveyor was instructed to submit next

month plans of an extension to cost £8000, but so designed as to allow of further additions in the future.

LONDON, S.W.—A new music-hall is to be opened in London in a few days. Its name is the Granville Theatre of Varieties, and it is situated on the north side of the Broadway, Walham Green. Mr. Frank Matcham is the architect. The elevation is imposing; it is built of red brick and terra-cotta, the corner being very artistically treated with towers and minarets. Over the entrances will be handsome iron and glass shelters, filled with painted glass and brilliantly lighted. The entrances and vestibules are beautifully decorated with raised plaster enriched, the ceilings and walls being panelled out in Louis XVI. ornamentation; this decoration is carried along the walls of the open corridor at sides of stalls, and is finished in blue and gold, with figure paintings in panels, the whole having a most charming effect. The greatest novelty in the building is its decorations. Mr. Matcham has introduced Eburite faience ware for the whole of the interior embellishments; not only are the walls covered with this material, but also the proscenium front, auditorium, ceiling, gallery, and balcony fronts, which give a most charming result. It will save a great deal of labour and expense that otherwise would be necessary for the renewal of decorations and keeping clean, as by giving it a rub down periodically with a wet sponge it is always kept bright and clean. The Eburite faience is a special egg-shell glazed material which has been successfully used in other large schemes of decoration by Mr. Alfred Whitehead, of Leeds, the contractor for this work, who has now combined business with the Campbell Tile Co., and who are now carrying it on as "Campbell, Whitehead, and Co., of Leeds, and Stoke-on-Trent." The design and modelling of the work has received great attention, and when the whole decorations are brilliantly illuminated with the electric light, and warmed with the rich copper colour draperies and velvet seats, a beautiful effect will be obtained. The following are the names of the principal firms engaged in the construction and fitting up of the building:—Contractors for foundations, Mr. Charles Wall, Chelsea; contractor for superstructure, Mr. C. Gray Hill, Coventry; electric lighting, Messrs. Lang, Wharton, and Down, London; gas fittings, Messrs. James Stott and Co., London; plumbing, Messrs. Finch and Co., Limited, London; hot water heating, Messrs. Oldroyd and Co., Leeds; hydrants, Messrs. Shand Mason and Co., London; faience work, Alfred Whitehead, Leeds; plastic work and painting, Messrs. F. de Jong and Co., London; upholstery, Messrs. H. Lazarus and Son, London.

MEXBOROUGH.—A building in High Street, Mexborough, which was originally used as a Nonconformist chapel, and subsequently as a mission church, has been acquired for club premises. The sum of £500 has been expended in making the necessary alterations in the building, and in providing a billiard room, reading room, smoking room, card room, a large apartment that can be utilised for general meetings, together with all the other conveniences which go to make a really comfortable and up to date institution of this kind. Mr. G. White is the architect, and Mr. W. Shepherd the contractor. The decorating has been done by Mr. Walter Nicholson.

MONIFIETH.—A new hotel is to be erected on the Links at Monifieth. The building will be of handsome design. It will be erected on the south side of a new street to be formed in front of the Panmure Golf Clubhouse, and will consist of two stories. The architects are Messrs. Johnston and Baxter, Dundee.

WICK.—The Carnegie Free Library was opened last week. The buildings are situated on a site at Pulteneytown, and are built from plans by Messrs. Leadbetter and Fairley, architects, Edinburgh. The cost, apart from the site, valued at £500, will be over £4000.

Enquiry Department.

DEFECTIVE WORK.

To the Editor of THE BUILDERS' JOURNAL.

SIR,—(1) A contractor undertakes to supply an article according to specification. When completed the architect inspects the same, and verbally approves of it. Afterwards he finds that certain materials are not as specified. Can he then compel the contractor to replace the defective materials? (2) If the architect had approved of the article in writing, has he power to do the same thing?—Yours, &c.,

F. A. S.

We believe that, strictly speaking, the architect cannot compel the contractor to replace defective materials of which he has once approved, whether the approval should have been in writing or verbally, but that he would be responsible to his client for having passed that which was faulty. On the other hand, no respectable builder would refuse, under such circumstances, to reinstate what was admittedly faulty, and if he did refuse, the architect would be, morally at least, fully justified in withholding his certificate until he complied.

LABORATORY FITTINGS.

To the Editor of THE BUILDERS' JOURNAL.

DEAR SIR,—I shall be much obliged if you can furnish me with particulars of the fittings necessary for physical and chemical laboratories. Is there any book published illustrating the same?—Yours, &c.,

J. F.

Your best plan would be to apply to one of the many firms of laboratory outfitters, who could supply you with all particulars. We could send you the names of two firms upon the receipt of your full address. We know of no book upon the subject.

ROUGH CAST COLOURING.

To the Editor of THE BUILDERS' JOURNAL.

DEAR SIR,—H. M. C. writes for information re above. I have similar work to do myself, but wouldn't it be better floated flat? Rough cast naturally gathers dirt, whereas if smooth the dirt will wash off with heavy rains. I also wish to colour the cement yellow; will it be necessary to colour the whole or only the top fine finish, and will it take a great amount of ochre to colour? On plaster work I have used calcarium, and find that the first shower of rain spoils the whole affair, washing all the colour out of it, and I propose painting same next time as the only remedy. Can I do anything better? Having some stables to build, I should like to colour the cement in the gangways red; how can I do this, and would it add greatly to the expense? For any information as to this and the stucco work I shall be grateful.—Yours, &c.,

J. C. K.

Of course, the surface of the plaster may be finished flat if desired, but it will not then be "rough cast," and its appearance, in connection with half-timbered work, will not be so effective as is that of the latter. It is not absolutely necessary to colour the whole body of the plaster, but unless a great deal of it has to be done, not much will be gained in point of economy by colouring one portion only, as the stainer would cost less than the double labour of mixing and serving from two boards. For stucco finish, however, the plan may be adopted, as a fine coat must be prepared, and this alone needs colouring. It will take about 3lb. of yellow ochre to give 1cwt. of cement a cream tint; and about 1½lb. of white, or ¾lb. of green copperas to render the same waterproof. For colouring the plaster already floated, you may try the following, which will last good from three to five years according to the exposure: Mix ½lb. of yellow ochre in three gallons of rain or soft water, add 1lb. of alum well powdered, and one quart of stale beer, stir well and apply with a stubby whitewash brush. For colouring the cement in the stable red, use Venetian red or red ochre, with green copperas 1 to 5. The extra cost will be slight, but the strength of the cement will be somewhat impaired. For superior work, a very fine

and durable coloured cement may be made by grinding up red rubber bricks (or the dust from the cutting shed) with Portland cement, in the proportion of 1 of brick dust and 1 of washed sand to 2 of cement. This can be floated to a marble-like face.

THE SOCIETY OF ARCHITECTS MEMBERSHIP.

To the Editor of THE BUILDERS' JOURNAL.

DEAR SIR,—I shall be glad if you can give me any information about the examinations for the Associateship of the Society of Architects. How many examinations are imposed? What are the subjects? I have had some experience with an architect. I hold the Art Masters' certificate, and other certificates for Architecture, building construction, &c.—Yours truly,

F. P.

There is no examination for Associateship of the Society of Architects, but there is for Membership, the particulars being obtainable from the Secretary of the Society, St. James's Hall, Piccadilly. The first examination is to be held in October, and the scheme, so far as we are yet able to judge, seems to be a remarkably good one. There is one examination only, the subjects being Design, Architectural History, Construction, Materials, Specification Writing, &c.

THE NATIONAL ART COMPETITION.

To the Editor of THE BUILDERS' JOURNAL.

DEAR SIR,—Students who attend Science and Art Classes are permitted to make architectural drawings, copied, measured, and drawn or designed as he may choose. These are sent up to South Kensington in competition. I intend attending evening classes this session, and would like to send up a drawing. My knowledge of the requirements, however, is limited, and I shall be glad if you can give full particulars, and suggest any suitable subject to draw. The prizes given by the Science and Art Department, I understand, are in money, books, or medals. What would be required of a student to obtain a bronze medal? Would detail drawings and a perspective be required of your design?—Yours truly,

"WHITE ROSE."

The principal requirement for obtaining a national medal or prize is that the work shall exhibit careful draughtsmanship of more than usual artistic excellence. Undoubtedly the best thing to submit is a measured drawing of some good example of old work, with general drawings and details all properly worked out and fully figured, for from the execution of such a drawing, or set of drawings, there is a great deal to be learnt, even if no prize be secured. The original sketches, done on the spot, should be submitted with the finished drawings, but no perspective is necessary.

HOW TO BUILD "TO THE BEST ADVANTAGE."

To the Editor of THE BUILDERS' JOURNAL.

SIR,—I purpose building a small house and 150ft. by 18ft. run of glasshouse in this neighbourhood. Can you let me know how this can be done to the best advantage? I have four acres of open farm land, two freehold, and the rest on lease. I do not wish to spend more than £650 on the buildings and stock. Can you let me know how this can be done, and also the nature of the contract with which I would have to enter with the builders, so as to proceed without unnecessary expense and trouble to myself? What form of contract is most binding? I am a subscriber to SPECIFICATION.—I am, yours faithfully,

V. F. G.

P.S.—The place is to be a small fruit farm.

The best thing to do would be to employ a local architect, who would be conversant with local materials and prices, and to whom the requirements could be personally explained. Of course, only a small house could be built—little more than a cottage—as a considerable portion of the sum available would have to be spent on the glass. We should also recommend a careful study of the section relating to "Horticultural Engineer" in SPECIFICATION. The architect would prepare a proper binding contract, and see the work through.

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TENDERS.

Information from accredited sources should be sent to "The Editor." No results of tenders can be accepted unless they contain the name of the Architect or Surveyor for the Work.

ALDERSHOT.—Accepted for the supply of 2000 tons of granite road metal, for the Urban District Council:—

Per ton.	Per ton.
14 in. size	2 in. size.
s. d.	s. d.

C. M. Manuelle, Quenast granite 13 9 13 6
Kent Road Co., Cherbourg quartzite 13 9 13 6

AYLESBURY.—For erecting a detached residence, Wendover-road, Aylesbury, for Mr. E. T. Mackrill. Messrs. W. Taylor and Son, architects, Aylesbury. Quantities by the architects:—

W. Y. Green and Co.	£1,438	Webster and Cannon,	
H. H. Sherwin	1,390	Aylesbury*	£1,360
Mayne and Son	1,375		

BEXHILL (Sussex).—For the erection of walls, kerbing, paving, &c., for the Urban District Council. Mr. G. Ball, C.E., Council's Offices, Bexhill:—

E. Gutsell, Silverhill, St. Leonard's-on-Sea ... £614

BEXHILL-ON-SEA.—For proposed business premises at the corner of Wilton-road and Marina, for Mr. W. Meade. Mr. Wm. Cooper, M.S.A., architect, 21, Havelock-road, Hastings. Quantities by the architect:—

H. Noakes	£12,125	M. Martin	£10,600
Simmonds and Co.	10,897	A. N. White	10,538
H. Cruttenden	10,879	Padgham and Hutch-	
J. Martin	10,700	inson	10,450

For Excavations and Concrete Foundations, which were executed under separate contract as follows:—

J. Piper	£230 8 3	E. Gutsell, Silver-	
S. Carey	302 12 6	hill (accepted)	£269 0 0

BRENTFORD.—For the erection of house and office, Boston Brewery, Boston-road, for Messrs. Fuller and Co., Griffin Brewery, Chiswick. Mr. J. Hume, architect and surveyor, Chiswick:—

Hansom	£260 0	S. Hunt	£759 0
J. Barnes	830 0	Speechley and Smith	743 0
Adamson and Son	800 0	L. Leeder and Co.*	739 15
Dorey and Co.	769 0		

CROMER.—For the erection of a residence, Cromer. Mr. R. W. W. Carter, architect, Cromer:—

Girling and Smith	£295	J. White	£287
J. Evans	875	J. Riches	818
H. Bullen*	900	Harrison and Blyth	815

DEVONPORT.—For additions to workhouse infirmary, Stoke Damarel, for the Union Guardians. Mr. H. G. Luff, architect, 64, Chapel-street, Devonport:—

Pethick Bros.	£14,000	J. Goad and Co.	£23,600
Ambrose Andrews	4,266	A. Tozer and Son	3,486
G. B. Turpin	4,266	A. N. Coles	3,465
T. May	4,248	W. E. Blake	3,393
J. Partridge	4,100	Pellow, Plymouth*	3,228
Jillard & Stevenson	3,913	Smith & Son, Devon-	
J. H. Blackall	3,785	port (withdrawn)	2,849 15

FERNDALE (Glam.).—For rebuilding two shops and premises in High-street, for Mr. W. R. Davies. Messrs. Edgar Downs and A. J. Jones, joint architects, 1, City-chambers, Queen-street, Cardiff:—

Jenkins	£1,355	Morris*	£1,020
H. Lewis	1,025		

GUILDFORD.—For the erection of a house, Warren-road, for Mr. G. E. Wainwright. Messrs. Pietor and Lunn, architects:—

Mitchell Bros.	£2,770	Tribe & Robinson	£2,350
F. Milton	2,620	Kinsdale & Son	2,294
Goddard and Son	2,547	Brown Bros.	2,288
S. Ellis	2,495	Bottrill & Son Reading*	2,248
Higlett & Hammond	2,450		

HASTINGS.—For additions and sanitary works at the Boys' School, Hollington, for the School Board. Mr. Arthur Wells, architect, Queen's-chambers, Hastings:—

J. Cruttenden	£250 0	Padgham & Hutchin-	
John Lester	430 10	son, St. Leonard's	£301 0
F. G. Hutton	450 0	on-Sea*	276 0
Chapman & Cuff	440 6		

HASTINGS.—For additions, sanitary works, levelling playgrounds, and other works at Sandown Schools, Old London-road. Mr. Arthur Wells, architect, Queen's-chambers, Hastings:—

J. Lester	£2,297 0	Padgham & Hutchin-	
F. G. Wharton	2,250 10	son	£2,130 0
A. H. White	2,190 0	D. Snow, Hastings*	1,800 0

HASTINGS.—For additions to the girls' school, sanitary works, levelling playgrounds, and boundary walls at both the girls' and infants' schools, Hollington, for the School Board. Mr. Arthur Wells, architect, Queen's-chambers, Hastings:—

J. Lester	£1,577	Padgham & Hutchin-	
J. Cruttenden	1,560	son	£1,186
F. G. Hutton	1,555	H. Ashdown, Holling-	
Chapman and Cuff	1,348	ton (accepted)	1,114
A. H. White	1,223		

HOMERTON.—For alterations and additions at 27, Ber-gor-road, Homerton, for Mrs. E. Knights. Mr. John Hamilton, architect:—

Sneyin Bros. and Co. ... £493

ILKLEY.—For the erection of three villas. Messrs. Isitt, Adgin, and Hill, architects, Prudential-buildings, Bradford:—

Masonry.—G. Smith, Ilkley	£1,318 12 6
Joinery.—Eagle and Mawson, Ilkley	685 17 6
Plumbing.—J. Houldsworth, Ilkley	217 4 0
Slating.—J. Smithies, Bradford	101 11 0
Plastering.—R. Richardson, Ilkley	219 2 0
Painting.—J. Hanksin, Manningham	33 0 0

LONDON.—For new billiard-room and alterations to "The Dartmouth Arms," York Rise, Highgate-road, N.W., for Mr. Greenslade. Mr. A. J. Perriam, architect, 43, Cannon-street, E.C.:—

Antill and Co.	£1,500	Gould and Brand	£1,260
Stone	1,380	Marchant and Hirst	1,197
	1,323		

LONDON.—For new billiard-room and alterations to "The Oxford Tavern," Kentish Town-road, N.W. Mr. A. J. Perriam, architect, 43, Cannon-street, E.C.:—

Gould and Brand	£1,993		1235
Bloomfield and Evans	1,982		90
W. Green	1,935		90
Rhodes	1,900		70
Green and Smith	1,860		80
Marchant and Hirst	1,695		67
Edwards and Medway*	1,622		71

LONDON.—For alterations and additions to laundry, 106, Green-lanes, N., for Mr. Roylance. Mr. A. J. Perriam, architect, 43, Cannon-street, E.C.:—

Rhodes	£257	W. Green	£170
Bloomfield and Evans	180		
W. H. Kelland	£780	R. S. Buckridge	£693

LONDON.—New baths and washhouses for the Vestry of St. Matthew, Bethnal Green, E., including piled foundations, electric lighting, &c. Mr. R. Stephen Ayling, A.R.I.B.A., architect, Parliament-mansions, Victoria-street, S.W. Quantities by Mr. Henry Riley, 23, Victoria-street, S.W.:—

Leslie and Co.	£18,742	Lawrence and Sons	£16,293
Holland & Hadden	16,476	Perry and Co.	16,287
Bywaters	16,375	Rider and Sons	16,228
Holliday and Green		Nightingale	15,763
wood	16,330	H. L. Holloway*	15,100

LONDON.—For adding new cellars to Manor Stores, Chiswick-lane, for Messrs. Fuller and Co., Griffin Brewery. Mr. J. Hume, surveyor, 130, High-road, Chiswick:—

Speechley and Smith	£267 0	G. Alred	£256 0
M. N. Rhodes	258 10	L. Leeder (accepted)	249 0

LONDON.—For sundry additions and alterations to biscuit works, Shadwell, for Messrs. Meredith and Drew, Limited. Mr. Frederick Colyer, architect, 14, Victoria-street, Westminster, S.W.:—

S. G. Bird	£3,716	J. T. Robey*	£3,555
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PLUMSTEAD.—For alterations, &c., at "The Star" public-house, Plumstead Common-road, S.E. Mr. J. O. Cook, architect:—

Hutton	£644	Thomas and Edge	£410
Kitley	438	Hodgin	300

PORTRISHEAD.—For widening the lower portion of West Hill-road, Portishead, for the Portishead Urban District Council. Mr. T. J. Moss Flower, engineer, Carlton-cham-bers, Bristol:—

J. and T. Binns	£468 0 0	G. Biss and Son,	
E. Monks	240 10 0	Portishead*	£173 0 0
J. Woolford	215 3 4		

READING.—For rebuilding 54 and 55, Munster-street, for Mr. J. Sydenham. Messrs. Webb & Blackwell, architects:—

Kingerlee and Son	£2,995	G. S. Lewis and Son	£2,678
Collier and Catley	2,780	J. Bottrill and Son,	
Higgs and Sons	2,730	Reading (accepted)	2,627

ST. LEONARDS-ON-SEA.—For decorations, &c., to the "Sussex Hotel," Marina, for the Sussex Hotel Company. Mr. Wm. Cooper, architect, 21, Havelock-road, Hastings:—

For Hot-Water Service, as follows:—

A. Willard	£10 16 1	A. A. Hart, Hastings	£97 0
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** Accepted.*

For Decorations, as follows:—

W. E. Brown	£590 0	J. Harvey, St. Leon-	
J. and C. Bovis	495 0	ards (accepted)	£492 10

STROOD (Kent).—For the erection of an assembly hall, Cliffe-road, for the trustees of Strood Wesleyan Church. Messrs. J. W. Nash and Son, architects, Rochester. Quantities by the architects:—

H. E. Whittell	£1,532 4 6	H. E. Phillips	£1,405 0 0
E. D. Seagars	1,450 0 0	J. L. Trueman	1,357 0 0
J. Wilford	1,450 0 0	H. Wyles, Chat-	
C. E. Skinner	1,432 0 0	ham*	1,250 0 0
E. W. Filley	1,425 0 0		

SWANSEA.—For the erection of offices in Alexandra-road, Swansea, for the Poor Law Guardians, Swansea. Mr. Herbert W. Wills, architect, Swansea. Quantities by Mr. G. Fleetwood, 3, New-court, Carey-street, London:—

David Jenkins	£7,750	W. J. Morgan	£6,721
Weaver and Co.	7,000	Thomas Davies	6,650
Davies Brothers	6,840	Thomas Richards	6,580
Thomas Watkins & Co.	6,816	Bennett Bros.	6,500
Gustaf Bros.	6,800	Lloyd Bros. (accepted)	6,219

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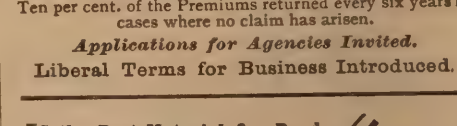
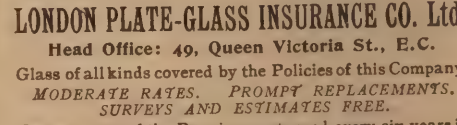
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SHOTLEY BRIDGE (Durham).—Accepted for the erection of cottage houses, for the Gateshead Union Guardians. Mr. W. L. Newcombe, architect, 29, Pilgrim-street, Newcastle-on-Tyne.—

W. C. Tyrie, Redheugh, Gateshead ... £15,095 13 0
SWINDON.—For the erection of a shop, house, dairy, &c., Radnor-street, for Mr. A. C. Buckeldee. Mr. R. J. Beswick, architect, 9, Regent-street, New Swindon.—
C. Williams ... £1,490 | W. Chambers ... £1,105
J. Williams ... 1,467 | Ball and Kilminster, ... 2,105
R. Payne ... 1,323 | Kent-road, Swindon* 1,073
*Accepted.

SUNDERLAND.—For the erection of a technical college, Green-terrace, for the Corporation. Messrs. Potts, Son, and Hemmings, architects, London, W.C. Quantities by Messrs. Boreham and Morton, Sunderland.—

Deduct for Terra-cotta.
Stott ... £19,971 £258
Elliott ... 19,493 460
Gould ... 19,152 833
Howe ... 19,100 231
Shaftoe ... 18,796 477
White ... 18,560 976

WOOLWICH.—For new workshop for Messrs. Geo. Leavy and Co., Hare-street, Woolwich. Messrs. Church, Quick, and Whincop, architects.—
J. L. Holloway ... £2,930 | Thomas and Edge ... £211
Proctor ... 900 | J. Chapman ... 779
Munday and Son ... 825

WOOLWICH.—For erecting new shop at 25, Hare-street, Woolwich, for Mr. G. Mitchell. Messrs. Church, Quick, and Whincop, architects.—
Turtle and Appleton ... £2,240 | J. Chapman ... £2,195
Munday and Son ... 2,239 | Goad ... 2,187
H. L. Holloway ... 2,200 | Thomas and Edge* 2,180
*Accepted.

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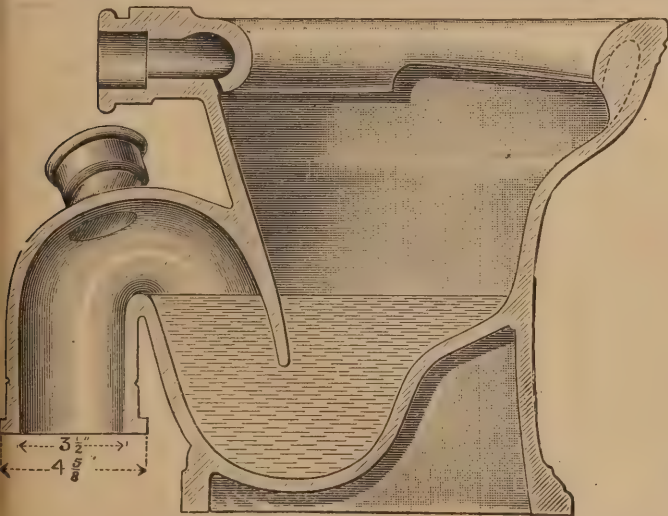
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ST. MARYLEBONE.**TO TIMBER MERCHANTS.**

Notice is Hereby Given that the Vestry of the Parish of St. Marylebone are prepared to receive TENDERS from persons willing to Contract for the SUPPLY of about 500,000 Australian JARRAH WOOD PAVING BLOCKS of the best quality.

Tenders to be delivered at the Court House on or before TWELVE noon on MONDAY, SEPTEMBER 26th. Three samples to accompany each Tender.

Further particulars and forms of Tender can be obtained at the Court House daily from TEN till FOUR.

The Vestry do not pledge themselves to accept the lowest or any Tender.

By order,

W. H. GARBUTT,

Vestry Clerk.

Court House,
Marylebone-lane,
September, 1898.

CITY OF GLOUCESTER.**NEW BUILDINGS FOR ELECTRICITY WORKS.****TO BUILDERS AND CONTRACTORS.**

The Corporation of Gloucester invite TENDERS for the ERECTION of the NEW BUILDINGS in connection with the above.

Plans and specification may be seen at the Office of Mr. HARRY A. DANCEY, 26, Clarence-street, Gloucester, between TEN a.m. and FIVE p.m.

The quantities are being prepared by Mr. DANCEY, and may be obtained from him on payment of a charge of £2 2s., which will be returned on receipt of a bona-fide Tender.

The Committee do not pledge themselves to accept the lowest or any Tender.

Tenders, endorsed "Tender for Electricity Works," to be delivered at the Town Clerk's Office, Guildhall, Gloucester, before ELEVEN o'clock on MONDAY, SEPTEMBER 19th, 1898.

By order,

GEO. SHEFFIELD BLAKEWAY,

Town Clerk.

Guildhall, Gloucester,
August 30th, 1898.

CONTRACT for GAS HOLDER.

The Directors of the Eastbourne Gas Company are prepared to receive TENDERS for the CONSTRUCTION, at their Works, of a GAS HOLDER, 155ft. by 90ft.; to be in accordance with the drawings and specification, which may be seen at the Office of the Company, at Eastbourne, and of which copies and detailed particulars may be obtained on application to the Engineer, Mr. H. E. JONES, Gas Works, Harford-street, Stepney.

Sealed Tenders, marked on the outside, to be delivered to me by WEDNESDAY, SEPTEMBER 28th, 1898.

The person whose Tender is accepted will be required to enter into a contract for the due performance of the works, and to give such security as the Directors shall require, such contract and security to be prepared by the Solicitors of the Company at the expense of the contractor.

The Directors will not be bound to accept the lowest or any Tender.

J. H. CAMPION COLES,

Secretary.

TO BUILDERS.—Builders desirous of

Tendering for the ERECTION of a BLOCK of RESIDENTIAL FLATS ("Priory Court"), Mazenod-avenue, Hampstead, are requested to apply to the Architects, Messrs. PALGRAVE and CO., 28, Victoria-street, S.W., with a deposit of £2 2s. for bills of quantities, prepared by Mr. GEORGE STEVENSON. Such deposit will be returned on receipt of a bona-fide Tender.

**WOOD-BLOCK PAVING.**

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For Churches, Schools, Offices, &c.

Estimates and full particulars on application to

THOS. GREGORY & CO.,

WOOD PAVING AND STEAM JOINERY WORKS,
Clapham Junction, S.W.

BECKENHAM URBAN DISTRICT**COUNCIL.****TO CONTRACTORS.**

The Beckenham Urban District Council invite TENDERS for WIDENING Croydon-road and Elmers End-road.

The works comprise the widening of Croydon-road for about 800 lineal feet, and of Elmers End-road for 150 lineal feet, together with the formation of new footways.

In connection therewith the following works are required, viz., about 800 lineal feet 9in. pipe sewer, 700 lineal feet 9in. pipe surface water drain with manholes, gullies, &c.; 110 lineal feet concrete retaining wall, about 4ft. high; 1000 lineal feet kerb and channelling, making up roadways, &c.

Plans and sections may be seen, and bills of quantities, specifications, and forms of Tenders obtained, on application to Mr. JOHN A. ANGELL, Surveyor, on or after SEPTEMBER 7th, on deposit of £1, which will be returned on the receipt of a bona-fide Tender.

A clause will be inserted in the contract providing that the contractor shall pay to the workmen employed in the execution of the work the wages generally accepted as current for workmen engaged on similar work in the district.

Tenders duly sealed and endorsed "Tender for Widening Croydon and Elmers End-roads," to reach undersigned not later than FOUR p.m. MONDAY, SEPTEMBER 26th, 1898.

The Council do not bind themselves to accept the lowest or any Tender.

By order,

F. STEVENS,

Clerk to the Council.

August 30th, 1898.

WILLIAM L. KING,

Electrical Engineer,

11, BOTHWELL STREET, GLASGOW,

Contractor for Light & Power Installations,

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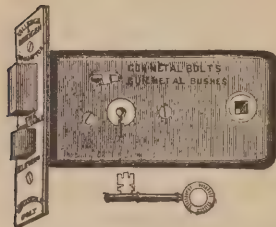
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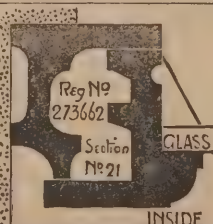
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See Large Advertisement, Back Page, Monthly.

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Surveying and Sanitary Notes.

OWING to the continued drought, a water famine prevails at the township of Willesborough, near Ashford, Kent. All the ordinary sources of supply have failed, and temporary arrangements with the Ashford Urban District Council for a supply of drinking water have been found necessary. The drains at Willesborough cannot be flushed, and, in consequence, there has been a serious outbreak of scarlet fever. The hospital is full of patients, and other cases are being treated outside. At Ashford the Urban Council has been obliged to issue a notice asking consumers to use the town water economically, and to prevent any waste.

THE Ninth Annual Congress of Scottish District Councils, in connection with the National Registration of Plumbers, was opened at Glasgow a few days ago. The congress has brought together many prominent and influential persons connected with public health and sanitary matters, and amongst those present were Messrs. Cameron Corbett, M.P., J. S. A. Baird, M.P., Lees Knowles, M.P., Sir Robert Pullar, Alderman Richard Hind, Master of the Worshipful Company of Plumbers, Professor Glaister, the Rev. Dr. Boyd, and Mr. Robert Crawford, ex-Chairman of the Health Committee of the City of Glasgow and president of the congress. Baillie Dick, on behalf of the Glasgow Corporation, welcomed the members of the congress to the city, after which Mr. Robert Crawford delivered his presidential address. The congress then proceeded to consider what means could be taken to secure the early passing of the Plumbers' Registration Bill into law, and passed the following resolution:—"That this Ninth Annual Congress of the Registered Plumbers, local health authorities, medical men, and educationalists in Scotland, renews its approval of legislative sanction being given to the registration movement, and its desire that the Bill be reintroduced next session of Parliament; recommends that a strenuous effort be made by the promoters of the Bill, by deputation or otherwise, to induce the Government to adopt the Bill; and calls upon the district councils of Scotland to take prompt and energetic action for the same object." An exhibition of plumbing work and sanitary appliances in connection with the congress was opened by Professor J. G. McKendrick, who, in the course of his address, stated that the congress had a twofold aspect, on the one side as it affects the trade, and on the other as it affects the public. All were aware that the movement for the registration of plumbers, so far as the trade were concerned, aimed in the first place at a careful education of the plumber, and in the second at a system of examination and registration by which a guarantee would be given to the public that those who followed the working of plumbers would be thoroughly efficient men.

THE want of water at Bridgend has long been keenly felt, and two or three years since a large number of the inhabitants petitioned the District Council to take steps to procure a sufficient supply. Since then schemes have been submitted to both Bodmin Rural District and St. Winnow Parish Council. Some few weeks ago the former Council's surveyor took the levels and gaugings of springs rising in the surrounding hills, and found that a stream rising at Hartswell gives 19,440 gallons of water in twenty-four hours, and the estimated cost of bringing it is £462. Another spring at Colbeacon gives 8640 gallons, and it can be brought in for £406. The third source of supply is at Polsee, which gives 15,120 gallons in twenty-four hours, and £282 would be the cost of bringing it into the village. These estimates do not include the cost of purchasing water rights from owners and compensating occupiers; they provide only for piping and the provision of four stand-pipes. At a recent meeting of the Rural

Council the three schemes were submitted, and were referred to the Parish Council for consideration. The latter body have gone fully into the subject, and have decided to recommend the Hartswell stream as the most suitable. It now remains for the Rural Council to take the necessary steps.

AN inquiry has been held at Oulton Board School, Lowestoft, by Mr. Samuel Walter Wheaton, M.D., an inspector of the Local Government Board, into an application by the Mutford and Lothingland Rural District Council for powers to borrow £2700 for the purpose of constructing an isolation hospital for the district. It was explained that some time since Dr. Bruce Low held an inquiry into the causes of the typhoid outbreak at Kessingland. The result was that an isolation hospital was recommended. The building would cost £2225. A site had been obtained of the Lowestoft Charity Board of 1½ acres for £150. The furniture would cost £200. It was as nearly as possible in the centre of the rural district. As this was an entirely new charge they hoped the Local Government Board would spread the repayment of the loan over as long a period as was possible under the Public Health Act. The architect (Mr. Clarke) explained the plans, into which the inspector entered with great minuteness, and the inquiry closed.

A SINGULAR accident occurred at Messrs. Levinstein's Works, Crumpsall Vale, Blackley, last week. The Manchester Corporation has been constructing a sewer under the works of the firm, and the timbering used does not appear to have been sufficient to keep up the bed of the private reservoir, which is over an acre in extent and in some places 20ft. deep. The bottom gave way, and the immense volume of water burst out over the surrounding country. The roadways and gas and water mains were severely damaged; but the pipe sewer suffered no harm, although the brick-work casing was considerably damaged.

THE engineers have commenced the initial work of laying down the 20in. mains in the Tower Subway to connect the East London Waterworks Company with the Southwark and Vauxhall Company. A large gang of workmen is employed sinking a 60ft. shaft at both ends of the tunnel. About two miles of 20in. piping will be required for the purpose, the connection with the Southwark and Vauxhall Company being made in Bermondsey Street, on the south side of the River Thames. The main will emerge from the subway close to the Tower, and will be taken along Tower Hill to Leman Street, a distance of about a mile, where it will be connected with one of the great mains of the East London Company. The laying of the connecting main, which will necessitate the breaking up of about a mile and three-quarters of streets, will take six weeks to accomplish, with two gangs of workmen working at high pressure both day and night.

ON the 21st inst. the Corporation of Plymouth celebrates the completion of the Burrator Reservoir. This reservoir has been constructed by the Corporation. Its main embankment is the third largest stone dam in the country, and is the only one constructed of granite. The engineers for the scheme are Mr. James Mansergh, engineer, of Victoria Street, and Mr. Edward Sandeman, of Plymouth. The waterworks of the Plymouth Corporation are believed to be the oldest waterworks established by a municipality which have been continuously in the ownership and under the control of the municipality since their inception. London, as a municipality, undertook the construction of waterworks before Plymouth, but London has parted with its waterworks undertakings as a municipality, and is now entirely supplied by companies. The Plymouth waterworks have the further additional interest in that they were constructed by Sir Francis Drake, the great navigator, under powers obtained in the reign of Queen Elizabeth, the Act of Parliament showing on its face that they were designed at that day not merely for a local but also for

an imperial purpose, viz., "the deepening of the Plymouth Harbour, supplying Her Majesty's ships of war, and also for the purpose of extinguishing fires in the town occasioned by the assaults of foreign Powers."

TROPICAL heat and continued absence of rain in the Midlands are severely taxing the resources of the Birmingham Water Department, and the authorities have issued a warning to the citizens that it has become impossible to maintain a constant supply in the higher districts. The storage has considerably diminished during the past few weeks, and the scarcity is causing some anxiety. The citizens are urgently requested to economise the use of water, though it is hoped the drastic measure resorted to in London will not be found necessary.

THE report of the Sanitary Committee of the Manchester Corporation for the past year shows that the large number of 42,805 complaints of nuisances have been dealt with, and the twenty-eight district and four smoke nuisance inspectors have made 73,539 inspections of various kinds, and have applied smoke and water tests with the view of discovering any defects which might exist in the drainage at 2266 houses. The notices which have been served for the abatement of nuisances of various kinds number 12,888, and 427 magistrates' summonses have been issued under the direction of the Committee for non-observance of such notices. Great efforts have been made to mitigate the nuisance arising from the emission of black smoke from the chimneys of works, &c., and special attention has been given to the works in the newly incorporated districts, with the result that a very great diminution of the nuisance has been effected. Two new underground lavatories have been opened—one in South Street and the other in Great Bridgewater Street. The House Drainage Department have restrained no fewer than 5905 dwelling houses and 274 business premises, public buildings, &c., during the year. The cost of this work amounted to £29,359 19s. 3d., which was apportioned as follows: £20,657 4s. 7d. to owners, and £8702 14s. 8d. to the Highways Department, to be paid out of the City Fund.

"A Nearly Smoked Out Inhabitant" writes complaining of the non-abatement of smoke. He says:—"This nuisance has simply become intolerable, and up to the present seemingly unchecked by the local vestries. There is one particular shaft the worst offender, situated at the back of Lincoln's Inn Fields, on the west side. All through this exceptionally hot weather, and for many months before, it has been impossible to have the windows of the house where I reside in open, no matter how unbearable the heat has been, without having every room in the house filled with this soot-depositing, oily-smelling, noxious vapour, detrimental alike both to health and property. I do not believe in the excuse put forward that the coal strike in South Wales is the sole cause, for every furnace should be so constructed as to be independent of such casualties as the want of a particular sort of coal. There are three institutions in Lincoln's Inn Fields—the Inns of Court, the Royal College of Surgeons, and Sir John Soane's Museum, all possessing valuable libraries and priceless works of Art. Why should their valuable contents, which are national treasures, be ruined because a private company would rather poison the air and obstruct heaven's light than spend a few pounds on altering their furnace?"

THE Government has offered the City Corporation the male wing of Newgate Prison for £40,000, and this offer has been readily accepted. It has had the effect of altering all previous plans. The new Sessions House will be built upon the present site of the male wing, abutting upon Newgate Street, and the site of the old Sessions House will probably be let for building purposes. The cost to the City will be about £200,000, which will have to be provided by means of a county rate spread over between twenty and thirty years.

THE CREMATION OF SEWAGE.

THE sewage disposal problem is beginning to engage the attention of the clergy, though it is evident from a letter which the Rev. J. W. Sheringham, Archdeacon and Canon of Gloucester, has written to the Times that the clergy—or at any rate, Archdeacon Sheringham—is not up-to-date in his practical knowledge of the subject. The reverend gentleman's cremation theory is no new idea; but with his remarks on river pollution all must agree. The letter is as follows: "There are few evils in my opinion more pressing or even scandalous than the pollution of rivers. Water is one of God's most precious gifts (poor East London will testify to this). To turn a fair river into a foul drain seems to me not only a hideous blunder, but a hideous crime. Will you let me open a correspondence on the cremation of sewage, for our pest may thus be turned even to our advantage? I plead for the erection of huge furnaces at the outfalls of our drains. No doubt they would require lofty chimneys and chemical ingredients to neutralise the noisome gases, but this, surely, cannot be beyond the reach of science. In these furnaces the solid matter would be burnt and form artificial manure, the liquids, being properly filtered and deodorised, might then be allowed to flow away. Let us sum up our present position. Our beautiful West Riding rivers are only awaiting their time for being turned into foul channels of manufacturing centres. 'Sabrina Fair' is rapidly becoming 'Sabrina Foul,' to the great discomfiture of the salmon. Limpid Thames is condemned to bear

THE IGNOBLE BURDEN OF LONDON SEWAGE.

Have we not heard of a huge sewage island being piled up on the borders of Essex? Have not the oyster sellers been half ruined by sewers disgorging themselves near the oyster-beds of Kent? Have we not heard of the 'Ealing Styx,' the Brent? Fifty-seven years ago my father had his kitchen garden surrounded by that pretty river at Hanwell. I am now staying on the coast of South Hampshire. A nice little trout stream empties itself past the village into the sea, up the stream trout are caught abundantly, below the houses large fish are caught but ought not to be eaten, for a disgusting freight of sewage is carried to the sea, and Oceanus has to dispose of accumulated poison as best he may. Shame to say, it is the same story for all our watering-places. Could the Chancellor of the Exchequer use a cool million better than to establish by grants (repayable, if you will) crematories for all our great towns and cities? Now, what are the palliatives on which we place our reliance? Miserable subterfuges indeed—sewage farms. At first we heard much of the enrichment, now we hear of the poisoning of the soil; at best it is the spread of noisome exhalations over fair fields instead of fair rivers. I do not envy the olfactory senses of the man who walks anywhere near the sewage farm. The huge sewage marsh at Saltley, near Birmingham, had to be thickly covered by masses of sand and gravel. I suppose to be in their turn as much poisoned as the stratum which lies below them. No doubt we must come to cremation sooner or later, but why not sooner than later? I throw out this suggestion to be taken up, I trust, by practical and scientific men. I am sure he will be a public benefactor who can turn a curse into a blessing."

CROYDON is reputed to be a healthy place, and its Corporation is generally supposed to be sufficiently aware of it; but one of its latest notions is a curious one, as bearing upon sanitation. It has decided to charge, and it has been charging, householders for taking away vegetable matter, and the natural result is, of course, found to be that hundreds of small centres of smells are rising up. Before evidence, one would imagine that the first conditions of health in a town is the most complete system for removing decaying vegetable matter, but the Corporation of Croydon does not seem to see it.

Builders' Notes.

"GRAVEL SOIL" is generally looked upon as healthy, but the Hospital this week shows that this is by no means always the case:—"A foul gravel is a most dangerous soil on which to build. For warmth, for dryness, for absence of fog, and for facility of walking directly after rain, just when the air is at its purest and its best, there is nothing like gravel; but when gravel has been rendered foul by infiltration with organic matter, it may easily become a very hot-bed of disease, and in relation to this one must remember that those who dwell in suburban villas, and in houses built in rows, are apt to suffer from the sins of their neighbours so far as the subsoil is concerned." Where houses are planted at some distance apart, each standing in its own plot of ground, gravel is admirable; but whenever houses are so closely placed that the soakage from one may interfere with the ground air of another, gravel is but a doubtful blessing.

A NEW way of pulling down old buildings in London is commended in the following communication from Mr. W. Woodward, A.R.I.B.A.:—"An idea, which a short time ago I saw being carried out in Nuremberg, I have just adopted in the pulling down of two houses in Regent Street, and with most satisfactory results. I took a main pipe to the top of the old houses, with branches, to each of which was attached an indiarubber hose, with sprinkler at the end. Before the work was pulled down the walls and ceilings were sprinkled with water, and then the debris was likewise sprinkled with water before it was basketted out to the carts in the street. The result was that the usual clouds of dust, with their attendant mischief and annoyance to the public and to shopkeepers, were entirely absent, and the 'wreckers' were at the same time benefited. I venture to commend the idea to the London County Council, who might well insist upon its adoption in all cases of pulling down old premises in London."

VERY few of those hundreds and thousands who daily travel the wood pavement laid down in so many of our London thoroughfares, or who have at some period of their lives stood and watched the process of laying it, have much idea of where all this wood is obtained, nor have they, says Chambers's, any idea of the process used in cutting it into blocks of the requisite size. Various kinds of woods from all parts of the world have been tried, and of late years the Tasmanian "stringy bark," a species of the Eucalypti, has proved to be the most enduring, and without the glass-like surface of some other hard woods. The stringy bark, which grows all over Tasmania, has a rougher surface than the blue gum, thereby giving in greasy weather a better foothold for man and beast. It is in the south of the island of Tasmania that the chief supply of timber is obtained, the forest coming down almost to the water's edge, thus making the cost and difficulty of transport very small; in fact, at some of the mills vessels of three thousand tons could partly load alongside the pier, and complete their loading by barges while lying in a perfectly secure anchorage. As regards the lasting powers of the stringy bark, that, of course, has to be proved, but judging by the durability of the railway sleepers on the Government lines, a renewal once in seven years ought to be sufficient.

THE Midland Railway are about to erect an hotel in connection with the Central Station, Manchester. The hotel will have frontages to four streets. The material for the structure will be granite for the lower part, and terra-cotta above. A concert hall will be a feature of the design.

IMPROVEMENTS are now being carried out at the London Hospital. These alterations and enlargements include the removal of the old spinal wall running between the two main

wards back and front, which will secure a needed cross-ventilation hitherto unattainable; the building of a complete set of modern and efficient operating theatres; the provision of a new out-patient department; better isolation accommodation; the construction of a new mortuary and post-mortem rooms; and the addition of a photographic and Röntgen ray laboratory. The hospital garden is given over to an army of workmen, who are engaged in erecting a temporary structure for the accommodation of the patients, numbering over 100, who will have to be moved from those wards soon to be rebuilt and enlarged. The building in connection with the Röntgen ray science has also its locale in the old garden site, and it is expected that this development in the medical school will be of immense value to the hospital. The four new operating theatres will be models of all that modern science can devise. Their construction will cost some £13,000, which is being defrayed by an Australian gentleman settled in this country. They will be fitted with an apparatus which will force ice-cooled air into the theatre during the hot weather, and warmed, ventilated air during the winter months, the pressure being such that under all circumstances there will be a current of air passing from the interior outwards, carrying off any septic impurity in the atmosphere. Besides being the largest hospital in the world, after that in Vienna, the London Hospital bids fair to be also the most efficiently equipped and most advanced scientifically, when all the present plans are perfected, and for the furtherance of which both private and public generosity have done so much.

M. BERLIER, the engineer who has recently conceived a scheme for uniting Europe and Africa by means of a submarine tunnel, starting from Gibraltar, and some 32 kilometres in length, has just expressed himself in very sanguine terms. He anticipates, in fact, cordial support from the English side of the Channel. A train leaving Boulogne or Calais could thus take the traveller rapidly through France and Spain to Morocco, and thence by way of Algeria, Tripoli, and Egypt, the Suez Canal being also tunnelled, to Arabia, and so along the coast to the Persian Gulf to Bombay.

THE building of the Great Central Railway's London terminus in the Marylebone Road goes on steadily, although the date on which the line will be opened for passenger traffic still advances into the future. October was spoken of a while ago, but now January next seems the more likely. This is not to say that progress has been slow. On the contrary, Marylebone Station has arisen with astonishing rapidity, and it already is nearly ready to receive the glazed roofing of the three bays into which the two arrival and two departure lines, together with the line for sidings, will run. But little unforeseen contingencies occasion additional work and retard completion.

THE station offices, in red brick and yellow terra-cotta, are decidedly pretty. A great London terminus should perhaps be imposing. The Great Central is not that, but it is distinctly comfortable looking. It is the great hotel being erected here, the Hotel Grand Central, which is majestic in its height. This is not an undertaking of the Railway Company's, but is being erected for the Gordon Hotels Company. It will have a garden courtyard and the latest conveniences. The principal elevation, which fronts the Marylebone Road, is of the same style and materials as the station buildings. The goods' yards, the great bonded warehouses now being completed, and the immense coal-sidings now actually in working order and filled with laden coal-wagons from the collieries of the Midlands, give an excellent idea of the magnitude of the carrying trade in coals, minerals, and general goods which the Great Central will carry on. Already the Company has obtained powers for the doubling of these coal-sidings, and property in the neighbourhood has been scheduled for purchase and demolition.

PRACTICAL CARPENTRY AND JOINERY.*

BY GEORGE ELLIS.

IX.—WINDOWS.

(Continued from page iii.)

SLIDING SASHES are used for small openings in thin walls, but are seldom satisfactory, having a tendency to jam and cause the glass to break; also, if not in constant use, the rails upon which they slide get corroded, and the sash is difficult to move. Two forms of these frames are made, in one of which two sashes sliding in opposite directions are used, in the other, called a Yorkshire light, there is one movable sash, the remaining portion of the frame being rebated to receive the glass as shown in the sections Figs. 151 and 152. In sliding sashes there should be no end wood exposed at top or bottom, as it would be liable to splinter off in the working, and it is usual for the rails to run through or to be shouldered over the stiles as shown in Fig. 153.

DORMERS.—Vertical windows in a roof are called dormers. Frequently they are formed with ordinary sash frames fixed to the studding of the sides of the dormer, but in the prevailing style of Architecture they become important features in the design, and are constructed with massive timber frames, wrought and moulded, and the sashes hung as casements. Fig. 154 is an elevation, and Fig. 155 a vertical section of such a window. Fig. 156 is an enlarged section showing method of hanging casements.

SKYLIGHTS are windows in a roof in a parallel plane with it. When it is desired to make one of these, an aperture of the required size is formed in the roof by framing pieces, called trimmers, between the outer rafters, to carry the ends of the intermediate ones. The rough frame thus formed is covered by a lining of 1½ in. stuff, standing about 6 in. or 8 in. above the roof, and flush with the underside of the rafters, or plastered ceiling.

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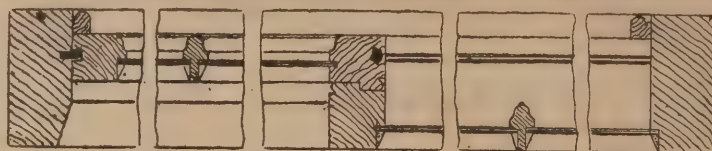


FIG. 152. HORIZONTAL SECTION OF YORKSHIRE LIGHT.



FIG. 151. VERTICAL SECTION THROUGH SASH IN YORKSHIRE LIGHT.

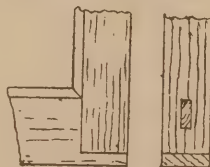


FIG. 153. DETAIL OF SLIDING SASH.

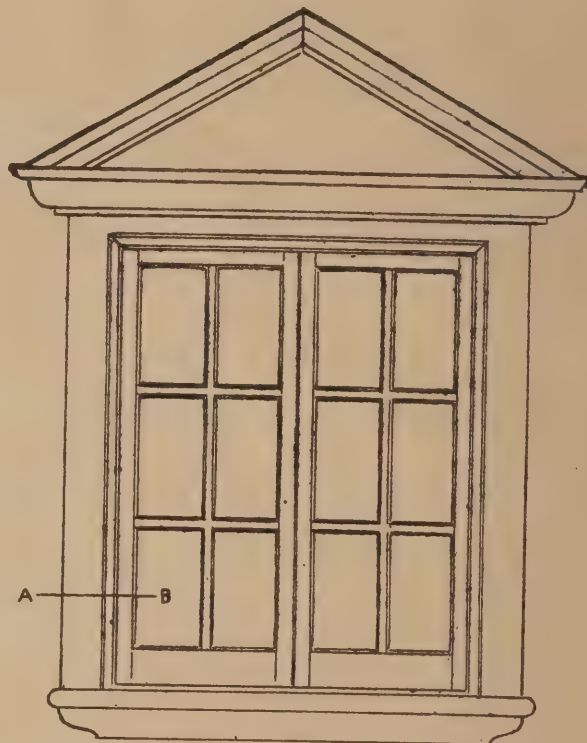


FIG. 154. ELEVATION OF DORMER WINDOW.

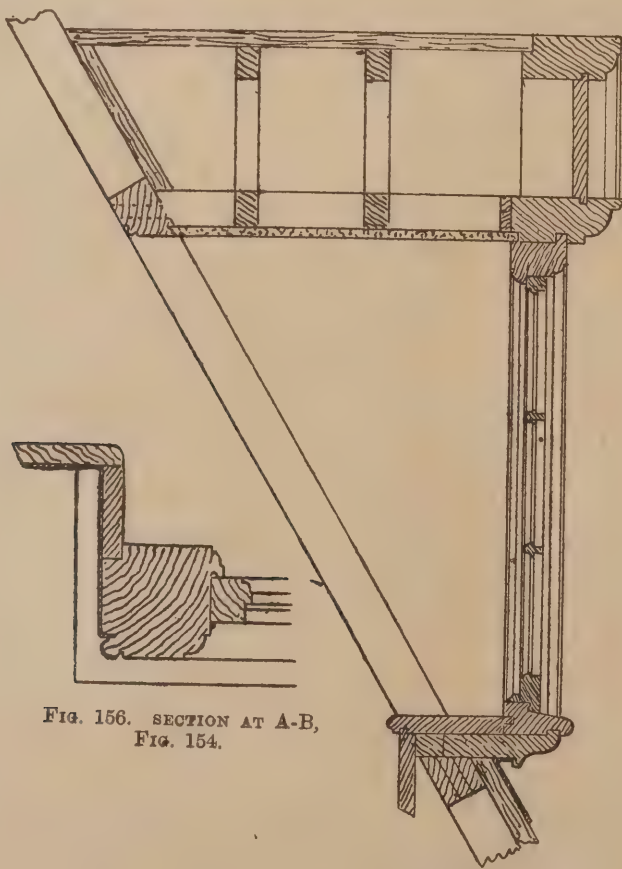


FIG. 156. SECTION AT A-B, FIG. 154.

FIG. 155. SECTION OF DORMER.

When this lining is framed either by grooving or dovetailing it is termed a curb. Upon this curb the light is fixed, overhanging the outside about 2 in. all round, the underside being throated to intercept the water. A tongue should be worked on the top edge of the curb and a stopped groove in the light to receive it. When the light is hung it should be at the top end, and the lead flashing brought up the outside of the curb and turned over the top edge, and there formed into a little gutter to receive any water that might drift through the joint. As these lights are more or less flat, the rain-water does not escape so rapidly as from ordinary windows, and there is greater risk of it getting round the edges of the glass. To prevent this as much as possible the top rail is grooved for the glass, instead of rebated, and the bottom rail is made thinner than the rest of the framing, its top side being flush with the rebates, to allow the glass to run over. The rebates of the stiles and bars are throated, and a sinking worked on the upper edge of the bottom rail to receive the condensed water, which is discharged outside by its continuation under the tail of the glass. Fig. 158 is a longitudinal section, and Fig. 157 a plan of a framed skylight.

(To be continued.)

THE Town Council of Maidstone has resolved to apply to the Local Government Board for sanction to borrow £6020 for reconstructing the old brick sewers in the borough in accordance with plans prepared by the borough surveyor.

A LOCAL GOVERNMENT BOARD inquiry was held in Cheltenham recently by Col. J. T. Marsh, R.E., relative to the application of the Town Council for sanction to borrow £13,410 for certain works of sewerage and sewage disposal, which the Council proposed to construct outside the limits of the borough.

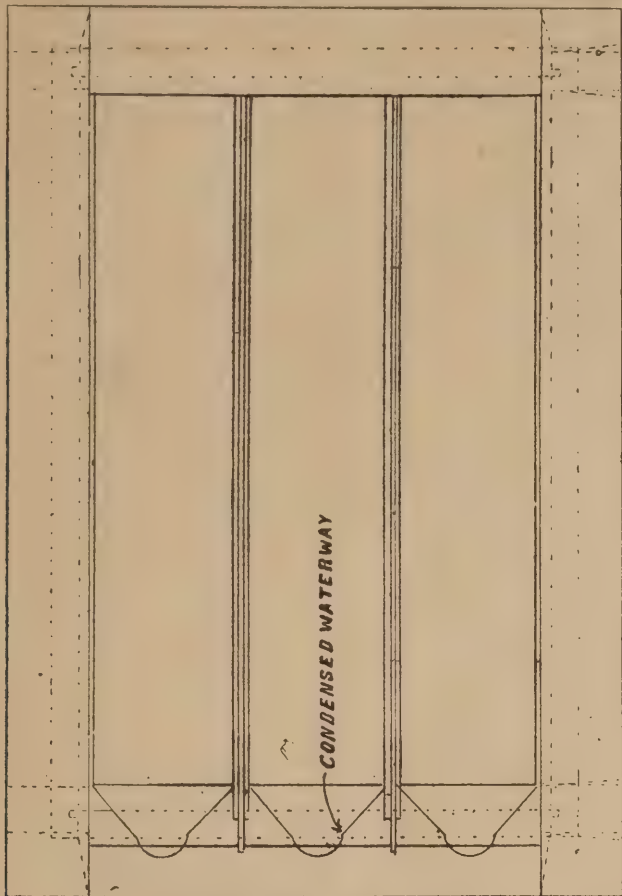


FIG. 157. PLAN OF SKYLIGHT.

Hospital Extension at Keighley.

TEN memorial stones in a new block of buildings being added to Keighley and District Hospital have been laid. It is estimated that the total cost of the extension will be £22,000. The architect gives the following description of the additions:—The extension comprises administrative ward, kitchen, and operating blocks, all connected with the present hospital by corridors 9ft. wide. The administrative block has on the ground floor a large board room, dispensary, and staff room, doctors' sitting room and bedroom, with bath and lavatory accommodation; matron's, nurses', and probationers' sitting rooms; office, waiting and porters' rooms, and a casualty room. On the first and second floors are the matron's bedroom, thirty nurses' bedrooms, and a sick room, with ample bath and lavatory accommodation. The ward block will be two stories high, and will have accommodation for forty-four beds—in two large wards, 70ft. by 27ft., each containing sixteen beds; two four-bed wards, 27ft. by 19ft.; and four single bedrooms for special cases, two day rooms, 21ft. by 17ft. Also the necessary nurses' kitchen, duty rooms, store rooms, and baths and lavatories. The floors of the wards will be of polished teak. At the south end of the large ward will be a verandah, with iron staircase for escape in case of emergency. The kitchen block at the rear of the administrative ward will have on the ground floor a kitchen 24ft. by 23ft., scullery, nurses' dining room, servants' hall, sewing room, and a number of

store rooms; on the first floor eight bedrooms (for ten beds), bath room, &c.; in the basement are three large larders or keeping cellars. At the rear of this block is a large boiler house and boiler chimney. The operating block (between the administrative and ward blocks, and approached by a covered corridor) will have an operating-room 26ft. by 18ft., anæsthetic room, instrument room, and store room. At the rear of the site, and detached from the other buildings, is the mortuary block, comprising mortuary, post-mortem room, viewing room, and waiting room. Due attention will be paid to the efficient ventilation and warming of the various rooms—the warming is intended to be on the low-pressure hot-water system, with ventilating radiators. Each block of buildings is provided with a large extracting shaft, into which the foul air from every room is drawn by means of steam coils. The accepted tenders for the building contracts amount to £14,073 (this amount is exclusive of warming, terrazzo flooring, and other specialities). The cost of land, £3000, and fittings and furnishings, £4000, with smaller items, bring the sum estimated to be required for the building to £22,000. The architects are Messrs. W. and J. B. Bailey.

A PORTION of a block of buildings in Ellesmere Street, off Hulme Hall Road, Manchester, collapsed a few days ago, the roof and the two floors beneath crashing to the ground simultaneously. The accident is assumed to have been caused in some way through the removal of a large boiler in the basement.

Trade and Craft.

MESSRS. MELLOWES AND CO.

The whole of the glazing at the new station at Nottingham, to which we referred in our last issue, is being done on Messrs. Mellows and Co.'s patent Eclipse imperishable system. The same firm is doing the whole of the glazing on every station of the Great Central Railway extension to London. This, we should imagine, is the largest glazing contract ever given to one firm.

THREATENED STRIKE AMONG PLASTERERS.

A correspondent informs us that the Plasterers' Trade Union has decided to give notice at the end of the present month that unless the usual wage of 10d. per hour is increased by one penny a general strike will be declared. This has not caused much surprise in the building trade, because it has become a recognised fact that a plasterer may now demand practically whatever wage he requires. A competent man finds no difficulty in making a clear £2 10s. a week.

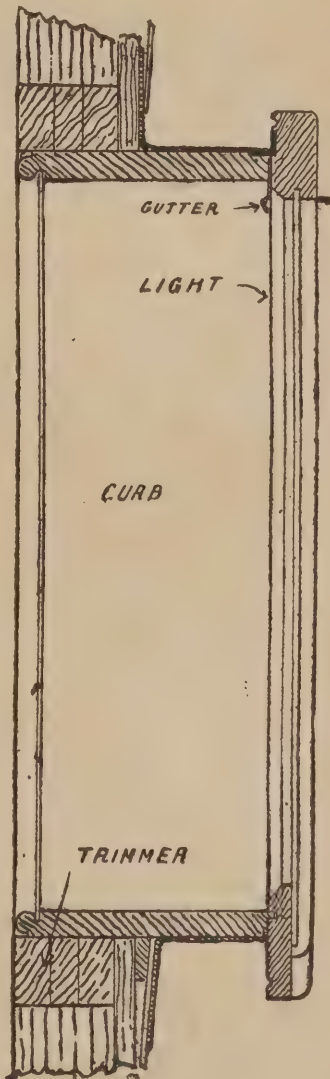


FIG. 158. SECTION OF SKYLIGHT AND FINISHINGS.

COMPLETE LIST OF CONTRACTS OPEN.

DATE OF DELIVERY.	WORK TO BE EXECUTED.	FOR WHOM.	FROM WHOM FORMS OF TENDER MAY BE OBTAINED.
Sept. 17	Barrowby—Reading-room	.....	Canon Welby, Barrowby Rectory, Grantham.
17	Dungarvan—Baths	.....	J. E. Dower, Dungarvan.
17	Evesham—Bridge	.....	H. S. Harvey, 10, Albert-road, Evesham.
17	Londonderry—Six Houses	.....	R. E. Buchanan, 33, Shipquay-street, Londonderry.
17	Pontlottyn—Fifty-five Houses	.....	Board School-house, Pontlottyn.
17	Tannaghmore—Reservoir, &c.	.....	Town Clerk, Henley-on-Thames.
17	Henley-on-Thames—New Town Hall	.....	H. H. Nankivell, Surveyor, Braintree.
17	Braintree—Hospital	.....
		Workhouse Guardians	
		Urban District Council	
		Building Club	
		Guardians	
		Corporation	
		Joint Hospital Board	

COMPLETE LIST OF CONTRACTS OPEN—continued.

DATE OF DELIVERY.	WORK TO BE EXECUTED.	FOR WHOM.	FROM WHOM FORMS OF TENDER MAY BE OBTAINED.
BUILDINGS—Continued.			
Sept. 17	London, E.C.—School Buildings	Central London School District...	Newman and Jacques, 2, Fenchurch-court, E.C.
" 19	Moston—Farm Residence		J. V. Edwards, County Hall, Wakefield.
" 19	Swansea—Board School...	School Board	G. E. T. Laurence, 181, Queen Victoria-street, E.C.
" 19	Wethersfield—School Alterations		F. Wendon, Ivanhoe House, Wethersfield.
" 19	Gloucester—Electricity Works	Corporation	H. A. Dancy, 26, Clarence-street, Gloucester.
" 19	Cwm—Classrooms, &c.	School Board	Rosser and Roberts, Abercarn.
" 19	Gildersome—Alterations to House		T. A. Buttery and S. B. Birds, Morley.
" 19	Raymarsh—Nine Houses	Kilnhurst Co-operative Society	J. Platts, Old Bank-buildings, Rotherham.
" 19	Rochford—Additions to Workhouse	Guardians	E. Wright, Whitgate-road, Southend-on-Sea.
" 19	Thornhill—Cart Shed, &c.	Urban District Council	S. W. Parker, Council Offices, Thornhill.
" 19	New Brighton—Public Conveniences	Urban District Council	W. H. Travers, Public Offices, Egremont.
" 20	Enfield—Schools	School Board	G. E. T. Laurence, 181, Queen Victoria-street, E.C.
" 20	Godalming—Cemetery Chapels, &c.	Burial Board	Welman and Street, Church-street, Godalming.
" 20	Caledon—Manse		Young and Mackenzie, 7, Donegal-square East, Belfast.
" 20	Liverpool—Alterations to Public Wash-house	Corporation	W. R. Court, Cornwallis-street Baths, Liverpool.
" 20	London, E.C.—Conveniences	Corporation	Town Clerk, Public Health Department, Guildhall.
" 20	Nantymoel—School Extensions	School Board	J. Rees, Pentre, Rhondda.
" 20	Salford—Repairing Work at Hospital		Borough Engineer, Town Hall, Salford.
" 21	Leek—School		W. Surden and Sons, Leek.
" 21	Plymouth—Alteration to Hospital		G. D. Bellamy, 6A, Courtney-street, Plymouth.
" 22	Blaydon-on-Tyne—Public Offices, &c.	Urban District Council	T. C. Nicholson, Blaydon-on-Tyne.
" 22	Boroughbury—Club Premises		A. W. Ruddle, Boroughbury, Peterborough.
" 22	Bradford—Warehouse, &c.	W. Parkinson	Fairbank and Wall, Craven Bank-chambers, Bradford.
" 23	Lewes—Asylum Buildings		H. Card, County Hall, Lewes.
" 26	Chepstow—Rebuilding Hotel	Councillor R. Hughes	Veall and Sant, Cardiff.
" 27	Swansea—School	School Board	A. W. Halden, Board Offices, Swansea.
" 30	Londonderry—Rebuilding Premises		E. J. Toye, Strand, Londonderry.
" 30	Port Talbot—Hotel		G. E. Robinson, Cardiff.
Oct. 3	Kew—Bridge	County Council	A. C. Brereton, 21, Delahay-street, Westminster.
" 3	Westbury-on-Seven—Workhouse Additions		W. F. Jones, 21, George-street, Gloucester.
" 12	London, W.—Laundry at Workhouse	Guardians	E. T. Hall, 57, Moorgate-street, E.C.
" 20	Cholsey—Asylum Additions		G. T. Hine, 35, Parliament-street, Westminster.
No date.	Banavie—Hotel		D. Cameron, Academy Buildings, Inverness.
"	Ashton-under-Lyne—Six Houses		T. D. Lindley, Ashton-under-Lyne.
"	Billingham—House		W. Burton, Billingham.
"	Castleford—Alterations to Premises		J. Schofield, 16, Lock-lane, Allerton Bywater, Castleford.
"	Dartford—Fifty Cottages		Greenhithe Brick & Land Co. Ltd., Southampton-row, W.C.
"	Ewell—Ten Villas		P. Field, 11, Victoria-street, S.W.
"	Hinckley—Hospital	Committee	J. Wigg, Berridge-street, Leicester.
"	Kidderminster—Additions to Carpet Manufactory		J. M. Gething, Oxford-chambers, Kidderminster.
"	London, N.—Two Houses		Messrs. Tasker, 38, John-street, Bedford-row, W.C.
"	Melton—Plastering Five Houses		F. Thompson, Albert-road, West Melton.
"	Oldbury—Schools		Wood and Kendrick, West Bromwich.
"	Sheffield—Five Houses		W. Saynor, 60, Charles-street, Sheffield.
"	Whitchurch—Villas	Richards and Walters	E. J. Jones, 104, St. Mary-street, Whitchurch.
ENGINEERING—			
Sept. 17	Glenties—Water Supply	Workhouse Guardians	Clerk, Board-room, Workhouse, Glenties.
" 17	Loughborough—Filter Bed	Corporation	Borough Engineer, Loughborough.
" 17	Tannaghmore—Reservoir, &c.	Guardians	County Surveyor, Downpatrick.
" 19	Wakefield—Water Tank	Rural District Council	F. Massie, Tetley House, Wakefield.
" 20	Barking—Steam Road Roller	Urban District Council	Surveyor's Department, Public Offices, Barking.
" 21	Easington—Water Supply Works	Rural District Council	D. Balfour & Sons, 3, St. Nicholas-bldgs., Newcastle-on-Tyne.
" 26	Beckenham—Ventilating Columns	Urban District Council	J. A. Angell, Beckenham.
" 27	Hastings—Two Wells	Corporation	P. H. Palmer, Town Hall, Hastings.
" 27	Hastings—Reservoirs	Corporation	P. H. Palmer, Town Hall, Hastings.
Oct. 5	York—Extension of Staihs	North-Eastern Railway Co.	C. A. Harrison, Central Station, Newcastle-on-Tyne.
" 17	Edinburgh—Gasholder Tank, &c.	Gas Commissioners	Gas Engineer, New-street, Edinburgh.
Nov. 10	Belem (Para, Brazil)—Water Supply	Government	Brazilian Consulate, England.
" 11	Southampton—Boilers, &c.		W. J. Taylor, The Castle, Winchester.
No date.	Ashton-under-Lyne—Sewage Disposal Works	Corporation	Borough Surveyor, Town Hall, Ashton-under-Lyne.
IRON AND STEEL—			
Sept. 21	Hull—Steel Roofs	Corporation	A. E. White, Town Hall, Hull.
ROADS—			
Sept. 17	Staines—Supply Granite	Urban District Council	E. J. Barrett, Town Hall, Staines.
" 17	Staines—Street Works	Urban District Council	E. J. Barrett, Town Hall, Staines.
" 17	Walton-on-the-Naze—Road Works	Urban District Council	Clerk of the Council, Walton-on-the-Naze.
" 19	London, N.—Road Works	Hornsey Urban District Council	E. J. Lovegrove, Southwood-lane, Highgate, N.
" 19	Wimbledon—Street Works	Urban District Council	Borough Surveyor, The Broadway, Wimbledon.
" 19	Amble—Supply Whinstone	Urban District Council	W. Gibson, Surveyor, Amble.
" 19	London, W.—Supply Thames Shingle	Paddington Vestry	Surveyor, Vestry Hall, Harrow-road, W.
" 20	Amble—Street Works	Urban District Council	W. Gibson, Surveyor, Amble.
" 20	Bucklow—Road Improvements	Rural District Council	J. Burgess, Tabley, Knutsford.
" 20	Dover—Supply Granite Spalls	Guardians	E. Carder, 17, Market-square, Dover.
" 20	Gosport—Supply Materials, &c.	Urban District Council	H. Frost, High-street, Gosport.
" 21	Ramsbottom—Supply Materials	Urban District Council	J. Halliwell, Council Offices, Ramsbottom.
" 21	Medlar-with-Wesham—Street Works	Rural District Council	G. Gregson, 102, Fishergate, Preston.
" 26	Beckenham—Widening Roads	Urban District Council	J. A. Angell, Surveyor, Beckenham.
Oct. 4	Bracknell—Street Works	Rural District Council	C. J. Cave, Bracknell, Berks.
No date.	Horsforth—Making and Metalling		J. W. Rathmell, Hill Top, Horsforth.
SANITARY—			
Sept. 17	Nottingham—Sewer	City Council	A. Brown, Guildhall, Nottingham.
" 19	Lytham—Sewer	Urban District Council	Messrs. Newton, 17, Cooper-street, Manchester.
" 21	Ramsbottom—Scavenging	Urban District Council	Inspector of Nuisances, Council Offices, Ramsbottom.
" 22	Hoyland—Sewers	Urban District Council	W. Farrington, Town Hall, Hoyland.
" 26	Milford—Sewers	Guardians	Workhouse, Milford.
" 26	Witney—Drainage Works	Rural District Council	N. Lailey, 16, Great George-street, Westminster, S.W.
No date.	Monkwash—Drainage Schemes		E. J. Williams, 14, High-street, Cardiff.
PAINTING AND PLUMBING—			
Sept. 19	London, S.E.—Painting Baths	Camberwell Vestry	Surveyor, Vestry Hall, Camberwell.

COMPETITIONS.

DATE DESIGNS TO BE SENT IN.	DESIGNS REQUIRED.	AMOUNT OF PREMIUM.	BY WHOM ADVERTISED.
Sept. 24	Plymouth—Shops, &c.	£250	Plymouth Town Council.
" 29	Wivenhoe—Water Supply and Drainage Schemes		Wivenhoe Urban District Council.
Oct. 3	Liverpool—New Buildings for Royal Institution	£52 10s., £21	Harold Waterhouse, Hon. Sec., 3, Cook-street, Liverpool.
" 3	Leamington—Free Library and Technical Institute	£105 (merged), £52 10s.	H. Cosnett Passman, Town Clerk, Leamington.
" 3	Rotherham—Extension Baptist Schoolroom (£600 limit)		A. Crowcroft, Clifton-crescent, South Rotherham.
" 6	Reigate—Municipal Buildings		Reigate Town Council.
" 28	Chertsey—Sewerage Schemes	£50, £30, £20	Chertsey Urban District Council.
Dec. 1	Aberavon—Extension of Market	£21	Aberavon Corporation.

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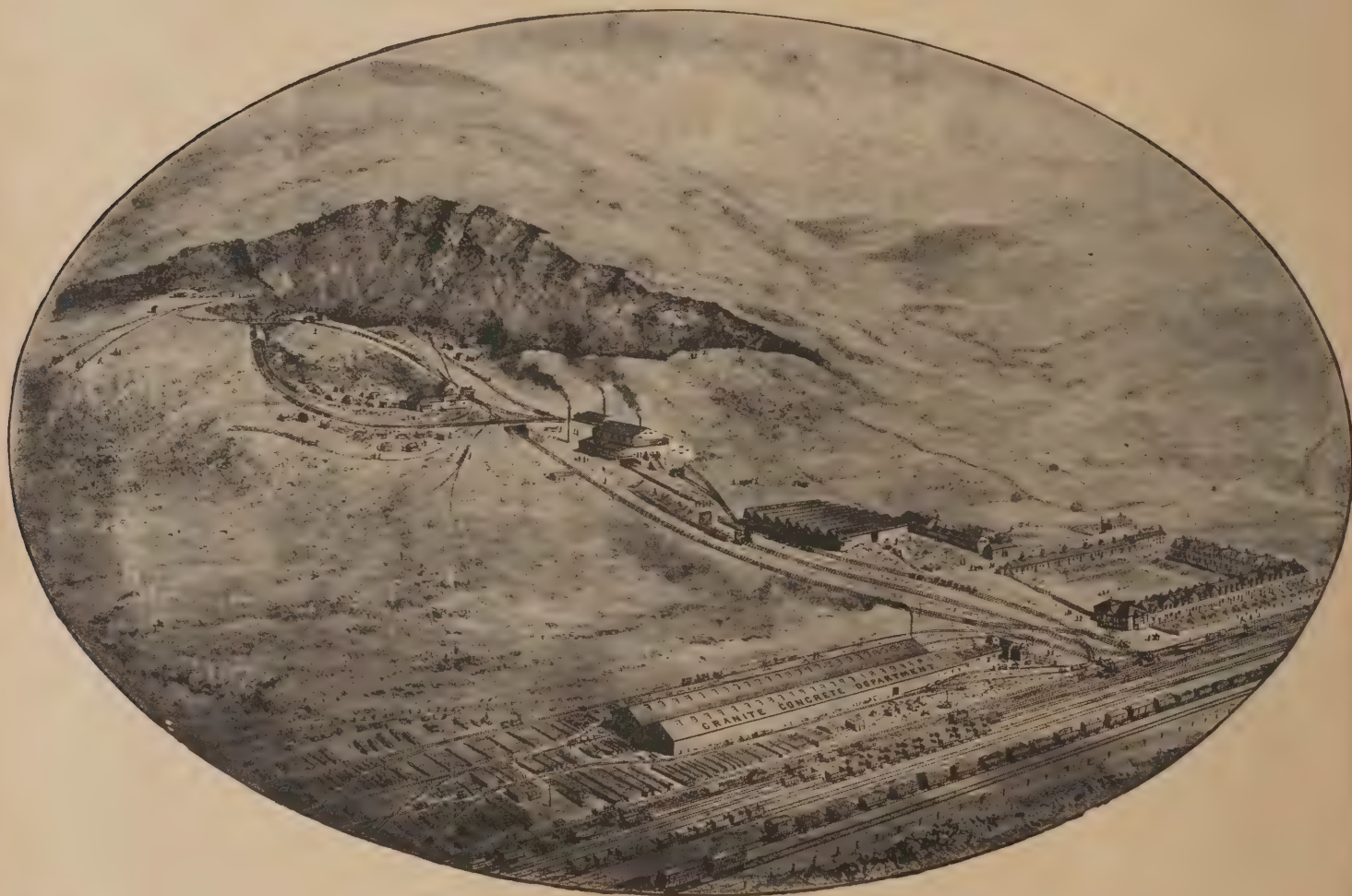
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Some Latter-Day Proclivities.

WITHOUT assuming to any special knowledge

upon the subject of fowls or chicken runs, it is yet with unwavering confidence that one pronounces it to be not the hen that cackles loudest which lays the most eggs. There are at least three plausible and seemingly sound reasons for believing this to be true. First, it will be manifest that the more enthusiasm a hen puts into the business of her cackling, the less attentiveness will the insect have to bestow upon the subject of her eggs. Second, the condition of insect which gives itself up to inordinate self-applause and demonstration of its own achievement, is by nature constitutionally unfitted for concentrated effort, and incapable of excelling in any serious occupation such as one imagines eggs to be. Third, the hen that spends her hours in strutting and crowing, in meditating and approving her great accomplishment in eggs, in analysing the nature and quality of her gifts and merits, and in estimating her importance as a furnisher of the breakfast table, the hairdresser's shop, and the political hustings, probably achieves no such end as she pictures; but is rather keeping worthy people awake in their beds, destroying the smiling peace of mind and self-satisfaction of the hen-loft which is so essential to the laying of eggs, and aiding and abetting the depredation of a colony of rats, who steal away the very subject of her congratulations in the moments of her shrillest elation. Everyone has been taught why it is that a hen lays eggs. It is reputed to be the ambition of the creature to lay bricks, but failing that, she has perforce to content herself with eggs merely. Between a hen, therefore, and an architect who *does* know how to lay bricks there exists an inherent comparison, but the analogy one would here particularly emphasise, lies in the matter of the cackling. The characteristic modern architect, the art worker, and indeed the whole brood of latter-day artists are cackling, prattling creatures like the hens; and, like the hens, this habit of prattle, self-analysis, and introspection, has dire results upon the fruits of their labours. The tone of Art in England is eminently self-conscious; it is almost entirely personal and egotistic. War, plague, revolution, any far-reaching national calamity, or, indeed, a sudden accretion of the country's supremacy or prosperity, would startle and spur these acolytes and hermits who hold and guard the Arts, into a living activity, and a

great epoch in the history of Art would blaze up in the self-forgetfulness, self-abnegation, and passionate enthusiasms or griefs such a day would witness. But, as things rest with us to-day, the typical practitioner is not concerned with the loves, hopes, fears, or ambitions of his country or his creed at all, but entirely with the phenomena of his own personal sensations. He remains secluded, and focussed upon himself, much as Carlyle describes of a certain epoch in philosophy; whose votaries studied their own navels in hopes of reading therein the mystery of Nature. The modern artist sucks his own paws. He lives in a den, and, for the most part, feeds his inspiration by turning over a collection of ancient bones that fed masters of the past, but now lie about him bare and polished by usage. The motive and origin, the artistic tendency and value of each of his creations, is gauged and estimated by him, and widely discussed and debated from the many standpoints of theory and practice, ethics and aesthetics, even before the work is an indubitable fact. Hardly any individual work—and everyone

now is nothing if not individual—is an instinctive effort at natural expression by the artist, but is rather the elaboration of a theory or a principle which has already been analysed, and its value and position in the field of Art already measured and estimated by its creator. As has been already said, the artistic instinct in this country is one of self-appreciation and analysis, manifested in the prattle and pedantic technicalities of the studio, and the jargon of the professional critic, which has surged over all bounds of fitness, and is now to be met with in the byeways of the popular magazines and newspapers. In no epoch of history has Art, as now, been typified in the person of a precocious imp capering about in every incongruous costume, and clamouring to be noticed. "It is the witness still of excellency, to put a strange face on his own perfection," and in Art the converse of this saying (spoken by Don Pedro in Shakespeare's play) is of equal wisdom; and true excellency implies self-forgetfulness in the artist, who must, above all things, be a stranger to his own perfections. B. C.

Ilminster Church



AN ARCHITECT'S HOLIDAY ON A BICYCLE. ILMINSTER CHURCH. SKETCHED BY R. W. SAMPSON.

The Wayfarer on Some Moorland Architecture.

MOORLAND Architecture, says the Wayfarer, has its own peculiar localisms, its own types and methods of building; lonely cottages, small villages, an occasional manor hall, and remains of the ancient folds, form the principal buildings that have found a place in the solitudes of the Lancashire Moors. The origin of the last-named dates from early and unsettled times, when the severity of the forest laws drove many people into the woods and caves for fear of falling into the hands of the authorities, and when they were disappointed of game and other provisions, they sallied out at night and took the nearest cattle they could find. This caused the farmers to combine for mutual protection, and settle on certain places for public folds. Around these folds they built their houses and farm buildings, so as to enclose them on every side with the exception of a large doorway for access and exit. These buildings all faced inward, and originally there were no back doors, so that when the cattle were shut in at night, and a good dog left to watch, the inhabitants of the house or fold considered themselves tolerably safe.* There still exist a few in almost their original state, and frequently remains are found upon the moors turned into farm buildings, new erections being attached to the old for the purpose of carrying on farm work. Ancient folds, moorland cottages, and manor halls of these districts have much the same character and feeling, the same grey sombre tone as typical of the moors, as of the structures that have grown thereon. Time and also the methods of building has brought about the close kinship existing between the moor and the homestead. Stone is the usual material for the outer shell of the buildings, the roof being covered with stone slabs. Large stones (sometimes a kind of granite) are used at the angles, and also for the door jambs, varying in size from 2ft. 6in. to 3ft. 6in. and even 4ft. in length, from 6in. to 9in. on bed, and from 8in. to 15in. in height. Colossal stones frequently span the door openings. The mullions of the windows are placed about a foot apart, the openings being filled in with small panes of clear glass in leads quite an inch in width. The gable copings are square on edge, and about their own thickness above the stone slabs of the roofs. Near the apex of the gables are generally small square stones with circular piercings, without chamfer or moulding. All the main portion of the walling is built of smooth face parpoints, several courses in the height of the angle stones. In some of the buildings these parpoints vary from 1½in. to 3in. in thickness, in others from 2½in. to 5in. and 6in. The wayfarer at this point drew out a small notebook, and with the somewhat irrelevant remark that Edwin Waugh knew the Moorlands, began to read. A deep lonely clough, green only on the lower grounds, and almost treeless, save where some cherished bit of shade overhangs the gables of a solitary farm, or where scanty patches of young plantation fringe the banks of the stream hidden from view. The clough is bounded on each side by wild hills sloping and swelling down in grand billowy sweeps and in some places falling away abruptly in steep bluff of barren crag. The only habitations visible are four or five farmhouses perched here and there, far apart upon the scene. The bleat of scattered sheep and the clucking cry of startled grouse came wildly from the lonely wastes. With an imbecile smile the Wayfarer began to pull out another notebook, but seeing it was a book on cookery and not Moorland Architecture we abruptly left him.

G. LL. M.

* See Manchester News, November 4th, 1882.

Science and Art Department.

THE ART LIBRARY CATALOGUE.

GENERAL SIR JOHN DONNELLY has written a long letter to *The Times* in vindication of the staff of the Art Library at South Kensington, who have been assailed with allegations of egregious blunders in the compilation of the library catalogue, which blunders have been spoken of "as the crowning instance of mismanagement at South Kensington." The condemnatory article in question appeared in *The Times*, and avowed that "the old catalogue was a scandal, as may be seen from the following extracts from the report:—H. C. Reneue is given in the catalogue as an author's name; it is really a misprint for the French word meaning 'revised.' Deel is also given as an author, the word being the Dutch for 'volume.' The title of a book on the *Marian Annals*, '*Mariani Fasti*,' is transformed into an author's name, *Fasti* being made the surname and *Mariani* the Christian name." Thus maligned, the Staff of the Library, writes Sir John Donnelly, "have represented to the Lords of the Committee of Council on Education that this conveys an unmerited censure on them—I may add also on the late Mr. Soden Smith, who died in 1880, and was Mr. Weale's predecessor as keeper of the Art Library—and they have asked that the facts of the case may be made public in their vindication. I am, therefore, authorised to state that these mistakes do not occur in

THE INVENTORY CATALOGUE OF THE ART LIBRARY,

that is to say, in the catalogue of the library prepared by its staff from the works themselves when put into the library. They occur in the '*Universal Catalogue of Books on Art*,' which was commenced in 1865 and published—avowedly as 'first proofs under revision'—in two volumes in 1875. It was 'compiled for the use of the National Art Library and the Schools of Art in the United Kingdom' from all kinds of English and foreign catalogues and bibliographies by a special staff, distinct from the staff of the library, working under the advice of a very strong committee of English and foreign experts. The catalogue was, as stated in the minute of the Lords of the Committee of Council of October 12, 1865, to 'include not only the books in the library, but all books printed and published at the date of the issue of the catalogue that would be required to make the library perfect; that is, to compile

A UNIVERSAL RECORD

of printed Art books which are known to exist up to that period, wherever they may happen to be at the time; . . . any reader in the Art Library in the museum would thus find a clue not only to the works he was looking for in the actual collections of the library, but to other works. . . . which had been ascertained to form part of other libraries, whether public or not, either in our own or in any foreign country, a reference being at the same time given, in the case of rare books, to the library in which they may be found.' For the use of readers in the library there is, therefore, besides the inventory catalogue—to which I have already referred—of all the books in it, also another reading room catalogue, containing, in addition to the entries from the library catalogue of the books in the library the titles of books out from the *Universal Art Catalogue* of books outside this library. The DIFFICULTIES ATTENDING THE COMPILATION of such a work as the *Universal Art Catalogue* are obvious, and the probability of its containing mistakes—a certain number of which occur, as is well known, in the most carefully prepared catalogues of libraries 'in being'—is rendered far greater, especially in the first proofs, by the difficulty of avoiding the incorporation of mistakes in the excerpts from other catalogues of which it is made up. Of this nature are the mistakes given in the report of the Committee of the House of Commons. '*Deel*,' as may be seen from the entry in the *Universal Art Catalogue*, is taken from the 1864 edition of the '*Catalogue of the Library of the Royal Academy*

of Arts, London.' '*Reneue*' is also only in the *Universal Art Catalogue*; whence it came has not been traced. But another edition of the work to which the entry refers was properly catalogued in the *Art Library Catalogue* in 1865. '*Fasti Mariani*' was also properly treated in the old *Art Library Catalogue* as an anonymous work. The mistake is in the *Universal Art Catalogue*. There seems, I may say, some inherent danger in dealing with this book. The book, which the committee say is 'on the *Marian Annals*,' is in reality a Roman Catholic almanac of *Saints' Days* and *Holy Days*, with short notices and engravings edited by the '*Congregatio Mariana*,' of Munich. A leading daily London paper says:—" '*Mariani Fasti* ' as a proper name is imposing, and to a compiler who did not know Latin or had never read Ovid the suspicion that it was a record of events in Queen Mary's reign might not occur." I trust, Sir, when I add that the mistaken entries '*Deel*' and '*Reneue*' had been struck out in Mr. Soden Smith's time in the copy of the *Universal Art Catalogue* in the librarian's room it has been made clear that, whatever mismanagement there may be, the Staff of the Library—not one of whom was in any way connected with this piece of somewhat ancient history, the *Universal Art Catalogue*—are in no way

RESPONSIBLE FOR THE ALLEGED 'SCANDAL.'

With regard to the statement in the report that there is 'at present no junior in the library who knows German,' I have to state that of the present Staff of the Library, consisting of one keeper, two assistant keepers, and three junior assistants, one of whom was appointed just before the committee reported, all but one, a junior assistant, have a knowledge of German. As this letter is written at the request of, and in justice to, the library staff, it deals only with that portion of your article which directly affected them. I am to add that the more serious matter—the alleged dismissal of Mr. Weale, also referred to in that article—will no doubt be dealt with by the responsible Ministers in Parliament."

MR. SPIELMANN IN REPLY

Following Sir John Donnelly's defence, Mr. M. H. Spielmann winds up for the prosecution. He welcomes the exoneration of the present Art Library staff, and proceeds:—"Beyond this point Sir John Donnelly is much less convincing. His laboured apology for the copious mistakes in the catalogue of the Art Library amounts to this—that 'a very strong committee of English and foreign experts' was formed under the auspices of South Kensington to draw up a catalogue of all the printed Art books in existence, and that the result of the labours of this very strong committee was the rich crop of ridiculous mistakes from which the report has quoted, and with which you have entertained not literary and artistic circles only, but the world at large. Sir John Donnelly pleads that these amazing mistakes were merely absorbed from the grotesque entries and ignorant blunders of other librarians. Is this an excuse that will stand? Was it then only for

THE BLIND COPYING OF ABSURDITIES

that a 'very strong committee of experts' was brought together by South Kensington? Most men, I think, will agree that for the mere adoption of other men's errors, ordinary copyists would have done very well. But this, it should be observed, is the traditional method at South Kensington. Then, when Mr. Julian Marshall, the compiler of the '*Catalogue of National Engraved Portraits*' (which the House of Commons' Committee has recommended for suppression) had perpetrated in it the numerous mistakes of a very laughable description, to some of which you drew public attention, he sent in defence to the Vice-President (see appendix to the first volume of the evidence) to the effect that these mistakes, or some of them, were copied from previous books and catalogues. It does not appear to be understood at South Kensington that when 'experts' are employed it is popularly expected that original work will be given, not the unsuspecting incorporation of the mistakes of ill-informed pseudo-experts who have gone before."



An Architect's Holiday

PART II.*

THEN there is the Burford Priory, and, oh, what sadness comes over one as you look on that which is now, simply through neglect, a mouldering ruin, but what was once a stately mansion, the home of Lenthal, the Speaker of the Long Parliament, and many a noble owner before and since.

The house appears to have been a Tudor building originally, and to have been added to in the days of the Renaissance. The chapel was once a beautiful bit of work in the later Renaissance style, and a considerable portion of it may now be made out, but it is dangerous to go inside, and in a few more years the whole place will become, no doubt, a hopeless ruin.

There are lots of other things to see in this old-world town, and not the least interesting of them is the front of a cottage, which I have sketched, situated round a bye lane, shut up and deserted, and, doubtless, like its great neighbour, the Priory, doomed at no distant date to destruction at the hands of Time and his great helper, Neglect. One can only imagine that it must have been the humble home of a plasterer, who, for the love of it and his craft, scratched that simple and beautiful design, with the date, 1688, on the front.

Now, if you are ready, we will make a move on the next stage of our journey to Cirencester, a distance of about eighteen miles, over the worst bit of road we shall have on the journey. Bibury will be the only village of any consequence we shall pass through, and a very pretty little place it is, too, with the houses all on one side of the road and a river on the

other side, with a pleasant wall to sit upon or lounge upon as you like; with openings here and there, and steps for getting water from the stream. Just above the bridge, in the grounds of the inn, is a wonderful spring, which comes up in a beautiful, shady pool, with a volume of something like 6000 gallons an hour, which apparently never varies, and has never been known to freeze.

The church at the other end of the village is quaint and of an unusual plan. The road from here gradually improves in surface, and, as we near Cirencester, widens out into quite a fine highway, to narrow again somewhat as we enter the town only to expand again into a fine open market-place, with a really grand old church at the other end. With its fine perpendicular tower and two story south porch, the church asserts itself at once, and dominates the whole place, so that you cannot get away from it. There are old houses and other things here, but the church is above all the thing, and, inside and out, there is an air of opulence and good taste, things which are not always near relatives; they speak of the prosperity of Cirencester both in the present and the past.

This being market-day, the streets are rather too busy for the sketcher, and even the interior of the church is not so quiet as you would like it, for there is a boisterous party of young ladies, with one young man making a great noise and to-do over the rubbing of brasses. Then it came over dark and commenced to rain, so that one was compelled to abandon sketching. When the rain has ceased we move on again, feeling disappointed at not having done anything in a place that promised so well.

Now we wind our way over pleasant roads into the county of Wilts and the charming old town of Malmesbury, another dear old place of the Burford type, full of interest with its Norman abbey, its tower and its cross, to say nothing of its picturesque inns and houses.

What a place this grand old abbey must have been when William of Malmesbury lived and wrote here, and up to the time when the Butcher King dismantled and allowed it to be turned into a cloth factory. The market-cross, too, is a lovely bit of work, with a family likeness to the cross at Salisbury. If you feel inclined to eschew detail just for a change, and to prevent your hand from getting cramped, come down by the river which runs all round the base of the hill on which the town is built, and there, with the sunset glow behind the town, you have a picture worthy of your best endeavours.

Cross the river and up the hill and about ten miles of fair going will bring us into Chippenham, a town I think which need not detain us long; it has a nice balustrade to the bridge over which you enter, and a condensed milk factory which you pass as you leave.

An up-and-down road with a good surface over which we are, for once, tempted to scorch. We feel a bit done, but a refresher and a change at the Castle Hotel and we are fit to have another look round at the old familiar place, and pass our critical judgment on Brydon's extension of the Town Offices, and admit that on the whole we think it very successful.

We don't propose to sketch anything here, because it's been done so many times before, and we have back numbers full of it; but the "Castle" is a comfortable resting-place. The attack which we shall now have to make on the Mendip Hills will be better accomplished after a good breakfast in the early morning.

Crossing the river we leave the city by the road to the right; the left-hand road is the

way to Shepton Mallet, and a very bad road it is, hilly and uninteresting, whereas the right road, on which we are bound for Wells, runs through the most charming country imaginable, hilly, of course, but with lovely views at every turn. Chewton Mendip is reached in due course, and we begin to get a taste of true Somerset in the church tower, with its shafts and pinnacles—a beautiful bit, though very similar to some others we shall see further on. Sketch it by all means, it makes a pretty picture, crowning the village as it does, and backed by that dark belt of trees.

Wells must be our resting-place this night, for there is a deal to do in Wells, with its church, its bishop's moated palace and the rest, and if I confine myself to one sketch of the western towers, seen from the police station—you need not. The cloisters and the crypt and the High Street are all things worthy of your attention, and if you think of staying the night, there are numerous hotels to select from. I can recommend the "Swan," if you want to do the thing in style, and perhaps get some entertainment from the American and Colonial visitors, for this is a neighbourhood which attracts them.

A pleasant run of about six miles brings us to Glastonbury, with its famous ruined abbey, a grand and picturesque place, which, somehow, doesn't appeal to me—it seems so theatrical—as if it was built for a ruin; and as the A.A. have been here, and the pictures of it are legion, I will not add to them. The church, too, is fine, but would be much improved inside by the addition of a few painted windows. The Tudor front of the George Hotel is massive and worth study; I don't remember seeing anything quite like it before in hotel fronts.

From Glastonbury to Ilchester is a run through delightful country of about twelve miles, with charming "bits" for the pencil or brush at every turn. A thing that strikes you as you travel this country is the comparative plainness of the churches, built of Bath stone, to those erected with Ham Hill stone. Why it should be so I cannot think. One would have expected the contrary to be the case, seeing that the former stone is so much more workable.

Somerton, about half way between Glastonbury and Ilchester, is a jolly old place, with a quaint market cross and a hotel sign, which I should imagine to be unique. The Red Lion is the hostelry to which it belongs, and it takes Doric form and pedestal, with a sort of table on the top, which supports the most outrageously comical animal, of the "Leo shag baggy stuffies" order. What it is made of I do not know; but I do know that it is stuffed with straw, which is in evidence at various points, and that it has at some distant date been painted red. Somerton seemed to me a particularly dull town, but you are bound to laugh when you see that lion; and, by the way, another amusing feature I came across, which may or may not be characteristic, was the town crier and his assistant, the former a man of large proportions, with the usual bell, which he rang with vigour, while the assistant, a small boy of about ten summers, did the crying. It may be, of course, that town crying, as practised in Somerton, is an art requiring an apprenticeship, or that the crier had a bad cold. I do not know, but it seemed to accord well with the general lazy look of the place.

A massive but not otherwise very interesting church, a fine bridge, and one or two good

* This article is continued from page 84.



OLD TOLL HOUSE ON THE ILMINSTER ROAD.

stone-built houses of the early Renaissance period, are the principal features of Ilchester, and we may spend an hour or two here with pleasure and profit. Roger Bacon was born here, I believe, and it looks as if the place had been resting on its laurels ever since, though, doubtless, in the old days, when all the mills were going on the rivers Bruce and Parret which water this district, Ilchester was an important place. Whether the mill we shall pass as we near our journey's end at Ilminster (for it is hardly worth your while going on to Honiton unless you propose going further west to Exeter, for the road gets rather bad, and punctures are probabilities,) may be taken as a sample of what used to exist all along these rivers I cannot say, but if so they must have been some of the finest in the kingdom. This one burnt, alas, some years ago and never rebuilt is now a very fine ruin, and must have been a very fine mill indeed, built of stone entirely with gables and mullioned windows, and fed by at least a 20-horse power stream. The river, the pond, and all around and about this old place is delightful, but if you want to paint it or sketch it satisfactorily you must make up your mind to stay some hours at least; there is so much detail.

A very little place with a very big name is Whitelackington. Here we breathe the air of hygone days—metaphorically, of course—when even barns were considered worthy of thought, and taste was displayed in their erection; and the simple wooden gate, with its stone steps and brick piers, whereon we think we see a maiden, such as Marcus Stone has familiarized us with, and the smithy and the lodge yonder, all these we must carry away with us on the leaves of our sketch book, for each is a picture in itself and one well worth remembering.

Another mile and we are in Ilminster, where our journey ends.

A BLOCK of bathrooms and other accessories have been added to the workhouse infirmary at Ludlow. Mr. John Weale was the builder.

THE foundation stone of a new church in memory of Mr. Gladstone has been laid at Shotton, within the Hawarden Parish. The Gladstone family have contributed £1000 towards its endowment.

A CIRCULAR has been addressed by the Guardians of the St. Giles and St. George's Union to the various local authorities in London, urging united opposition to any expenditure of public money by the London County Council for the establishment, experimentally or otherwise, of a municipal opera house.

The Transformation of Holborn.

DR. JOHNSON'S remark, "Sir, let us take a walk down Fleet Street," is so hackneyed that it would be dangerous to repeat it but for the reflection that it would have been equally appropriate if applied to almost any other London street. For in this wonderful City of ours it is difficult to turn over a brick anywhere without stirring up history. Few things, says the Daily Telegraph, are more delightful to the man who knows his history than to saunter along one of its thoroughfares, letting his fancy rove at will, piercing the mists of remote times, and summoning for his pleasure the shades of those that in their day have played many parts. "Sirs, let us take

A WALK ALONG HOLBORN."

We will not trouble ourselves about the Holbourne, the Hollebourne, or Old Bourne, which some say did, and others did not, run a rapid course down the hill to the old River of Wells, afterwards degraded to the Fleet Ditch, and at length ingloriously buried as a public nuisance; and we will leave Celts and Romans, Saxon thanes and Danish vikings, Norman knights and English churls, all to their hard-earned rest. Let us dwell on the after times when our busy forefathers filled the place with story. How the old order changeth! It does not seem so very long ago—little more than a hundred years—when the bell of St. Sepulchre's tolled as some daredevil of the highway took the road for the last time, and received his nosegay at the church steps, with the father of "Scratching Fanny," the Cock Lane ghost, looking on, amid the yelling, cheering, cursing, and weeping of the mob; escorted thus, the cart lumbered up "The Heavy Hill" to the great gate of St. Giles's Hospital, where the sorry hero of the hour drank his last bowl of ale, and so on to "The Three-legged Mare" at Tyburn. In those days the Old Bell Inn, which was razed to the ground but yesterday, was a flourishing concern. Standing in

ITS OLD GALLERIED COURTYARD,

crazy and unsafe-looking, but delightful with its flavour of old time, it was easy to imagine the cheery tootle of the horn, the bustle and badinage, the fussing and fuming, the hurry and hallooing that accompanied the arrival or departure of the coach. The little statuette of Napoleon looked down on such a scene daily as the Bucks coach started, long after the advent of railroads. Now all is gone, and with it the last of the typical old coaching inns left to us in London. Great alterations are going forward in the near neighbourhood of the "Old Bell." Quaint old houses are coming down, very imposing ones are going up. Over the

way, about a half of the "Black Swan" Distillery has disappeared, and a new building, in all the glory of red brick and stone, has already taken its place.

HOLBORN WITHOUT FURNIVAL'S INN

is almost as difficult to conceive as St. Paul's Churchyard without the Cathedral, or Palace Yard without the Houses of Parliament. An inn of some sort has stood here since before the time of Richard II.—that is to say, for nearly six centuries—when Sir William Furnival, knight, had in Holborn two messuages and thirteen shops. Years after, when the male line of the Furnivals had died out, their heiress brought all this property as dowry to John Lord Talbot, who was created Earl of Shrewsbury by Henry VI. The original Furnival's Inn, the inn or town mansion of the Furnivals, seems to have been already leased to the Benchers of Lincoln's Inn for "a college for the gentlemen students or practisers of the law of Chancery," and thus it continued till early in the reign of Edward VI., when the then Earl sold it to the Benchers for the not very extravagant sum of £120. It ceased to be an inn of Chancery in 1818. At that time it was described as being "the most dirty and desolate of all the inns." Some of it—the hall and adjacent buildings—was as old as the Tudor times, but the front—"an uncommonly fine specimen of brickwork"—was the work of Inigo Jones. Messrs. Peto demolished the whole, and built that unbeautiful set of chambers—with a statue of Peto the Great in the quadrangle—which for the last week or two has been trying to look as much

LIKE A ROMAN RUIN

as possible. Next east to the Prudential Assurance offices stood, till the other day, Ridler's Hotel, once a famous old coaching house, the Bell and Crown Inn. Its courtyard, whence coaches for Dover, Stamford, and Banbury started, as well as the mails for Southampton and Louth, was built over long ago. Across the road, in very close proximity to the quaintest piece of domestic Architecture now left in London, we see the new Birkbeck buildings towering up, and driving out some old houses on the west side of Staple Inn and on the south side of Holborn, which, though nothing in themselves, occupy a site which has associations carrying us right back to the days when yet the Norman ruled in the land. For here was the first London church of the Knights Templars. They left it to fall to ruins when they took up their new abode between Fleet Street and the Thames in 1184. These ruins remained above ground for centuries, till the year 1595 in fact, and relics of them will probably be found in the course of excavation. Adjoining the Templars' Church was the Inn of the Bishops of Lincoln, built as early as 1147 by the then Bishop, and used by his successors till the time of Richard III. Later it was known as Southampton House, having become the property of the Earls of Southampton. Thus Southampton Buildings, built partly on its site in 1657, gets its name, while Southampton Row and Street perpetuate the new Southampton House, in what is now Bloomsbury Square.

A MURAL monument, costing £1400, is to be placed in St. Giles's Cathedral, Edinburgh, the birthplace of Louis Stevenson, in his honour. There is to be a medallion portrait of the famous novelist.

THE foundation stone of the new Union Chapel, Deanshanger, has been laid. Mr. J. Coker, of Wolverton, prepared plans for the new chapel, and the tender of Mr. A. P. Hawtin, of Northampton, was accepted.

IN the midst of the Hampton Park Estate, Swaythling, just outside the boundary of the Borough of Southampton and in the parish of South Stoneham, there has just been erected a new voluntary school. It accommodates 150 infants in an assembly hall and classroom, and has been built of red brickwork, with wood block floors. Mr. H. J. Weston, of Southampton, was the architect, and Messrs. Dyer and Sons, of Bevors Hill, in the same town, were the contractors.

LIBRARY
OF THE
UNIVERSITY OF ILLINOIS



AN ARCHITECT'S HOLIDAY ON A BICYCLE. WELLS: GATEWAY TO THE BISHOP'S PALACE AND WESTERN
TOWERS OF THE CATHEDRAL. FROM A DRAWING BY R. W. SAMPSON.

POOR END LODGE
TORTWORTH D.D.D.D.
W.D. CARÖE ARCHT



LIBRARY
OF THE
UNIVERSITY OF MICHIGAN

RUINING THE RAMPARTS.

EXTENSIVE BARRACK BUILDING AT PLYMOUTH.

FOR a long time past the builder has been at work within those frowning ramparts which surround the barracks at Plymouth, and, indeed, upon the ramparts themselves—for on the eastern side huge gaps have been made in those massive walls, which were erected after the Restoration to terrify the people of Plymouth into subjection—and Plymouth Citadel as it has existed for centuries past will soon have

NOTHING BUT ITS ENTRANCE GATES

and its written history to tell of its former glory. The barracks proper are gradually being torn down, and new and more commodious buildings erected on the sites. One new block, comprising the officers' quarters, has already been practically completed. On the site of an old magazine which overlooked Plymouth Sound a three-storied building has been put up, plain, but substantial and imposing in appearance. It is constructed of local limestone, and this with Portland dressing needs little artificial embellishment. The accommodation is up-to-date. Though this is the only new building which is complete, other

WORKS OF AN EXTENSIVE CHARACTER

are being carried on under Mr. H. Kerswill, contractor, and Mr. Saunders, acting on behalf of the war authorities, as clerk of the works. The officers' old quarters, together with most of the eastern rampart wall, have been demolished, and accommodation for 250 single men, together with a very large recreation block, are being built. The material found in

the solid old rampart wall is being re-used for the interior of the new structure, and the facings are in character with those of the officers' block. The main building, which is to include reading, billiards, coffee, and recreation rooms, has a frontage to the west of something like 350ft., and a depth of 26ft., and projecting from each end of this extensive structure, at right angles with it, will be barrack rooms. These will be sixteen in number, and 44ft. by 21ft. each in size. The main building, as well as the projections, will contain two stories, and immediately in front of the central entrance will stand the statue of George II., now temporarily encased in a wooden frame. Though rapid progress has been made with the work, it will not be finished for some months to come. Other extensive improvements are contemplated. In fact, sooner or later nearly all the old buildings will be superseded by those of more modern design, and if future work is carried out on the same architectural principles as those already in hand, the Citadel barracks will, in a few years time, be amongst the best in the country. Though further portions of the ramparts will have to be demolished in order to make room for much-needed improvements, it is satisfactory to learn that those facing the eastern end of the Hoe, and which give such an old-world aspect to the locality, are not likely to be disturbed.

THE Curfew Tower bells at Windsor Castle, which are rung upon the birthdays of the Queen and Royal family, and have been silent for a time, owing to the fall of the big tenor and the discovery of a crack in the fifth bell, were successfully pealed last week for the first time since their rearrangement.

GREAT ART WORKERS OF THE CENTURIES.

SIR CHRISTOPHER WREN : ARCHITECT.

ARCHITECTURE may perhaps fairly claim to be the noblest, as it was certainly the first, of human arts. Every era of the world's history has left us examples, many of them stupendous or magnificent, of the builders' skill. That marvellous early race which inhabited the Nile Valley from the period of shadowy myths and fables, have left the enormous pyramids and colossal temples. Modern research has brought to light the architectural remains of another race as ancient, and has disinterred from the desert sands more or less of those earliest cities founded on the Chaldean plains by Nimrod, that "mighty hunter before the Lord." Classic Greece has bequeathed to us the remains of edifices of ideal beauty in the ruins of the Parthenon and other fair temples; and Rome, albeit less delicately refined, has left more glorious structures, and to her architects is due, if not the invention, at any rate the first practicable construction of domes. All through the Middle Ages lovely Gothic edifices

"ROSE LIKE AN EXHALATION"

throughout Europe, and finally the Revival period gave the world the great artist of whom I am about to treat. Sir Christopher Wren, only son of Dr. Christopher Wren, was born at East Knoyle, in Wiltshire, in October, 1632. In consequence of his delicate health, his early education was given him at home by a private tutor. Subsequently he passed on to Westminster School, then under the head master-



AN ARCHITECT'S HOLIDAY ON A BICYCLE. OLD HOUSES AT BANBURY. SKETCHED BY E. W. SAMPSON.

MONUMENT IN BURFORD CH.



ship of Dr. Busby. As is well known, he early showed a special genius for mathematics, and on that account he was placed before long under the care of Dr. William Holden, a learned man of considerable and diverse talents. The early bend of Wren's mind took a practical form in the invention of numbers of machines and instruments for the purposes of astronomy, agriculture, and many other sciences. Indeed, there seems to have been no subject of any kind occupying the attention of scientific men of his time in which Wren was not listened to with attention, or in which he did not distinguish himself. He made a special study of gnomonics, or the science of dialling, at that time a most important subject of investigation, and developed the subject in many directions. Among other things he made a wonderful set of models showing the actions of the muscles of the human body, for Dr. Scarborough, which were, unfortunately, destroyed in the Great Fire. His mind was most versatile and comprehensive, and his inventions and treatises embraced all conceivable subjects, from "Improved Methods of Whale Fishing" to "Sham Marble Pavements," including "Cheap Bed Hangings," and, as a matter of course, "Perpetual Motion." He also made some valuable suggestions for the establishment and conduct of a kind of meteorological office for collecting statistics of natural phenomena, with a view to the amelioration thereby of the condition of mankind. It is held by some that Wren invented the barometer, but this seems a little doubtful. He made many

IMPORTANT DEVELOPMENTS

of the idea, however. In the year 1646, at the age of fourteen, Wren was admitted at Wadham College, Oxford, as a gentleman commoner. In 1650, when he was eighteen years of age, he received the degree of B.A. at Wadham College, in 1653, that of M.A., and was elected in the same year to a Fellowship of All Souls. In 1657 he became Professor of Astronomy at Gresham College, London, and in 1660 Savilian Professor at Oxford. He received his degree of Doctor of Civil Law at Oxford in 1661, and in 1680 he was elected President of the Royal Society. This society took its origin in some informal meetings of a few friends interested in similar subjects, amongst whom Wren soon took a foremost position. When the suggestion was made to organise a society of a definite nature, and for a settled purpose, Wren took up the idea with great vigour, and drafted the charter under which the society was established. It would appear that Wren's first architectural work was the building of a chapel at Pembroke Hall, Cambridge, for his

Uncle, Bishop Wren, of Ely. The Bishop had been imprisoned for eighteen years in the Tower for High Church practices, and on his liberation he erected this building as a thank-offering. The first stone was laid May 13th, 1663, Wren being then thirty-one years of age. The building has been restored by Scott, who added 20ft. to its length. Apparently the same year (1663) Wren's name was put upon the list of the Commissioners for the repair of St. Paul's Cathedral. Various schemes and arrangements were discussed in connection therewith, but nothing particular was done until the beginning of the year 1666—the year of the Great Fire—when Wren drew up a report and sketched out his ideas for a restoration. The plan was to Romanize the nave, the Norman arches of which seemed to him to lend themselves easily to this treatment, and to build an immense domed rotunda at the crossing, cutting off the outside angles for this purpose. The plans and estimates for this work were ordered on August 27th, 1666, but six days later the Great Fire brought the labours of this commission to a close, by destroying the object of their consideration. It was in the preceding year (Midsummer, 1665) that Wren made a journey abroad, about the only time, it is believed, that he left England. The country he visited was France, and he spent most of his time in Paris, where

THE GREAT PALACE OF THE LOUVRE

was recently commenced. He was much struck with Bernini's design, and indeed stated that he would have given his skin to possess it. The cautious old Italian, however, only allowed him a rapid inspection of the drawings, and would not permit him to copy them. Wren visited most of the palaces and villas of any importance in France, although the influence of French work is not very apparent in his own designs. He never, however, went to Italy. Wren returned from France some months before the Plague ended, and applied himself, with other members of the Royal Society, to a careful study of the disease and its remedies with a view to exterminating the enemy. The Great Fire, however, accomplished this for them in a far more summary and complete manner than they ever dreamt of, and Wren's thoughts were turned at once in quite a new direction. The King set him to work immediately on the Cathedral, which was to be demolished and rebuilt. The first design produced, after much preliminary discussion and planning, was a church on a thoroughly classical model, consisting of little more than a great dome with surrounding aisle and entrances. Wren was so pleased with this production that he made a large model of it for the benefit of the uninitiated. A controversy naturally started at once upon the merits of this plan, and waxed exceeding fierce. Many of the members of the Chapter preferred to have a building on a more orthodox plan, after the fashion of their existing Gothic cathedrals. The opinion of these worthies finally outweighed that of their colleagues, and the architect set to work again on new lines, and produced a design more curious than beautiful, combining central spire and dome in one composition. The King discovered this design to be "very essential, proper, and useful," and gave his Royal assent to it, and ordered the building to be proceeded with forthwith. The Royal assent is dated May 1, 1675. Fortunately, the King gave Wren the liberty "in the production of his work to make some variations, rather ornamental than essential, as from time to time he should see proper," a permission which he interpreted in the most liberal manner possible, for the Cathedral, when completed, was no more like this design than its predecessor.

THE PULLING DOWN THE OLD WORK,

preparatory to rebuilding, was a long and difficult job. The mighty tower of the old Cathedral, 200ft. high, and with piers 14ft. in thickness, seemed such a formidable object to demolish that Wren resorted to the expedient of blowing away one of the piers with gunpowder, a process that was at once simple and effectual. To those who meditate operations of this sort, it will be interesting to learn that only 18lb. of gunpowder were necessary for the

carrying out of such an undertaking. Another explosion indulged in in Wren's absence having been attended with disastrous consequences, the remainder of the building was gently battered down with an enormous battering ram, "after a good Roman manner." On exploring the soil for foundations, Wren found that the old church had stood on a layer of hard and close pot earth, about 6ft. thick. Under this was loose, dry sand, which poured out like a fluid when excavated into, and below this again, at low-water mark, water and sand, mixed with shells; while under this was a hard, firm beach, with the solid London clay below it. It appeared that the site had once been part of a wide estuary, along which, when dry, the wind had driven the sand, and made the hill on which the Cathedral stands, the pot earth being simply the finest of the sand, which had naturally found its way to the top. At the north-east angle of the choir the pot earth had all been taken out and used by the potters of old time, and so here Wren had to run down a 10ft. pier to the hard beach 40ft. below, and from this he turned an arch which carries this corner of the building. Very little information is given in the "Parentalia" respecting the erection of the Cathedral, but fortunately we have the building before us, just as Wren left it to examine for ourselves. A fault often found with the exterior is the carrying up of the aisle walls far above the roof to hide the buttresses which support the nave vault. This was, however, the result of a choice of evils, and it has been managed so skilfully that a critic must be very hard-hearted who lays much stress upon it. As for the question of the double dome—the exterior being so much higher than the interior—this is no worse than the use of a tall spire as the roof for a low tower. No power on earth could devise a dome—unless an isolated one—that should look well both inside and out without resorting to some such expedient. The chief faults found with the interior are, in the

BREAKING OF THE ARCHES

into the frieze of the main entablature, and in starting the arches of the vaulting from an attic order instead of directly off the cornice. With regard to the first of these objections it is a misfortune and an unnecessary one. The effect of the frieze broken up into shorts bits over the pilasters only is most uncomfortable and unsatisfactory. Wren defended this arrangement himself with more or less ingenuity, but he would have done better by making frieze and architrave run boldly along over everything. It is obvious, at first sight, that Wren was a product of the Renaissance. The same reaction against Gothic Architecture, and in favour of revived Classic forms, which had taken place in Italy reached the shores of Great Britain later on. Inigo Jones, a man of mark during the reign of the first James, was doubtless the first English architect who was distinctly affiliated to the Renaissance, being, as he was, a student of the Italian Palladio. Much of Jones's work was in brick—as, for instance, the so-called Holbein Gateway—and has passed away. The Banqueting House, Whitehall (now used as a Museum for the Royal United Service Institution), is the only adequate example of Jones's ability which we have, and it must be owned that it is an excessively fine one, and well worthy of the immortal predecessor's of Wren. Sir Christopher's work as an architect was, from peculiar circumstances, mainly of an ecclesiastical character. The glorious Gothic minster dedicated to the patron saint of London—St. Paul—and a great number of City churches had vanished before that fearful deluge of flame which rolled unchecked over the metropolis from east to west. All these had to be re-edified as the city arose from her ashes, and Wren was appealed to for designs. Hence he was the architect of most of the City churches of any antiquity.

W. N. B.

A new wing has been added to the South Devon and Cornwall Blind Institution. The wing, which is built in harmony with the rest of the building, is faced on the exterior with Plymouth limestone and Ham Hill stone dressings. Mr. H. J. Snell was the architect.

FOUNTAIN'S ABBEY.

THE members of the Yorkshire Archæological Society visited Fountain's Abbey last week. Fountain's Abbey, as is well known, originated in a small body of Benedictine monks from St. Mary's Abbey, York, who desired to obey the rule of St. Benedict more strictly than it was practised there. Being compelled to leave their own abbey through the opposition of their brethren, they were received by Archbishop Thurstan, who bestowed upon them, in 1132, the site of the Abbey of Fountains. The first buildings were mere huts, but the advent of the Dean of York, and of two of the canons, who joined the little community, enabled permanent structures in stone to be begun, probably in 1135. The buildings were laid out on the normal Cistercian plan, and it is not unlikely that they were begun under the direction of Geoffrey, a monk of Clairvaux, who came over to Fountains to teach the brethren the Cistercian rules. Mr. St. John Hope pointed out that the Cistercian order differed from other orders of monks in the division of its communities into monks, who were residents, for the choir services, and the gentlemen who were called in the statues the "conversi," the working brothers, who were not bound to attend

all the services, and who were responsible for the outdoor work on the farms, &c. In all the Cistercian abbeys, especially those founded in the twelfth century, the whole of the buildings were broken up into two great sections, one for the accommodation of each of those sets of men. This fact explained a good deal in the arrangement of the buildings, which otherwise was not understandable. Another interesting fact about the church was that it was quite evident from existing remains that the whole of those early arrangements, or divisions, were entirely swept away at the beginning of the sixteenth century. It all belonged to a rather remarkable story that had still to be properly unravelled, and which pointed to the original division of the monastery that had been departed from. As a matter of fact, he had not been able to find any trace of the existence of those "conversi" after the date of the Black Death in 1349 in this country, though they still continued to exist abroad. Attention was called to the admirable work by which portions of the building had been erected over the River Skell by means of piers and arches. In the case of the infirmary, the whole establishment had been built upon a raised platform carried by four parallel tunnels, through which the river runs. The works of Abbot John of York (1203-1211), Abbot John of Kent (1220-1247), Abbot John Darnton (1479-1494), and Marmaduke Huby (1494-1526) were dealt with.



THE BRIDGE, ILCHESTER. FROM A COLOURED DRAWING BY R. W. SAMPSON.

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Written by Owen W. Davis.

The September Number can be obtained at all Bookstalls and Newsagents.

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EFFINGHAM HOUSE,
Arundel Street, Strand,
London, W.C.

The Yorkshire Foresters' Orphanage and Convalescent Home.

THESE drawings illustrate the selected design for the building to be erected on the site acquired by the Yorkshire Foresters at Bridlington for their orphanage and convalescent home.

The plan is symmetrically arranged and adapted for sub-division of the sexes, and general supervision by the matron; also for abundance of light and air throughout.

The kitchen department is placed entirely in the back addition, and cut off by folding doors from the main block.

A staircase is provided at front and back of building, easily accessible in case of panic.

Lavatories, w.c.'s, and bathrooms (with hot and cold water laid on), are placed in suitable positions, and will have fittings of the most approved type.

The funds at disposal not permitting, at present, for a general dining hall, this has been partially provided for in the future by carrying a portion of the upper floor (where space was absolutely requisite) on piers and arches, thus enabling a complete room to be obtained at a small additional outlay.

The ventilation has been carefully considered, fresh air inlets being provided, and exhaust ventilators on roofs and in chimney-breasts of each room.

The walls externally are to be faced with Lincolnshire red bricks, and have brown Whitby stone dressings.

The corridors, &c. of the ground floor are to be laid with tiles, and the rooms with wood blocks; roofs to be boarded and felted under slates. The internal joinery is to be mainly of pitch pine, varnished.

The author of the design, which was selected in open competition, is Mr. Robt. J. Beale, A.R.I.B.A., of 9, Victoria Street, Westminster, and he has received instructions to obtain tenders for the erection at an early date.

THE plans have just been accepted for a new church at High Park, Southport, to replace the Ebenezer Independent Church.

At Middlesbrough the Archbishop of York has dedicated the former Prince of Wales's Theatre in the town as a mission chapel. Some time ago the music-hall was bought for £3500. One thousand pounds was expended on the alterations, and £150 in furnishing.

SOME process of dismantlement of the interior of St. John's Church and St. George's Church, Liverpool, fabrics which are now in the hands of the Corporation, is now going on, but no sign is as yet apparent of Corporation intentions concerning the structures themselves. There is a conflict of opinion touching the fate of St. George's. Shall it be left standing and utilised for public purposes, or shall it be razed and an open space created?



THE YORKSHIRE FORESTERS' ORPHANAGE AND CONVALESCENT HOME, BRIDLINGTON:
FRONT ELEVATION. R. J. BEALE, A.R.I.B.A., ARCHITECT.

NEW POLICE STATION AT HUDDERSFIELD.

THE new Central Police-station and offices, which have been erected at Huddersfield, at a cost of £12,000, were opened last week. The old police-station was out of date, as the following lines, inscribed on a rough slab at the rear of the station, indicate: "This house and prison, erected Anno Domini, 1831, at an expense of £ —, viz., by loan from Sir John Ramsden, Bart., of £300, and a public subscription of £ —. Joseph Beaumont, Constable." In those days, apparently, the erection of a police-station was assisted by voluntary subscriptions from the public, although the amount collected from the Huddersfield public of 1831 is discreetly left blank on the inscription. Judging from the general meagreness and unhappy character of the building, the public subscription was not remarkably large, and the result was that as the force grew in numbers the accommodation became terribly cramped. A removal will now be made to more capacious and handsome quarters. The site of the new station is prominent, and, what is of great importance, convenient. Its chief frontage is to Peel Street, along which runs one side of the Town Hall. The Fire Station is immediately adjoining, and the Borough Court-house is connected with the station by a subway. There is about the new station none of the structural grandeur that characterises the Town Hall, and which seems to overwhelm its new neighbour. The offices are two stories in height. The designs were prepared by Mr. Dugdale, the late borough surveyor. It is after the English Masons' style, and among the important buildings at Huddersfield it is of altogether a distinct type. The carving is not elaborate, but the main front entry is noticeable. The work was commenced in October of 1896, so that the

station has taken practically two years to complete. Probably it would have left the contractors' hands ere this but for a long interruption caused by a strike among the masons. For a greater part of the time the work has been overlooked by the new borough surveyor, Mr. K. F. Campbell, M.I.C.E. The main entrance from Peel Street leads into a central hall, conducting to the various departments. On the lower ground floor there are six women's cells, mortuary, post-mortem room, parade room, living rooms for caretaker, search office, store and photographing rooms, charge office, documents store room, and stolen property room. From this department is the subway into the court-house at the Town Hall, which must be found convenient for conducting prisoners. On the floor above are nine cells for men, detention solicitors' room, chief clerk's office, inquiry office, superintendent's office, chief constable's private office and retiring room, the chief detective's and detectives' offices, warrant office, muster day-room, all fitted with modern lavatory arrangements. At the rear of the building is a billiard room for the men. On the top floor over the yard is a large parade room over 80ft. in length, and access is given from this to the parade ground. Mr. Alf. Schofield, of Huddersfield, has had charge of the masonry work since the foundation stone was laid, and the joinery has been in the hands of Mr. Henry Holland, of Huddersfield. The plumbing work has been done by Mr. Thos. Armitage, plastering by Mr. W. E. Jowett, slating by Mr. T. B. Tunnacliffe, ironwork by Messrs. Dorman, Long, and Co., and F. Milan and Co.; carving by Messrs. Thewlis and Co., of Leeds; concreting by Mr. John Cook, of Huddersfield; painting by Mr. W. P. Holroyd, of Huddersfield; the furnishings by Messrs. Hobson and Son, of Huddersfield; and the electric lighting by Messrs. Read, Holliday, and Co.



THE YORKSHIRE FORESTERS' ORPHANAGE AND CONVALESCENT HOME, BRIDLINGTON.
R. J. BEALE, A.R.I.B.A., ARCHITECT.

Bricks and Mortar.

EFFINGHAM HOUSE, ARUNDEL STREET,

September 21st, 1898.

"I know what it is to live in a cottage with a deal floor and roof, and a hearth of mica slats; and I know it to be in many respects healthier and happier than living between a Turkey carpet and a gilded ceiling, beside a steel grate and a polished fender. I do not say that such things have not their place and propriety; but I say this, emphatically, that the tenth part of the expense which is sacrificed in domestic vanities, if not absolutely and meaninglessly lost in domestic discomforts and incumbrances, would, if collectively offered and wisely employed, build a marble church for every town in England; such a church as it should be a joy and a blessing ever to pass near in our daily ways and walks, as it would bring the light into the eyes to see from afar, lifting its fair height above the purple crowd of humble roofs."—JOHN RUSKIN.

POPE LEO XIII. has designed his own tomb. The plans for this elaborate piece of work were finished by His Holiness only a few weeks ago, and are now in the hands of the Vatican architect. The Pope has expressed the wish that after his death his remains shall be placed in the tomb which he has now designed in the Church of St. John Lateran, at Rome. The Pope has selected the exact spot in the Church of St. John Lateran where this tomb is to be erected. Above the door of the vault is to be a recumbent figure of the Pope in marble. The entire arch is to be constructed of the finest marbles, and the door will be of the heaviest bronze. Those who have seen the designs which the Pope has approved say that they show great taste and much architectural skill.

THE Post Office authorities are carrying into effect a large scheme which has been approved for efficiently coping with the increasing work in the metropolis. The east block of the General Post Office is to be pulled down except the eastern walls, and a new structure will be erected in its place. A new wing is also to be added to the City offices in Mount Pleasant. A block of commercial premises contiguous to St. Martin's-le-Grand has been purchased by the department. This is to be demolished, and on the site a handsome and commodious building is to be erected for the use of the large staff of telegraph clerks as dining and cloak rooms. The cost of the scheme will be about £200,000. The department also intends to build a new post and telegraph office in the East Strand when a proper site can be secured, as the present office, which is not able to meet the demands of the time, will shortly have to be given up, when the lease expires.

FAR from becoming obsolete, windmills are springing up afresh in various parts of the country, and are being found of very great value for maintaining a water supply in out-of-the-way places. Lord Spencer has several at work on his Northamptonshire estate, and by their agency two villages are supplied with water. Of course a windmill will only work when there is a wind blowing, but it is surprising how constantly there is blowing a wind sufficient to keep it in operation. It is found that a mill can be kept at work on an average for 1432 hours a day throughout the year. It works slowly but persistently.

VERY few of the cosy and picturesque old taverns that once dotted the London suburbs are now left, and the few that remain are probably all doomed to early demolition.

Times change—very rapidly nowadays; old manners go, and taverns, like other things, must be brought up to date, or they do not pay—at least, not so well as they might do. The situation of the Greyhound might have saved it a few years longer; No. 1, Kensington Square, really the south end of Young Street, is so placed that it presents one of those remarkable contrasts so often found in London—an oasis of quiet in the midst of babel.

KENSINGTON HIGH STREET is very much alive and very wide awake. Kensington Square is always much more than half asleep. As for Young Street, very few Londoners, even in Kensington, have ever heard of it. It is just the place, above all others, for a quiet, eminently respectable, well mellowed, red-brick old tavern like the Greyhound to be found in; and now comes the news that it is to be rebuilt on a more ambitious scale. Just over the way, at No. 16, lived Thackeray, and in this double-fronted, bow-windowed house he wrote "Vanity Fair." Macaulay is said to have been a visitor here, and, in earlier times, Pope, when staying at Holland House. The Greyhound is said to be about 350 years old, but we may knock off about 160 years of this without doing any great damage to probability. It presents all the features of those plain, substantial, roomy, and comfortable domestic buildings, free from all architectural affectation, which began to rise up in the latter part of the seventeenth century, and continued to be built, with very little departure from the early type, until nearly the end of the following century.

THAT Glover's Island should be preserved for the public, at least to the extent that it shall not be disfigured by any hideous building or hoarding, must be the ardent wish of everyone who has enjoyed the superb view from the Terrace at Richmond. The mere suggestion of its profanation, it might have been thought, would have brought forward the public open-handed with subscriptions for its rescue; but as we have already noted, an appeal for £4000 has met with a response to the extent of £50 only. From this it must not be assumed that the people of Richmond are careless of the beauties of their town and its surroundings. Their objection is the very natural and proper one that £4000 is a preposterous price to pay for a property which was purchased in 1872 for £70, and is now rated at £18 a year.

It is not as though this were the only spot in the neighbourhood of London in need of rescue. Appeals for money, either by grants from public funds or in the way of public subscription, for the purpose of preserving the natural beauties and open spaces of Greater London are, the Globe observes, becoming more frequent year by year, and the tendency is for prices to go up. As a rule, the public are prepared to make considerable sacrifices rather than allow of the encroachments of the builder upon these spots, and this in itself does not make for cheapness. With regard to the threats usually held out in these cases that a scene of great beauty will be made hideous with hoardings, a very simple remedy might be found in suiting bye-laws to the occasion. With respect to ordinary buildings, such a device might be more difficult of application; but in any case it is time to consider how far it is wise to encourage future excessive demands by refraining from a rigid economy in the cases before us.

THE anticipations of the importance of the great Rembrandt Exhibition at Amsterdam seem to have been fully realised. A wonderful display of the work of the master, drawn from nearly all the chief European collections, has been arranged, and something which adequately represents the achievement of his busy life is now available. As many as 123 of his pictures and 200 of his drawings are hung in the Town Museum, and with them are shown the 400 photogravures, the property of M. Sedelmeyer, which were prepared for Dr. Bode's authoritative book on Rembrandt. Every stage of his development is illustrated, but the show is strongest in the productions of his later period,

when his superb technical powers reached their fullest maturity, and his position as one of the greatest masters in the world of Art became unassailable.

ABOUT a third of the collection, forty pictures and a large number of the drawings, have been lent by British owners. The Queen contributes "The Lady with the Fan" and "Rembrandt and Saskia;" the Duke of Westminster five pictures, and the Dukes of Devonshire, Buccleuch, and Portland, six between them. Some characteristic, but comparatively unknown, canvases come from Russia and Poland; and from the public galleries of Holland and Germany much of the utmost importance has been selected. Even the famous "Night Watch" and "The Syndics" have been removed from their permanent resting place to add to the glories of this exhibition. America alone is unrepresented, but as the examples of the master that have found their way there are, with few exceptions, not his finest works, there is in this fact less cause for regret than might have been expected.

THE Birmingham Art Gallery has opened with a show of some of the French pictures that made the exhibition at the Guildhall so attractive last season. Alexandre Dumas used to say that an author became a classic when he was translated into another language, and a painter becomes almost an old master when he lives to see his work famous outside his own country. Some of these pictures are already old masters—such as Meissonier's "Friedland," Benjamin Constant's "Pastime of the Kalifa," and Jules Breton's "First Communion," and, above all, Gerome's "Death of Marshal Ney."

It is these classical masters of the modern French school that will make the finest show at Birmingham, but amongst the forty pictures that have been selected for exhibition there are also works of the Barbizon painters, landscapes of Corot and Daubigny, the Harpignies canvas that was rejected by the Royal Academy last year, one or two works of Courbet, interesting rather than excellent, a portrait by Bastien Le Page, and small canvases of Isabey and Delaroche. This catholicity of Art appreciation, wisely shown by our own Guildhall Committee, finds its echo in Birmingham, and cannot but do good. It was the exhibition of a few Barbizon pictures not many years ago at Glasgow that gave rise to the new Scotch school which has exercised so large an influence on English modern Art.

THE erection of a Naval College at Dartmouth for the training of cadets has been in contemplation for a long time. Several years have elapsed since Mr. Goschen announced in the House of Commons that the cadet training-ship Britannia would be abolished, and would be succeeded by a college on shore. It was not at first announced that the college would be at Dartmouth, and for a long time there was a "battle of sites." Residents on the East Coast and people interested in Portsmouth claimed that their particular localities could furnish the best site for a college. But the Government kept their eyes on Dartmouth. The situation of the Britannia there had always been a success, and had afforded the cadets that large amount of freedom which would be impossible near a more populous place. After the Government had decided on Dartmouth as the site for the college, other difficulties arose, this time connected with the purchase of the necessary land. The owners refused to sell, and eventually, after the First Lord of the Admiralty had been over the site, proceedings were taken in the High Court, and the purchase of a portion of the Raleigh Estate was definitely concluded.

THE Admiralty had at this time prepared plans for a college, but they were abandoned, and Mr. Aston Webb was commissioned to prepare plans. These have been completed, and have received the approval of the Admiralty. The perspective view shows a handsome pile of buildings. The buildings will extend in one straight line. There will be an

imposing central block, with clock tower, and wings on either side, the range of buildings terminating at both ends in smaller towers. There will be three floors. In front there will be a terrace, the portion in front of the central block resting on ornamental arches. The grounds in front are to be laid out with great care and taste. The hospital is to be on a very elaborate plan. This building will be erected first. Altogether the plans show a very solid, fine block of buildings, without any very great expenditure upon ornamentation. An early start will be made with the work. Already Mr. H. C. Goss is building a caretaker's lodge, and next week Mr. Milner will commence laying out the grounds. It is expected that the building of the college will occupy about four years.

A RUMOUR comes from Paris that a serious disaster has occurred at the Bibliothèque Nationale. A splendid collection of rare etchings and prints is housed there, and many of the finest examples are shown framed under glass. It has just been discovered that serious injury has been caused to these by the heat of the sun to which they are exposed, and by the gathering of moisture inside the glass; and an attempt to remedy the mischief has led to the destruction of many unique treasures. For the future the finest things, whether engravings, drawings, or manuscripts, will not be hung on the walls, but be carefully protected in portfolios.

THE Church of St. Katherine Coleman, Fenchurch Street, E.C., possesses many old associations which cannot fail to prove interesting to all lovers of the history of the old City. The church has recently been under repair, and a great improvement has been effected in the interior of the sacred edifice. Stained glass windows will shortly replace the present plain ones, the designs having already been prepared by Mr. Soames. The work, which is estimated to cost about £120, has been entrusted to Messrs. Turnbull and Son, 4, Northumberland Alley. The year of the foundation of the original church remains uncertain, but the first record of the appointment of a rector dates as far back as 1346. It was dedicated to St. Katherine of Alexandria, a beautiful virgin, descended from the son of the Roman Emperor Constantius and the daughter of the King of Cyprus. She suffered martyrdom for the Christian faith, and was beheaded by command of the Emperor Maximian about the year 310. The name Coleman was added on account of its standing near a great garden belonging to one Coleman. This garden was at one time part of the grounds attached to the Priory of Holy Trinity. The old building escaped the Great Fire of London, but was pulled down in 1734, and was shortly afterwards rebuilt at a cost of about £3500. The older monuments—one bearing date 1553, and another 1577—are situated in the porch under the tower; the most elaborate is to the memory of Lady Heigham, who died in 1634.

MR. EDWIN DREW writes to The Times from 37, Caversham Road, N.W., September 12th: "A recent visit to Shakespeare's house and Ann Hathaway's cottage has convinced me of two dangers in connection therewith. I was informed officially in Shakespeare's birth room that the hot-water pipes in winter are so affecting the plaster that it peels off, and owing to this the signatures of Tennyson and Dickens have disappeared. Among the mass of names on walls and ceiling are many which add an interest even to the overwhelming halo of Shakespearian memories, and these great names are a record in themselves. Yet they must disappear without further protection. Could not the walls and ceiling be encased in glass to preserve the names and stop the peeling? At the Hathaway cottage—a thatched home with much woodwork—I found a good coal fire burning, and near was dry wood, only too inflammable. A spark would set the place alight, and it would be in ashes in a few minutes. I saw no adequate means to check fire. As the cottage belongs to us all, should not its protection concern us? I do not think

any fire should be allowed in it, and the excellent inmates should live in a house near. I am not interfering, but speaking in the universal sense."

A FRENCH scientist has recently discovered an inexpensive, and therefore highly remunerative, way of permanently fixing spectral colours. The objects upon which the colours are fastened are thin sheets of waterproof paper, polished glass plates, or thin boards, which are placed in a dish and covered with water. On the bottom of the dish there are a number of very small openings governed by a stop-cock, enabling the operator to let off the water slowly and evenly. After the water has settled in the dish a few drops are added of a solution of asphalt, bitumen, or a similar material, which is separated from the water in an insoluble shape by the action of air and light. When the essence has covered the surface of the water it forms a very thin film, and vibrations of the air produced by whistling across the surface of the film are transferred upon the thin film, bringing forth a series of colour combinations, each of which corresponds to a given sound. After a short time the medium wherein the bitumen has been dissolved evaporates, and as the first small wrinkles appear in the film the stop-cock is opened and the water is allowed to flow off slowly. The film sinks evenly upon the surface which is to be coloured. Finally the sheet of paper or glass is dried, and the result is the appearance of wonderfully beautiful iridescent colouring on the surface.

At a recent meeting of the City Council of Wells, Somerset, tenders for the building of a new Town Hall and post-office were opened. There were six tenders, the highest being £10,696, and the lowest £9192 10s. The architect's estimate was £4850, so that the prices read out caused very great surprise. None of the tenders were adopted, and the whole question was referred to a special meeting of the General Purposes Committee.

It is nearly a year since Mr. Hughes, of Dublin, a very talented young Irish sculptor, finished a beautiful statue of Charles Kickham, the well-known Irish novelist and Fenian convict. A site was obtained for it in the town of Tipperary, and it was duly sent to the spot, but, as a correspondent to a local paper complains, was relegated to the obscurity of an outhouse, where it still remains. This is not creditable to Tipperary, or to Ireland, and the committee should bestir themselves.

MR. A. G. MUNRO, of Porthleven, writes:—"We have already an excellent association for the preservation of ancient and historical buildings, but who shall prevent for us the erection of unsuitable dwellings on ancient and classic spots? Some time since I was much struck with a brand new building of the latter type overlooking Abbotsford on the other side of the Tweed. Poor Professor Blackie is happily spared the pain of beholding a glaring white object, conspicuous over all Mounts Bay, on the rocks towering above his much-beloved Mullion Cove. This is the up-to-date substitute for 'the good old house and the good old inn, that's kept by Mary Munday,' of the Professor's popular Cornish poem. But what words are adequate to deal with the latest venture near the site of Arthur's Castle, in North Cornwall, where a modern up-to-date hotel, fitted with electricity, all the latest contrivances, &c., and modelled after the original design of Arthur's habitation is promised us? If this kind of thing is tolerated, Cornwall will soon lose that strange charm of far-offness and old-world romance which has so greatly fascinated until now."

MISFORTUNE seems to follow the building of the new offices of the Public Health Department in Basinghall Street. As a building it will ever remain an architectural contortion, and therefore a structural eyesore. The best has, however, been made of a very bad job. The new offices are but shadows of what they were originally intended to be, and they will

not be habitable until late in the autumn. A new difficulty has now arisen, namely, the flooding of the lower portion of the building. No one knows exactly where the water comes from. The process of pumping it out has been in operation for several days, and it may be difficult to keep the place clear of water. If this is so a very serious question arises, as the foundations are likely to suffer. Under any circumstances, the whole history of the undertaking has been one of disappointment and needless expense.

THE School of Art Wood Carving, by migrating to the Imperial Institute, points the way in which the usefulness of that rather unfortunate building might be made apparent. In the ranges of rooms which are not needed for any of the purposes for which the Institute is supposed to exist, space could be found for many more classes of the same type; and in time the place might well develop into a great technical college and workshop, and play a part of much value in modern practical education. It is well situated in the immediate neighbourhood of the museum; and it would have the advantage of being easy of access for students from all parts.

NEXT year's excursionists may find, alas! that there is one Kentish paradise the less to gratify their artistic and Bohemian tastes. Visitors to Tunbridge Wells from all parts of England need not be told that the famous woodland retreat of Southborough Common is one of the most lovely picnic centres in southern England. For picturesque position and surroundings the common is hard to beat. Situate four miles from Tunbridge Wells, just off the old coach road, leading from West Kent to London, and replete with all the sheltered variations of rare forest scenery, not only English artists but many foreign visitors have found it most enchanting, and have gone away to circulate the story of its charms. A fine old fane nestles in the depths of the glade on the north-west side of the village, which has virtually in recent years become a suburb of Tunbridge Wells. But the eye of the spoiler is fixed with hungry gaze on this playground of the people. The local burial board impatiently waits to turn it over to the gravedigger and make it a place of graves. Public opposition has been already aroused, and medical men, town councillors from Tunbridge Wells, the Social Democrats, the tender Fabians, and even the pro-parsonic organist of the place, are for once unitedly boiling over with wrath at the proposed woodland spoliation, and it is hoped that this popular wrath may not be too easily exhausted.

FOUR of the six sculptured panels which are intended to carry on the allegorical story begun a few years ago by Mr. Stirling-Lee, have been fixed in the noble eastern front of St. George's Hall, Liverpool, and the other two will be in position shortly. The hint may be given that the lettered inscriptions which have been cut into the wall beneath the earlier panels should be brought into higher relief. At present these cannot be read, and so the story of the sculpture is lost to the general public.

THE Vicar of Sledmore writes:—"Sir Tatton Sykes, having spent some thousands of pounds in church building, maintains that he has a right to make what changes or alterations he thinks fit. To effect this purpose here he has had keys made to the various doors of the church, and having before the consecration removed a large rood and the screens from the side altars, has since sent persons into the church and further taken away a cross, candlesticks, several altar cloths, and a quantity of seats, with a view, as he says, to simplicity, he having completely changed his ideas on churches since the work was finished. One reason for stripping a side altar is that the slab is such a fine specimen of fossils. The church is almost entirely bare, and has an unfinished and desolate appearance."

LONDON's latest mammoth hotel, the Carlton, is now approaching the last stage of con-

struction. The external work is all completed, and little more remains to be done but to decorate and furnish the interior. Stripped of the scaffolding which has hitherto obscured its magnificent proportions, the façade now stands out finely as the spectator approaches it from Trafalgar Square. The style is of the florid Italian order, but it is not inappropriate to the situation at the foot of the Haymarket, which is one of the most conspicuous thoroughfares in London. Like the adjoining Her Majesty's Theatre, with which architecturally it has much in common, it is built entirely of white stone.

PUBLICITY was given a short time ago to a circular appeal issued by a committee of parishioners and friends of St. John de Sepulchre, Norwich, for funds to restore the church tower, which is badly in need of repair. As stated therein, a sum of about £1000 is required to effectually carry out the necessary work. The preservation of this relic of Norfolk antiquity will, it is thought, appeal to the sympathies of all East Anglians; but it is utterly impossible to raise the necessary funds in the parish, which is situated in one of the poorest districts of the city. The committee, therefore, earnestly solicit the support of the aristocracy of the neighbourhood, as well as that of the public at large, in completing the repairs.

THE friends of the Rev. Thomas Spurgeon have devised a novel scheme for bringing in money for paying for the new Tabernacle, Newington Butts. It being the birthday of the pastor, the members of the congregation gave Mr. Spurgeon a financial birthday present, to go towards the sum necessary for the rebuilding of the Tabernacle founded by his father. Mr. Spurgeon received the birthday presents himself. As most people are aware, the bottom portion of the ruined Tabernacle is being rapidly put to rights, so that services may be held while the other building operations are carried on. In a few Sundays this portion of the Tabernacle will be complete and ready for use.

LONDON statues are invariably very deplorable objects of Art, and are generally so thickly coated with grime or soot that any little ornamentation they may receive in the shape of a wreath of flowers is not to be despised. The statue of James II. at Whitehall is nearly as unlovely as was that monarch himself, and this fact so painfully impressed itself on the remnant of intelligence left among the members of the Legitimist Society that they resolved to club their pocket money together and purchase a crown of white lilies wherewith to adorn the sombre effigy on the anniversary of the king's death. Permission to place the flowers on the statue had been refused by the First Commissioner of Works, but, undaunted by this adverse attitude, the full membership of the Jacobite Society went at ten o'clock at night to Whitehall and deposited the wreath at the monarch's feet.

"FEW people know, for it is not written in their Baedekers, what treasures are contained in St. Benedict's Abbey, at Rheinan, within a walk of Neuhausen," writes a correspondent on the Rhine. "After crossing the Rhine by a quaint covered wooden bridge, one finds oneself in the old-world village, where babies of two and three welcome one by shaking hands, and saying 'grüss,' as is the pretty custom here. Hardly, even at Rome, have I seen more curious and interesting things than I did at the Abbey, or so many and such gorgeously embroidered vestments. One magnificent set was presented by Marie Antoinette, who rested here on her way to France as a bride; but that is, perhaps, the most modern. Then there are fearsome skeletons of old saints from the Roman Catacombs, clad in cloth-of-gold and coats of mail, with jewels for eyes; while the carving of the stalls and of the figures above them is very remarkable. The riches are endless, and few ever see them except lunatics, or the monastery adjoining is now a huge asylum for mad people."

KEYSTONES.

THE Corporation of Gloucester has appointed Messrs. Walker and Son as architects for the free public library, which is to be built at a cost of £6000.

THE new tower of the college at Bala has just been completed. The work was carried out by Mr. John Thomas, of Dolgelley, from the plans of Mr. Richard Davies, of Bangor.

NEW board schools are being erected at Horton, Stockton-on-Tees, and special consideration is being given to the ventilation, which will be carried out on the Boyle system.

NEW carved oak choir stalls are being constructed for the parish church of Heavitree by Messrs. Harry Hems and Sons, of Exeter, from the designs of Mr. E. H. Harbottle, F.R.I.B.A., Exeter.

OVER forty sites have been offered to the St. Olave's Guardians for the erection of cottage homes to accommodate the 700 children thrown on their hands by the dissolution of the Sutton schools.

A MEMORIAL turret quarter-clock with four large external dials has been given to the parish church, Normanton, Yorks. The clock has all the latest improvements inserted by Lord Grimthorpe.

A NEW central Hebrew synagogue, in Templar Street, Leeds, was consecrated recently. The cost of the building is about £4000. The premises include a synagogue with accommodation for 750 persons, and a schoolroom to accommodate 250.

THE foundation stones of the new Meersbrook Park Congregational Chapel, Sheffield, have been laid. The Architecture is Renaissance. Messrs. Hemsoll and Paterson, of Norfolk Row, are the architects, and the contract price is £3100.

PLANS of a Young Men's Institute, which is to be erected at Crossstone, at a cost of nearly £4000, have been passed. Mr. Alex. Cullen, F.S.A., is the architect, and the plans show a building, with gymnasium, lecture-hall, and reading and other recreation rooms.

THE workmen of Messrs. Marshall, contractors, of Rotherhithe, have commenced the destruction of an historical block, opposite Lambeth Palace, known for many years as Bunyan's Place, and in old times as the Archbishop of Canterbury's court, for the purposes of improving the southern approach to Lambeth Bridge, which, by virtue of a resolution of the County Council, will not long hence share a similar fate to the now "closed-up" bridge at Vauxhall.

MR. J. C. STEVENS conducted last week, at King Street, Covent Garden, his monthly sale of curiosities, etc., including a curious native club from China, long-handled axe, and carved wand of office—£5; a bronze mask representing a King of Benin—£10 10s.; a similar lot, larger, and of unusually fine workmanship—21 guineas; an antique matchlock gun, inlaid with gold, a fine specimen of early Indian work—£3 3s.; a coral armband taken off the arm of the King of Benin when captured—£3 5s.; and a Maratha Peishwa's State shield, richly decorated, from the collection of the late Admiral Seymour—£3.

FOUNDATION stones were laid on the 8th inst. at the new Sunday school which is to be built at Forde, near Saltash, and also of the enlargement to the Wesleyan Chapel attached, which is also to be re-seated and renovated at the estimated cost of £1312. Mr. Edgar M. Leest, of Saltash and Devonport, is the architect, and Messrs. Taylor and Mutton, of Jessamine Cottages, Saltash, the contractors for the work.

NEW county schools have been opened at Llangollen. Mr. H. Teather, architect, of Cardiff, has prepared the plans, and the contractor has been Mr. W. H. Thomas, Oswestry. Provision is made for 120 scholars. There is a large assembly hall, which may be extended so as to include two classrooms, which are shut off by folding-doors. Two other classrooms, a science lecture room, laboratory, cookery room, lecture room, and workshop complete the accommodation. Total cost of the land has been £1270, of the building £1040.

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BRITISH ASSOCIATION.

THE British Association concluded its annual meeting last week. We have culled from The Times reports, accounts of proceedings of the Mechanical Science Section and of the Anthropological Section when such proceedings seemed likely to be of interest to our readers.

PREHISTORIC ANTIQUARIES NEAR BRISTOL.

Professor Lloyd Morgan, in a paper on "Pre-historic Antiquities in the Neighbourhood of Bristol," illustrated by lantern slides the early camps and megalithic remains of the surrounding country. Of those at Clifton and Stoke-Leigh, just opposite on the Somersetshire side of the Avon, new and careful plans had been made under his own supervision. And in Stoke-Leigh the "dry-walling" which crowned the inner rampart had been exposed by special excavations. This was shown by means of photographs. Its character was compared with that described and figured by Mr. Dymond, at Worlebury; and the nature of the burnt lime and so-called mortar found in the Clifton and Burgh walls camps was discussed. Professor Lloyd Morgan then illustrated and explained the scheme of construction of the megalithic stone-circles at Stanton Drew, which will be visited by some of the excursionists on Saturday under his direction. These stone-circles of Stanton Drew were more fully detailed by Mr. A. L. Lewis, who showed that the diameters of the circles and the distances between them and the other stones forming this group of monuments were in carefully-measured proportions.

PALEOLITHIC CONDITIONS IN AUSTRALIA.

Professor E. B. Tylor read a paper on "The Survival of Palæolithic Conditions in Australia." He showed that the stone implements from Tasmania, the making and use of which by the natives came under the observation of the colonists during the first half of this century, have a character which may be called *quasi-palæolithic*. They were fragments or flakes of stone, in no case ground, but edged by chipping on one face only, and trimmed so as to afford a grasp to the hand, no haft of any kind being used, and correspond to some extent with scrapers, &c., belonging to the drift and cave periods in Europe, but their general rudeness, and the absence among them of symmetrical double-edged and pointed implements like the flint picks of the Old World palæolithic times, place the modern Tasmanians at a distinctly lower stage than the Europeans of the mammoth period. The stone implements found in Tasmania indicate a state of the stone age in past times not essentially different from that found in actual existence before the disappearance of the native population. The purpose of the paper was to offer evidence making it likely that the early stone age condition characterising Tasmania extended within no distant period over the whole Australian continent.

A NATIVE AUSTRALIAN HATCHET.

Professor Tylor exhibited a native Australian hatchet, hafted with gum on a stick-handle, lent by Mr. W. Ayshford Sanford, of Nynehead Court, Somerset, who brought it half a century ago from the Perth district of West Australia, and said that the blade of this instrument, with its unsymmetrical edge formed by chipping along one side of the original flake, was simply indistinguishable from the ordinary Tasmanian form placed beside it. Unwilling to judge hastily from a single specimen, he had for years been in correspondence with anthropologists in Australia as to the presence there of such implements, and had lately, through communications from the Bishop of Tasmania and Mr. Alexander Morton, of the Hobart Museum, received intelligence that the latter had on a late journey to the little-known Murchison district in West Australia, while not meeting with ground stone axes, found the natives using chipped stones quite similar to those used by the Tasmanian aborigines, as shown by photographs sent for comparison. These *quasi-palæolithic* implements not having yet been discovered in this district by the ground stone hatchets, which apparently were

introduced from the Torres Straits region, it would seem that this neolithic invasion was of no remote date, and that the vast area including Australia as well as Tasmania may have been till then peopled by tribes surviving at a level of the stone age which had not yet risen to that of the remotely ancient European tribes of the drift gravels and limestone caves.

ANCIENT EGYPT.

Professor W. M. Flinders Petrie gave an address, illustrated by many beautiful lantern slides, on "Egypt under the First Three Dynasties, in the Light of Recent Discoveries." His object, he said, was to give a summary of the principal discoveries during the last five years that had revealed the rise of Egyptian civilisation. It had been said that the beginning of the fourth Egyptian dynasty—the age of the pyramids, about 4000 B.C.—was the furthest back that we could go. The puzzle was that there had been no trace of this high civilisation. But now entirely new discoveries during the last three years at Koptos, Nagada, Abydos, and Hieracopolis, and various excavations had discovered remains belonging to the ages before 4000 B.C., which had hitherto been the starting point of known history. Beginning with the Libyan stock, with some negro mixture, which occupied Egypt in its earliest civilisation, he showed some of the objects he had found at Nagada—statuettes, games, slate palettes for grinding paint, beautifully ribbed flint knives of extreme delicacy, forked lances and arrows, carved spoons of ivory and bone, harpoons, bracelets, and combs. These were at first temporarily assigned to a new race, as we knew nothing more about them; but now they could be safely assigned to the pre-dynastic stock about 5000 B.C., and even earlier. In the graves of this aboriginal race were found

BOWLS OF BLACK CLAY

with patterns imprinted upon them. They were of great importance in considering the relation of this civilisation to that of others in the Mediterranean. In each of the countries where this had been found—Spain, Bosnia, Egypt, and Hissarlik—it was contemporary with the introduction of metals. Metals had just been introduced, and therefore in all cases this pottery was associated with the same state of civilisation. The proximate date of this was the close of the Neolithic period and the introduction of metals—viz., 5000 B.C.—and that accorded very well with the time necessary for arriving at the high culture attained by 1500 B.C. Therefore these discoveries were of great value in giving the relative state of Egyptian civilisation to that of the rest of the world at the introduction of dynastic rule. There was a wide difference between the people of 5000 B.C. and those of 4000 B.C., but no difference between those of the latter period and modern times. This showed that a different race entered the country about that period. Next came the earliest dynastic remains of the

PRESUMED TOMB OF KING MENA,

the founder of the dynastic history of about the date of 4700 B.C., then the remains of other royal tombs found at Abydos belonging to the first three dynasties. The skill of flint working had undoubtedly gone down, and was fast dying out. The gradual decay of flint working between 4500 B.C. and 1500 B.C., as metals came into use, and copper was gradually hardened into bronze, had no parallel in the world. Professor Petrie showed diagrams of cylindrical seals as used by the kings of the first three dynasties, and impressions of such cylinders which were vastly more frequently found than the seals themselves. He then showed a vase exhibiting the earliest representation of Egyptian mythology and other vases, tablets, and slates showing animals and birds, such as the hawk, bull, lion, and leopard, which manifested a well-acquired knowledge of these animals, as well as of the ibex, gazelle, and antelope. Large numbers of animals, such as the calf, monkey, and dog, had been found modelled in green clay, together with a model of

A LION IN RED POTTERY.

These finds were very important, as they showed the skill of clay modelling of the

earliest dynasty, the rise of the art of modelling, and the Egyptian ideas and appreciation of the forms of animals and of the human body. These important monuments of the civil life of the early kings proved that glazing was a speciality of the original people, and that Egyptian art reached its high-water mark somewhere before B.C. 4000. Other finds showed the kings in triumph over their enemies, receiving captive kings, opening the public works, or reclaiming the marshes. Others were vessels with dedications written upon them, and stone jars with chambers as storehouses for the king's soul. The handled copper vessels showed the most advanced metal work found of the first three dynasties. The population of the pre-dynastic age was different in type from that of historical times, and in the early monuments the presence of diverse types was very clear, some being shaven, some bearded, some long-haired. We had at last before us evidence of the close of the period previously considered prehistoric, showing the

DEVELOPMENT OF THE ART,

writing, and civilisation of Egypt and the composition of a race which had since maintained its character during 6000 years. The puzzle was how this civilisation arose and we had discovered evidence to solve this puzzle. Egypt was then an originator in the arts and not a borrower, but ever since then most of the nations of the earth had been borrowers and not originators. Here we were studying the history of a country not borrowing but developing a vast and complex civilisation on its own resources.—Sir John Evans said that during the last few years, as Professor Flinders Petrie had shown, we had been able to unveil the progress of civilisation in Egypt over 1500 years. The wonderful flint knives shown by slides had been the most important discoveries ever made in Egypt, and must have been the culminating point of an art stretching over a vast series of years. He asked himself, Where was all that civilisation of

B.C. 5000

developed? He hoped that the recent conquests in Egypt would materially assist us in investigating that matter, and discovering more of the wonderful history of which we were now only on the threshold.—Mr. Arthur Evans thought a comparison of the pottery of Crete and Malta and other parts of the Mediterranean basin with that of Egypt helped to form a bridge over the gap which separated Early Egypt from the dawn of civilisation in Europe. In respect of chronology, he considered that Professor Flinders Petrie would be safe in assigning his discoveries even to an earlier date than he had done.—Professor Flinders Petrie, in his brief reply, said that he himself thought that he was well within the mark, but he chose the date he had fixed in order to be absolutely safe.

ELECTRIC POWER IN WORKSHOPS.

Mr. Siemens, in reading a paper on "Electric Power in Workshops" before the Mechanical Science Section, pointed out that the first development in this direction took place in connection with the small line exhibited in Berlin by Dr. Werner Siemens in 1879, and in the present day there is, he considered, little doubt that in the near future horse and steam tramways will disappear everywhere. In overcoming heavy gradients the ultimate triumph of electricity is assured. Although even the heaviest goods train can be drawn by electric motors, Mr. Siemens pointed out that it would be a fallacy to deduce that it would be advantageous to replace the steam locomotive on all existing railways by electric motors as economical factors have to be considered as well as technical features. Electric transmission is best applied where the demand for power is constant rather than intermittent. The paper next dealt with the losses that must be met in carrying out a system of power transmission by electricity. The first point to consider was that the available mechanical energy had to be converted into electrical energy, and such a transformation involves loss. The ease with which electrical current can be carried and other advantages more than counterbalance

this loss, which is not excessive, 84 per cent. of the i.h.p. of a steam engine being available at the terminals of a dynamo in the form of electrical energy; whilst electric motors will produce over 90 per cent. of the electrical energy supplied to them in the shape of mechanical power. The art of insulating conductors has improved to an extent that, whereas a short time ago currents of 2000 volts were considered a limit, there are now a number of successful electric systems employing currents of 10,000 volts pressure. The use of alternate currents, the employment of transformers, permits the use of low-pressure generators and motors, high-pressure currents being used in the conductors, but in this there is the loss of double transformation. The author was of opinion, however, that were a trustworthy alternate current motor invented this system of transmitting power would be the dominating one. Unfortunately alternate current motors refuse to start without being first synchronized by external means, are liable to stop when overloaded, and their speed cannot be varied. A continuous current system is simpler and cheaper at first cost and cheaper in maintenance. The installation of electric power transmission for working the machine tools and other appliances in the works of Siemens Brothers and Co., at Charlton was next described in detail, the author giving some very valuable figures as to cost, &c. He states that six years' work has shown that the system is perfectly trustworthy, and that an expected great saving in the cost of attending to the motive power has been fully realised. The total cost of motive power during the year 1897 was £9900, or 2d. per Board of Trade electrical unit, and 1.71d. per brake-horse power per hour exerted by the motors.

EXCAVATIONS AT GLASTONBURY.

Mr. A. Bulleid read the third report of the committee appointed to investigate the excavations of the Lake Village at Glastonbury. He observed that since the presentation of the last report much progress had been made with the exploration of this lake or marsh village. Twelve more dwelling mounds had been examined, as well as the ground between and around them. The southern end of the settlement had been completely explored, and the investigations had yielded much of importance. The timber substructure in this locality was in a better state of preservation and more massively made than in any part of the village hitherto examined, the arrangement of the logs being exceptionally clear. The recent finds included brooches and rings of bronze, adzes and billhooks of iron, leaden whorls, blue glass beads, gouges and needles of worked bone, combs and hammer heads of horn, much pottery, some jet and amber, portions of twenty-five human skeletons, including four complete skulls, and tubs, cups, and ladles of worked wood. A new village had been partly excavated this year.

GLASTONBURY'S ANTIQUITY.

Mr. Arthur Evans supplemented this report with an interesting paper on the "Place of the Glastonbury Lake Village in British Archaeology." He insisted upon the homogeneous character of the culture here revealed, and showed that it belonged entirely to the pre-Roman period and the first and second centuries B.C. It represented a distinct phase of a form of culture introduced into Britain by the invading Gaulish tribes. It was possible to trace back various forms of vases, safety-pins, and other relics, to prototypes in the old Venetic regions about the head of the Adriatic. The glass-working industry of the Glastonbury lake folk was probably derived by the same overland route from the old Venetic region where recent discoveries showed that this art flourished already in prehistoric times. The name Glastonbury itself was a translation of the Celtic Ynis Witrin—Glass Island—and there might be more in the appellation than had hitherto been suspected.

A GREAT ARCHAEOLOGICAL DISCOVERY.

Professor Boyd Dawkins said he thought that this lake village was one of the most important archaeological discoveries recently made in Western Europe. The inhabitants of that

village had most probably introduced both glass making and lead mining. At first sight Mr. Arthur Evans' derivation seemed of the old-fashioned dictionary sort, but he had no doubt that it was correct. He remarked that the fact of those prehistoric people having had such amusements as cock-fighting and dice games showed that they had arrived at a very high stage of civilisation.—Sir John Evans expressed his admiration of the manner in which the excavations had been conducted. The mere fact of the dwellings being in that unsuitable position seemed, he thought, to point to the probability that the constructors were lineally connected with other lake dwellers on the Continent of Europe. Some hereditary connection with those Europeans must have been the cause of the choice of marshy places for village building, since near at hand there were other sites far more suitable for dwelling places. It was only by the careful use, he urged, of spade, trowel, and knife that we could hope to become acquainted with the civilisation of that important and interesting prehistoric time.

TERRAMARE SETTLEMENTS IN NORTHERN ITALY.

Professor W. M. Flinders Petrie then read an interesting paper, illustrated by diagrams and plans, on "Traces of Primitive *Terramare* Settlements in the Modern Towns of North Italy." He showed that recent clearing at Castellaro di Fontanellato had disclosed the fact that the marsh towns of North Italy in the Bronze age were arranged on a strictly square system of crossing roads, and that this type of town was that perpetuated in the regular plan of the camps of the Roman army. On examining the present plans of the cities of Lombardy, the outline of the original square settlements could be plainly traced. This was illustrated by plans of Florence, Bologna, Parma, Cremona, Pavia, Piacenza, Milan, and Trent. The characteristics of the old boundaries were the ditches yet remaining and the parallel roads that ran along the sides of them, the roads radiating from the gateways, which afterwards became streets in the enlarged towns, and the surviving names of streets referring to the walls and gates which had long since been swallowed up in new buildings. Professor Petrie observed, in conclusion, that thus the view of primitive Italy, before even the Roman age, could be traced in the pages of the familiar Baedeker.—A short discussion followed, in which Sir John Evans and others said that they must take Professor Flinders Petrie's conclusions with a certain amount of caution, for the existence of square forms of towns did not itself prove that those forms were of pre-Roman date.—Professor Flinders Petrie, in briefly replying, said that was not really his argument. His view was that, granting or assuming the pre-Roman date, the square forms of the towns would indicate the presence of *Terramare* settlements.

MEGALITHIC MONUMENTS OF DARTMOOR.

Mr. P. F. S. Amery then exhibited, with explanatory remarks thereon, a series of lantern slides showing the Megalithic monuments of Dartmoor. The slides indicated huge stone structures and monoliths in different positions, and Mr. Amery pointed out the curious results of disintegration produced by water, weather, and earthquake tremors during the lapse of many centuries.

THE SILCHESTER EXCAVATIONS.

Mr. J. L. Myres read the report of the committee appointed to co-operate with the Silchester Excavation Fund Committee in their explorations of the old Roman town. The excavations, covering nearly eight acres, were begun on May 3rd, 1897, and continued, with the usual harvest interval, until November 3rd, and were renewed in the spring of the present year. The objects found were exhibited, as in former years, at Burlington House.

STANDARDS OF PURITIES FOR SEWAGE EFFLUENTS.

Dr. S. Rideal, discussing "Standards of Purity for Sewage Effluents," pointed out that the majority of these standards are arbitrary and artificial. But a calculation of the proportion of nitrogen in its oxidized forms, which are

harmless, and its unoxidized forms, which are odorous and sometimes deleterious, would denote the extent to which the sample has been purified. The number obtained is termed the "percentage of purification," and ranges from nothing in raw sewage to 97.6 for a deep well in chalk. Moreover, with the aid of bacteria, the oxygen combined with nitrogen, that is in the form of nitrates and nitrites, is capable of supplementing the free dissolved oxygen in the destruction of the organic matter. From these considerations a formula is deduced embodying all the natural data for the conditions of discharge of an effluent into a stream, including the flow and aeration of the latter, the volume of oxygen required, and the "available oxygen of the effluent," the result being a "factor of safety," which must never be below unity. It is concluded that an effluent which has been properly prepared and is in an active state of wholesome bacterial change under the above conditions of free and potential oxygen, is clear and nearly free from odour, and may be safely discharged into any river of moderate volume.—Some discussion followed.

CONCERNING CAVES.

The Rev. G. C. H. Pollen gave an account of the "Further Exploration of the Ty Newydd Cave at Tremeirchion, North Wales." He said that in the upper portion of the newly explored part a stalagmite floor had been found *in situ*, completely sealing up the local gravels. Over this were found 5ft. of clay with broken limestone, which was all that was left to represent the strata in which the former roof of the cave was situated. The whole was now overlaid with boulder clay, containing many specimens of northern and western drift, with striated stones of more local origin. No trace of erratics or of glacial stones had been found in the lower cave materials.—Mr. Thomas Plunkett followed this with an account of the "Further Exploration of the Fermanagh Caves." In his previous explorations he had formed the opinion that the caves contained no mammalian remains; but he had now discovered an entire cranium of what he believed was the great cave bear (*ursus spelæus*) in one of the Knockmore caverns that penetrated a cliff not far from the formerly explored caverns. The height of this cave was about 40ft., and its length 90ft.

THE first year's working of the Dover Corporation's electric tramways, after allowing for payment of interest and instalments of the loans, had resulted in a profit of £1300 being earned. This is equivalent to a 2d. rate.

VERY few churches are so charmingly situated as Christ Church, Fulwood, Sheffield, yet the interior of the building is altogether out of keeping with its artistic surroundings. The members of the congregation have embarked upon a scheme to renovate the church, and within a short time about £350 will be spent in beautifying the building. Ten new windows of cathedral design, with stained glass, will replace windows sadly in need of repair, and four others will be repaired. The lighting arrangements will be specially attended to, and instead of several gas standards dotted about the church, a corona will be placed in the centre of the roof. Extensive work in the way of repainting and redecorating will also be carried out.

THE directors of the Sheffield and Hallamshire Bank, having purchased a site at the corner of Sitwell Road and Sharrow Lane, Highfield, Sheffield, have commenced the erection of a branch bank thereon. The new building will form a conspicuous feature as seen from London Road, and will make a capital central piece in the open space at the junction of Sharrow Lane and Sitwell Road. The building, which has been designed by Messrs. Flockton, Gibbs and Flockton, will be in the modern French style, and will be composed of brick, with a large quantity of stone dressing windows, and other architectural features. There will be a Mansard roof, and the main entrance, facing London Road, will be under a semi-circular portico, and will have Swedish granite columns and pilasters. In the pediment above the portico will be placed a clock.

Professional Items.

ABERTILLERY (Mon.).—The new girls' school recently erected here has just been opened. The school is built of blue pennant stone, with Forest of Dean dressings. It is fitted with all modern conveniences, the cloak-room being especially good. The floors are laid with pitch pine blocks. The building is heated by hot-water on the high-pressure system. The contract has been carried out by Mr. A. P. Williams, builder, Abertillery—the architect being Mr. George Rosser, Abercarn.

ALDEBURGH.—A new bridge has been erected over the Haven at Aldeburgh. Exclusive of the approaches, which are each 20ft. long, the bridge is 280ft. across. It is bowed out at the centre to a width of 20ft. for the provision of the passage of vehicles, and its general width is 15ft. It is built upon 15 piles on either side, and a concrete foundation for the roadway is supported by iron girders 3ft. apart. The surface of the roadway is formed of burnt shingle, tar, and crag, but owing to the heat this is at present in a very soft condition, and it is unfortunate that there have been no showers to assist in its solidification. At present there is no good approach to the bridge, but the Corporation are having constructed a road, though it is yet only in a very crude state, and does not extend the whole of the distance. The entire work has been carried out by Messrs. Dewsbury and Sons, bridge builders, Wisbech.

ASTON.—The foundation stones of the Aston Manor Baptist Chapel were laid last week. The new building is designed in the Old English period of Architecture, and, roughly speaking, measures about 55ft. by 40ft., and will seat 400 persons. It is situated at the corner of Thomas Street and Yates Street, and will have an imposing entrance with side lobbies, opening directly on to the floor. There are also a gallery, which will accommodate between 80 and 100 persons, choir, and baptistry. The heating and ventilation and the light have received special attention, and the acoustic properties of the chapel have also received the architect's consideration. The actual cost of the work itself is £1600.

BARRY.—The Barry School Board has considered tenders for the erection of the proposed Hannah Street School at Cadoxton. The following were the tenders received:—William Britton, Barry Dock, £14,694 14s. 9d.; Samuel Shepton and Son, Cardiff, £15,365 10s.; Watkin Williams, Pontypridd, £14,535; Mainwaring and Davies, Llanbradach, £12,905; John Linton, Newport, £14,700; Alban Richards, Barry Dock, £13,500; James Allen, Cardiff, £15,460; E. R. Evans, Cardiff, £15,405; Chubb and Co., Cardiff, £13,797; Lloyd and Tape, Barry Dock, £14,713; J. Prout, Barry Dock, £15,092 11s. 10d.; Jones Bros., Barry Dock, £14,470; W. Thomas and Co., Cardiff, £14,941; Turner and Sons, Cardiff, £15,450; J. L. Hockridge, Cardiff, £15,290; George Rutter, Barry, £12,275. Mr. George Rutter's tender, being the lowest, was accepted. Mr. H. Budgen, Cardiff, is the architect of the building, and his estimate was stated to be £14,631.

BELFAST.—The foundation stones of the George Thomson Memorial Hall, which is being erected in connection with Broadway Presbyterian Church, Belfast, have just recently been laid. When completed, the new building will add much to the appearance of the church, as it is being erected at the rear of the edifice, and arranged so as to have direct access to it and to adjacent streets. Provision is made on the ground floor for a large minor hall, with committee, vestry, and cloak rooms attached. Access is gained to the large lecture hall on first floor by a spacious staircase opening off the vestibule. At one end of the main hall, which is 64ft. by 32ft., is a cloak room, and at the other is a platform raised six steps from floor level. There are a series of Gothic-headed windows, filled in same style as the church. Underneath the sills of the windows

in front gable a deep panel of stone will bear the inscription, "Thomson Memorial Hall." A date stone occupies the centre space above. The roof is a king post with carved ceiling. All the internal work, including wainscotting, will be varnished. The contractor for the work is Mr. Thomas M'Millon, and the architects Messrs. Young and Mackenzie.

BRADFORD.—The Bradford School Board has accepted tenders for the erection of the new Carlton Street Higher Grade Girls' School and the junior teachers' central classes, amounting to £10,660 10s., including mechanical ventilation. The higher-grade school will have accommodation for 713 scholars, and the junior teachers for 135. The new premises will occupy the north-west corner of the present school, and will be 146ft. long by 69ft. wide. There will be practically four floors—sub-basement, basement, ground floor, and first floor. The sub-basement will be used wholly for the mechanical ventilation apparatus, boiler, and engine.

FARSLEY.—The corner-stones have been laid of a new Constitutional Club at Farsley, Yorkshire. The building, which is to cost about £2000, will be in Norman Gothic style of Architecture, with a commanding tower. The architect is Mr. G. C. Gamble, of Bradford, and the following are the contractors:—Mason, G. A. Walker, Farsley; joiner, John H. Robinson, Farsley; slater, Frederick Thompson, Stanningley; plumber, Edward Pearson, Farsley; plasterer, Wilfrid Busfield, Farsley; painter, H. Grimshaw, Farsley; iron-founders, Whitehead Brothers, Farsley.

GLASGOW.—The Water Committee of Glasgow Corporation have accepted the offer of Messrs. Robert MacLaren and Co., Glasgow, for the supply of 995 tons of cast-iron pipes. Messrs. MacLaren's tender was £4958 8s. 4d. A Philadelphia firm, Messrs. R. D. Wood and Co., offered to fulfil the contract for £4892 1s.; but in view of the slight difference between the contracts, the committee decided not to place the order out of the country.

LONDON, E.—A new block of business premises has been erected in Boundary Street, Shoreditch. The new building contains a superficial area of 19,000ft., and is constructed so as to secure the maximum of light, whilst ample ventilation throughout is obtained by means of large "well holes" placed in the centre of each floor.

LIVERPOOL.—It is proposed to build a new Church House for the diocese of Liverpool. The proposed building will occupy the site at the corners of Lord Street and South John Street, now known as the Clarendon Buildings. It will probably be built in sections of terra-cotta, and will be lighted electrically throughout. The main entrance, leading to lift and staircase under the tower, will be from South John Street, as also a second entrance with lift and staircase from the same side. The Lord Street section to the tower entrance from South John Street, which is to receive the first attention, has been estimated approximately to cost £10,000 without the tower, and with the tower about £14,000. The whole building, Lord Street and South John Street sections, when completed is estimated to cost from £30,000 to £35,000.

NOTTINGHAM.—The memorial stones of a new Congregational Sunday school at West Bridgford have just been laid. The style adopted by the architects is Late Decorated, somewhat freely treated. The building is of red brick with stone dressings, and in the front gable is a large five-light tracery window, flanked on either side by massive buttresses. There are four entrances to the schools, with lobbies—two will be approached from Muster's Road and two from Millicent Road. When the church is built there will be an additional entrance, with large lobby connecting the church with the schools. Advantage of the necessarily deep foundations has been taken to provide large store rooms and a heating chamber under the schools. The roof of the schoolroom is of open timber work, with wrough ties and principals. The whole of

the windows will be glazed with cathedral glass, and a portion of each window will be made to open for ventilation. Every attention has been paid to the warming and ventilation, which will be of the most approved type. The contract for the buildings is about £2200. The architects are Messrs. R. C. and E. R. Sutton, Bromley House, Nottingham; the contractor, Mr. W. Maule.

PETERBOROUGH.—The new electric light works for the town of Peterborough have been started, so far as the foundations are concerned, on a site in the Albert Place Meadow, adjoining both the River Nene and the Great Northern Railway. At present, however, the full plans for the superstructure, by Mr. J. C. Gill, the borough electrical engineer, are not quite completed. The scheme, nevertheless, having been generally approved by the Local Government Board, it only remains for the engineer's plans to be passed by the Corporation and the construction thrown open to competition by tender.

RIPON.—The excavators, bricklayers, and masons' work in connection with the erection and completion of new banks at Ripon for the Knaresbro' and Claro Banking Company has been entrusted to Mr. Anthony Lyons, contractor, of Norton, Malton. The designs are by Mr. Arthur A. Gibson, architect, Harrogate.

STRATFORD-ON-AVON.—A meeting of the subscribers to the fund for a proposed technical institute was recently held at the Stratford-on-Avon Town Hall. The Mayor said the meeting was called to take into consideration a scheme proposed by Mr. Edgar Flower. A statement as to the work done by the committee was given by Mr. A. D. Flower, who said they had three sites in view. Of these, however, one was practically out of the question, one the owner refused to sell at any price, and he was prohibited from doing a deal for the other as it was Corporation property. The scheme then looked like falling through, but he was glad to say they had secured a site which was suitable for the purpose. If that site were adopted the proposed reading-room must drop out, as there would be no room for it, and he could not see that there was any means of endowing it. The site was in Henley Street, and, although the frontage was small, it would allow of a large room, 40ft. by 30ft., for the School of Art, offices, and one good room for modelling, carving, or other purposes. It was ultimately decided that the committee should be empowered to prepare plans.

WHITBY.—Building operations have been brisk here of late, and mention should be first made of the very large Hotel Metropole, just opened this season, built for and by Messrs. Whittaker, of Horsforth, from the designs of Messrs. Chorley and Connon, Leeds. The hotel is of brick and stucco-faced, with four large towers, and has an imposing appearance from the cliffs. A new café and dining room, of which Mr. E. H. Smales was the architect and Mr. J. Brain the builder, has been opened. Mr. Edwards also has just entered on his new premises, also café and dining room. Mr. J. Cabel Petch, of Scarborough, was the architect. Some land on the West Cliff is being built on, semi-detached villas with half-timbered work being erected from the designs of Mr. G. Scarfe French. Some bungalows at Sleights, near Whitby, have also been designed by the same architect. Several villas are shortly to be commenced on the West Cliff Estate, belonging to Sir G. Elliot, Bart., from Mr. Hy. Walker's plans. A new bank for the York Union, now in course of erection in Baxtergate, will be a fine building. Mr. Wm. Gwyther, Temple Chambers, London, is the architect, and Mr. J. Brain the builder. A new post-office, Mr. Hy. Tanner, architect, is an imposing building with a stone front. The Urban District Council is making several fine roads, and laying out the present Royal Crescent Green into a miniature park. At Sandsend, adjoining Whitby, several new and picturesque bungalows have been built on the Marquis of Normanby's land.

Views and Reviews.

KENSINGTON PALACE.*

This little work is apparently intended as an ornamental booklet for the drawing room table of residents in that fashionable suburb. From the purely architectural and artistic point of view the subject is, of course, not a very interesting one, though one or two entertaining books or chapters have been written upon or around it. Mr. Loftie has corrected the more important (and not very recondite) dates and facts concerning this familiar "pile," suggestive to the ordinary English eye of comfort (leaving out of view the State apartments), but rarely of beauty. He has even included a description of the oft recounted accident to the youthful Princess Victoria at Highgate! and the opening in 1830 of the Victoria Park at Bath. But he has not succeeded in writing an interesting book. It is not, of course, his fault that nothing of any particular importance seems to have happened at Nottingham House, which in 1690 became Kensington Palace, either before or after that date. For the birth of Queen Victoria, "the most important event" in the building's history for the past two centuries, is scarcely of so much local significance that the Palace has any bearing upon the happiness of the English people in 1898. A volume of this size, which could not pretend to be a history, had much better have wasted less of its space in rehearsing well-known or uninteresting facts and given us a few original "notes" of the odds and ends of beauty and picturesqueness scattered about the Palace, and its surroundings illustrated with a few bright and forcible drawings. The so-called "illustrations" to the book are, for the most part, commonplace reproductions of commonplace photographs and views of Pyne; and the frontispiece—the Princess Louise's statue of Her Majesty—would be a distinctly bad and tasteless illustration, whatever the merits of the work of Art placed so exactly in the centre of it in the worst of lights. The sketch of the Queen's birthplace (the barest view of three blank walls, a ceiling, and a window) might be a scrap from any builder's notebook, and is not made more exciting by the reflection that it is not quite certain that our beloved Sovereign was born in that particular apartment. The photographic views of Kensington, where not already familiar to our readers, are in no sense worthy of reproduction; the muzzy drawing by W. Luker, jun., of the "Orangery" is ludicrously out of perspective, and the engravings (or whatever they may be) "After Pyne" are mostly too small to give the only satisfaction attaching to such laborious and detailed work. On the whole, it is a thousand pities that some capable modern draughtsman has not displaced the local photographer in a work which could only by such means have been endowed with any real interest or importance.

* "Kensington Palace," by W. J. Loftie, F.S.A. Farmer and Sons, High Street, Kensington.

THE Local Government Board has sanctioned the necessary loan for the erection of a new town hall at Colchester, at a cost of £36,000, and the work will at once be proceeded with. The tower and chimneys for the new building, estimated to cost £2000, will be given by the Mayor. The borough member (Sir Weetman Pearson) has contributed a new organ for the assembly room, and gifts of stained-glass windows, statuary, and paintings, are promised by leading townsmen.

THE question of increasing the hospital accommodation, by extending the eastern hospital in Mill Lane, Old Swan, has for some time been under the consideration of the Liverpool Corporation committee having charge of that portion of the city's administration. The matter has now so far advanced that plans of the proposed scheme have been prepared, and should these meet with the approval of the City Council, an application will be made to the Local Government Board for sanction to the borrowing of £40,000 for carrying out the work.

Enquiry Department.

A CLIENT'S DILEMMA.

To the Editor of THE BUILDERS' JOURNAL.

DEAR SIR,—I am thinking of getting up a design for shop premises, to contain draper's shop on ground floor, solicitor's offices on first floor, and curator's lodgings at the top; also a storing cellar. If you could tell me what accommodation would be most convenient for each floor I should be greatly obliged.—I remain, sir, yours faithfully,

PUPIL.

We should have thought this a query to be put to the client rather than to the editor of THE BUILDERS' JOURNAL; in fact, a general answer cannot be given, so much depending upon the site and the extent of the various businesses to be carried on. Were we to reply at greater length we are afraid we might become rather caustic.

INGLE-NOOKS.

To the Editor of THE BUILDERS' JOURNAL.

SIR,—Could you oblige me with some information as to the manner of treating old-fashioned ingle-nooks, when it becomes necessary to do away with the open hearth and substitute a modern grate? Is it necessary to carry up an entirely new flue in brickwork to reduce the size of the very large, old-fashioned chimneys? Also, how should the ceiling to the ingle-nook be formed when closed in?—Yours faithfully,

"ANTIQUARIAN."

The treatment of such a fireplace must depend on the circumstances of the case, the present construction of ingle-nook, the style of work wanted, the cost, &c. As a general rule, it is necessary to fill up the large flue at the bottom, or provide a new one of smaller section, to prevent the fire smoking. You might, perhaps, be able to turn the new flue in over the ceiling of ingle-nook into an iron one carried up the old flue. For the ceiling—could you throw a light brick arch across, and decorate the soffit?

FUMIGATING OAK.

To the Editor of THE BUILDERS' JOURNAL.

SIR,—Some time ago I wrote asking for information on staining oak other than fumigating, and I had a specimen of oak sent me by a north country firm which was simply perfect; it was stained right through the whole thickness, and could therefore be worked after it was stained. The colour was the same as is seen in old chests, &c., a dark brown, and just such an one as I required for the work I was about—a chimney-piece and overmantel in carved oak. The firm refused to tell me how it was done, therefore their information was utterly useless to me. "Aberdeen" requires the same knowledge which I am anxious to obtain myself, but how are we to solve the riddle? Ammonia merely stains the skin, and, like all stains, will wear off at the edges, and show white if subject to much wear and tear.—Yours faithfully,

J. K.

If the firm referred to are in possession of a method for staining oak of any thickness of an uniform colour throughout, easily applicable to joiners' or cabinet work when made up, they have a good marketable commodity, and can scarcely be blamed for refusing to give away the information gratis. It is, however, extremely doubtful that such is the case. The specimen sent was probably of small size, and had been steeped or boiled in stain, as is done with all coloured veneers, but the process is obviously inapplicable to wrought work. Again, oak, rich in gallic acid, may be stained a considerable depth by exposing it for a long time to the fumes of ammonia; the outer surfaces will become nearly black, but the required tone may be obtained by planing to a sufficient depth. If the oak is of a suitable kind for staining (and all are not American, for instance), and the work is polished or waxed immediately after staining, the colour will not fade, either at the edges or elsewhere, any such places that may have been observed were probably sapwood, surface coloured.

TO ABATE A NUISANCE.

To the Editor of THE BUILDERS' JOURNAL.

DEAR SIR,—Close to my works there are some small cottages, and a villa where the landlord resides. The owner and the tenants of the cottages persist in throwing their rubbish against my building, which is on a by-road; therefore the rubbish is left on the roadside as well as against my wall, which I consider to be a nuisance to me. I have written several times to the Clerk of the Rural District Council, and have failed to get a reply from him. I shall esteem it a favour if you can advise me what steps to take to prevent a continuance of this rubbish accumulation.—Yours truly,

G. D.

Complaint should be made to the Inspector of Nuisances, and not to the Clerk of the Urban District Council, unless the Inspector neglects to do his duty, when the Council could interfere; but if the nuisance is a real one, and prompt action, on complaint to the Inspector, is not taken, it would be well to appeal in person to the magistrates.

Correspondence.

THE SORROWS OF JERRY BUILDERS.

To the Editor of THE BUILDERS' JOURNAL.

DEAR SIR,—In reading your article on the East London Water Supply, I was struck with your remark that the water trouble was caused principally through the jerry builders neglecting, for their own ends, to provide cisterns for storage. I was under the impression that I had read during previous droughts that the Company had previously compelled cisterns (already fixed) to be taken out before the constant supply could be provided; at any rate, I do not think the practice of the water companies allow builders to do just as they please in the matter—their rules and regulations have to be adhered to, cisterns or not. So why the poor jerry builder (whoever he may be) should always come into it and have to bear the brunt of everybody's errors, I cannot understand. Shortly after reading your remarks, I happened to notice in the London Daily Chronicle, of September 9th, a leading paragraph confirming my impressions. A good many builders build houses and may not put storage cisterns; that is no reason why they should be classed as jerry builders, especially as of late years (whether right or wrong) the tendency has been to discontinue the use of same on constant supplies.—Yours, &c.,

WM. DRAKE.

3, Lechmere Road,
Willesden Green, N.W.

COASTGUARD PATHS.

To the Editor of THE BUILDERS' JOURNAL.

SIR,—You note the risk that is being run of rights of way being lost. Will you permit me to suggest that the question of coastguard paths is one which might be taken up with advantage to the community?

What is the origin of the coastguard path? From the earliest times it has been the duty of some man, or body of men, to watch the coast (probably the earliest title in England was "Count of the Saxon Shore"). It is, I think, clear that the coastguard paths have been used for nearly 1000 years. If this is not a good title by user I don't know what is. But it is always admitted that "once a highway always a highway" is good law; therefore, there should be no difficulty in obtaining the re-opening of the coastguard paths and public access to the sea at all points. In some places the insolence of private owners has gone so far as to claim a right to close the path, and as a matter of grace to permit the coastguard to have a key, so as to pass through the grounds.

On one portion of the Devon coast I found that quite two-thirds of the sea-front is blocked to the general public, and the finest scenery either reserved for a Lancashire manufacturer and his friends, or forbidden to all by a farmer.—I am, Sir, yours &c.,

H.

TENDERS.

Information from accredited sources should be sent to "The Editor." No results of tenders can be accepted unless they contain the name of the Architect or Surveyor for the Work.

ANNFIELD PLAIN (Durham).—Accepted for the construction of conveniences, for the Urban District Council. Mr. T. J. Trowsdale, surveyor, Council Offices, Annfield Plain.

BELEVIERE (Kent).—For erecting two small houses, providing drainage to laundry, &c., for Mr. Wm. Smith. Mr. John H. Willis, architect, 18, Dagmar-road, Camberwell, S.E.:

	Houses.	Retaining Wall.	Drainage Laundry.
H. E. Chandler, Belvedere	£585	£75 0	£52
T. Freeman and Son, Camberwell	600	52 10	35
L. L. Leeder & Co., Chiswick	487*	50 0*	50*

BOSTON SPA.—For the execution of drainage and outfall works, for the Wetherby Rural District Council:—

	Contract No. 1.
H. Wilson	£6,173 8 0
W. Brigg	5,935 8 0
M. Arundel	5,822 15 0
Graham and Son	5,700 9 0
A. Braithwaite and Co.	5,444 17 6

CHIGWELL.—For the erection of ophthalmic buildings at Chigwell, Essex. Mr. A. E. Pinder, architect:—

F. V. Carter	£5,004
W. Keefe	5,590
George and Hosking	5,537
H. Reed	5,765
W. M. Norton	5,747

CHINGFORD.—For the erection of factory at Hale End, Chingford. Mr. J. Rookwood, architect:—

W. Shurmur	£23,528
Harris and Wardrop	3,519

DEVONPORT.—For the construction of a public convenience, Northcorner Quay, for the Town Council. Mr. J. F. Burns, Borough Surveyor, Municipal Offices, Ker-street, Devonport:—

J. Healy	£264
T. Jenkin and Son	229

EWELL (Surrey).—Accepted for the erection of villa at Ewell, for Mrs. Omar. Messrs. Richards & Co., surveyors, 15, Wallbrook, E.C.:

L. L. Leeder and Co., Chiswick	£157
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GLEN PARVA.—Accepted for the erection of six small villa residences, for Mr. W. H. Simpson. Messrs. Simpson and Harvey, architects, Leicester:—

D. Halford and Sons, Blaby	£1,830
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KILKENNY.—For additions to workhouse, for the Union Guardians. Mr. J. F. Reade, C.E., John-street, Kilkenny:—

W. K. Cleere, Kilkenny	£252
John Dowling, Freshford	£243

LEICESTER.—For the construction of new roads and sewers on the Grange and D'Oyley Estates, for Mr. William Elliott. Messrs. Simpson and Shardlow, architects and surveyors:—

T. Philbrick, Leicester	£28,090 0 0
Bentley & Loch	8,271 2 3

LEIGH-ON-SEA (Essex).—Proposed additions to girls' school, for the Leigh-on-Sea School Board. Mr. Frank E. Smee, architect, 12, West Smithfield, London, E.C. Quantities by Messrs. Goodchild and Son, 81, Finsbury-pavement, E.C.:

Watts and English, Southend	£1,451
Davey and Sons, S. Ockendon	1,295
A. E. Symes, Stratford and Southend	1,285

LONDON.—For alterations at "The Caledonian Tavern," Stoke Newington-road, N. Mr. Herbert Riches, architect, 8, Crooked-lane, King William-street, London, E.C. Quantities supplied:—

P. Hart	£23,320
C. Deering and Son	3,189
J. C. Richards and Co.	3,150
G. E. Todd and Co.	3,147

LONDON.—Accepted for additions to the "Eagle Hotel," Snarbrook, E. Mr. Herbert Riches, architect and surveyor, 8, Crooked-lane, King William-street, London, E.C. W. Mundy:—

W. Mundy	£240
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LONDON.—For alterations and additions at No. 13, The Parade, Upper Clapton, for Mr. W. Finch. Mr. A. J. England, architect:—

Goodall	£447
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LONDON.—For additions to 23, Rockmead-road, South Hackney. Mr. John Hamilton, architect:—

Snewin Bros. and Co.	£177
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LONDON.—For pulling down and rebuilding the "Blenheim," Cale-street, Chelsea. Mr. H. W. Budd, architect:—

Simmons Bros.	£4,393
Prestage and Co.	4,025
Martin, Wells and Co.	3,958

LONDON.—For rebuilding the "Alexandra Hotel," Wood Green. Mr. A. E. Pridmore, architect:—

Beer and Gash	£2,697
Knight & Son	2,650
J. Tennant	2,386
L. R. Lambie	2,381
F. Waller	2,290
Kilby and Crayford	2,280

LONDON.—For erecting two blocks of artisans' dwellings at High-street, Shadwell. Mr. G. Drew, architect:—

Holloway Bros.	£210,910
Clark & Bracey	9,997
B. F. Nightingale	2,683
Calman and Sons	9,396

LONDON.—For erecting a Mission Church, Chatsworth-road, Clapton. Mr. B. Crewe, architect:—

L. & H. R. Roberts	£7,389
Godfrey & Son	7,237
Lascelles	6,895
Roome	6,805

LONDON.—Accepted for erecting two houses (arranged as self-contained flats), Fulham, for Mr. Erbach. Mr. Hall, surveyor, Fulham-road:—

L. L. Leeder and Co., Chiswick	£5,000
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LONDON.—For alterations and repairs to the "Bell" public-house, Felton-street, Hoxton, N., for Messrs. Chandlers and Co. Mr. J. Needham, architect, 18, Lower Clapton-road, N.E.:

T. H. Jackson	£327 5
R. Ridgway and Sons	229 10

MIDDLESBROUGH.—For the erection of business premises Newport-road, for Mr. J. W. Bead. Mr. W. G. Roberts, architect, 61, St. Albert-road, Middlesbrough. Quantities by Fred Cartwright, Foster's Buildings, Sheffield:—

J. Howe & Co.	£1,790 0 0
Allison Bros.	1,730 0 0

MIDDLESBROUGH.—For the erection of business premises Newport-road, for Mr. J. W. Bead. Mr. W. G. Roberts, architect, 61, St. Albert-road, Middlesbrough. Quantities by Fred Cartwright, Foster's Buildings, Sheffield:—

J. Johnson	£283 3 10
Bastiman Bros.	741 5 10
J. Coates	728 18 4

MIDDLESBROUGH.—For the erection of business premises Newport-road, for Mr. J. W. Bead. Mr. W. G. Roberts, architect, 61, St. Albert-road, Middlesbrough. Quantities by Fred Cartwright, Foster's Buildings, Sheffield:—

D. Doughty	£54 4 5
Bastiman Bros.	52 0 0

MIDDLESBROUGH.—For the erection of business premises Newport-road, for Mr. J. W. Bead. Mr. W. G. Roberts, architect, 61, St. Albert-road, Middlesbrough. Quantities by Fred Cartwright, Foster's Buildings, Sheffield:—

W. A. King	£408 12 10
Hudson Bros.	460 15 0

MIDDLESBROUGH.—For the erection of business premises Newport-road, for Mr. J. W. Bead. Mr. W. G. Roberts, architect, 61, St. Albert-road, Middlesbrough. Quantities by Fred Cartwright, Foster's Buildings, Sheffield:—

Bastiman Bros.	£159 2 5
J. Johnson	159 1 11
J. R. Smiles	145 10 0

MIDDLESBROUGH.—For the erection of business premises Newport-road, for Mr. J. W. Bead. Mr. W. G. Roberts, architect, 61, St. Albert-road, Middlesbrough. Quantities by Fred Cartwright, Foster's Buildings, Sheffield:—

J. & P. Maseall	£62 18 0
J. Harrison	62 10 0

MIDDLESBROUGH.—For the erection of business premises Newport-road, for Mr. J. W. Bead. Mr. W. G. Roberts, architect, 61, St. Albert-road, Middlesbrough. Quantities by Fred Cartwright, Foster's Buildings, Sheffield:—

Allison Bros.	£1,250 0 0
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MIDDLESBROUGH.—For the erection of business premises Newport-road, for Mr. J. W. Bead. Mr. W. G. Roberts, architect, 61, St. Albert-road, Middlesbrough. Quantities by Fred Cartwright, Foster's Buildings, Sheffield:—

G. Ripley	£253 5 2
Baker Bros	250 0 0

MIDDLESBROUGH.—For the erection of business premises Newport-road, for Mr. J. W. Bead. Mr. W. G. Roberts, architect, 61, St. Albert-road, Middlesbrough. Quantities by Fred Cartwright, Foster's Buildings, Sheffield:—

A. Lewis	£23 14 3
E. Turner	30 10 9

MIDDLESBROUGH.—For the erection of business premises Newport-road, for Mr. J. W. Bead. Mr. W. G. Roberts, architect, 61, St. Albert-road, Middlesbrough. Quantities by Fred Cartwright, Foster's Buildings, Sheffield:—

W. Malden	£3,650
W. Malden	3,590
W. C. Cheshire	3,200

MIDDLESBROUGH.—For the erection of business premises Newport-road, for Mr. J. W. Bead. Mr. W. G. Roberts, architect, 61, St. Albert-road, Middlesbrough. Quantities by Fred Cartwright, Foster's Buildings, Sheffield:—

F. J. Collier	£538
Jewel and Son	489

MIDDLESBROUGH.—For the erection of business premises Newport-road, for Mr. J. W. Bead. Mr. W. G. Roberts, architect, 61, St. Albert-road, Middlesbrough. Quantities by Fred Cartwright, Foster's Buildings, Sheffield:—

Norwich	£502 0
A. Hipperson	405 0
R. Bayes	390 0

MIDDLESBROUGH.—For the erection of business premises Newport-road, for Mr. J. W. Bead. Mr. W. G. Roberts, architect, 61, St. Albert-road, Middlesbrough. Quantities by Fred Cartwright, Foster's Buildings, Sheffield:—

Oxford	£1,593 1 8
Organ Bros	1,478 0 0
J. Wooldridge	1,471 15 11

MIDDLESBROUGH.—For the erection of business premises Newport-road, for Mr. J. W. Bead. Mr. W. G. Roberts, architect, 61, St. Albert-road, Middlesbrough. Quantities by Fred Cartwright, Foster's Buildings, Sheffield:—

ST. ALBANS (Herts).	£1,175
Miskin	1,065
Boff Bros	1,022

MIDDLESBROUGH.—For the erection of business premises Newport-road, for Mr. J. W. Bead. Mr. W. G. Roberts, architect, 61, St. Albert-road, Middlesbrough. Quantities by Fred Cartwright, Foster's Buildings, Sheffield:—

ST. ALBANS (Herts).	£1,175
Miskin	1,065
Boff Bros	1,022

MIDDLESBROUGH.—For the erection of business premises Newport-road, for Mr. J. W. Bead. Mr. W. G. Roberts, architect, 61, St. Albert-road, Middlesbrough. Quantities by Fred Cartwright, Foster's Buildings, Sheffield:—

ST. ALBANS (Herts).	£1,175
Miskin	1,065
Boff Bros	1,022

MIDDLESBROUGH.—For the erection of business premises Newport-road, for Mr. J. W. Bead. Mr. W. G. Roberts, architect, 61, St. Albert-road, Middlesbrough. Quantities by Fred Cartwright, Foster's Buildings, Sheffield:—

ST. ALBANS (Herts).	£1,175
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ST. ALBANS (Herts).	£1,175
Miskin	1,065
Boff Bros	1,022

SOUTHEND (Essex).—For the erection of a Baptist chapel, Clarence-road (Rev. E. Hogbin, pastor). Mr. Frank E. Smee, architect, 12, West Smithfield, London, E.C. Quantities by Messrs. Goodchild and Son, 81, Finsbury-pavement, E.C.:

Baalam Bros	£3,025
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SOUTHEND (Essex).—For the erection of a Baptist chapel, Clarence-road (Rev. E. Hogbin, pastor). Mr. Frank E. Smee, architect, 12, West Smithfield, London, E.C. Quantities by Messrs. Goodchild and Son, 81, Finsbury-pavement, E.C.:

Dupont	£2,547
Hardley and Elvey	2,520
J. Davey and Sons	2,447
South Ockendon	2,447

SOUTHEND (Essex).—For the erection of a Baptist chapel, Clarence-road (Rev. E. Hogbin, pastor). Mr. Frank E. Smee, architect, 12, West Smithfield, London, E.C. Quantities by Messrs. Goodchild and Son, 81, Finsbury-pavement, E.C.:

* Amended estimate accepted, £2,108.	
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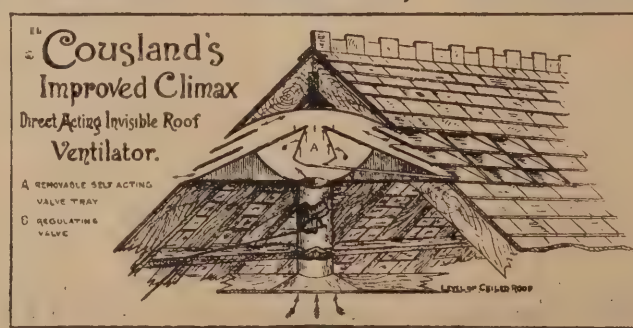
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W. Lee and Son, High Wycombe ... £734 19 7
SOUTHAMPTON.—For the erection of school buildings, Ludlow-road, Woolston, for the U.D. School Board of St. Mary Extra, Sholing and Hound. Messrs. Mitchell, Son, and Gutteridge, architects, 9, Portland-street, Southampton :—
Witt Bros. ... £6,950
Jenkins and Sons ... £6,097
Playfair and Toole ... £6,846
Rashley ... £5,946
H. Cawte ... £6,137
Hinton Bros., Woolston, Southampton* ... £5,411
H. Stevens and Co. ... £6,123
* Accepted subject to approval of Education Department.†

SWINDON (Wilts).—For the erection of schools and hall, Holy Rood, for the managers. Messrs. Silcock and Reay, architects, Octagon Chambers, Milson-street, Bath :—
Hawkins ... £5,800
Flint ... £5,787
Williams ... £5,532
Merredew and Wort ... £5,534
* Accepted subject to certain deductions.
WHITSTABLE (the Tankerton Estate).—For the erection of two fourteen-roomed villas. Mr. Symyth, surveyor, London :—
Hardwell, Sons, & Co. £1,600
W. R. Smith ... 1,523
L. L. Leeder and Co.* £1,512
* Accepted.

WALTHAMSTOW.—For the erection of public baths, for the Urban District Council. Messrs. Spalding and Cross, architects, 15, Queen-street, Cheapside, London, E.C. Quantities by Mr. George T. C. Wright, 3, Great Winchester-street, E.C. :—
Gould and Brand ... £16,895
F. W. Smith ... £15,678
Walter Lawrence ... 16,800
J. Allen and Sons ... 15,500
Kingerlee and Sons ... 16,575
Balaam Bros. ... 15,450
C. G. Hill ... 16,300
General Builders, Ltd. ... 15,000
W. Shurmur ... 16,200
Hunley Bros. ... 14,890
J. Chessum and Sons ... 15,922
Kilby and Gayford ... 14,836
T. E. Mitchell ... 15,887
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CONTRACTS OPEN.**TO BUILDERS AND CONTRACTORS.**

The London County Council is prepared to receive TENDERS for the ERECTION and COMPLETION of a NEW BOTHY and ALTERATIONS to CONVENIENCES at Parliament Hill, and the ERECTION and COMPLETION of a NEW CART SHED, BOTHY, OFFICE, &c., at Southwark Park.

Persons desiring to submit Tenders may inspect the drawings and obtain the specifications, bills of quantities, form of Tender, and other particulars, at the Architect's Department, County Hall, Spring-gardens, S.W., upon payment of the sum of Ten Shillings for each set of particulars.

This amount will, after the Council or its Committee has come to a decision upon the Tenders received, but not before, be returned to the Tenderer, provided he shall have sent in a bona-fide Tender and not have withdrawn the same.

Tenders must be upon the official forms, and the printed instructions therein must be strictly complied with.

The Contractors will be bound by the contract to pay to all workmen (except a reasonable number of legally-bound apprentices) employed by them wages at rates not less, and to observe hours of labour not greater, than the rates and hours set out in the Council's list, and such rates of wages and hours of labour will be inserted in and form part of the Contract by way of schedule.

Each Tender is to be delivered at the County Hall in a separate sealed cover, addressed to the Clerk of the London County Council, and marked "Tender for the Erection of a Bothy, &c., at Parliament Hill," or "Tender for the Erection of a Cart Shed, &c., at Southwark Park," as the case may be.

No Tender will be received after TEN a.m. on TUESDAY, SEPTEMBER 27th, 1898.

Any Tender which does not comply with the printed instructions for Tender may be rejected.

The Council does not bind itself to accept the lowest or any Tender, and it will not accept the Tender of any person or firm who shall on any previous occasion have withdrawn a Tender after the same has been opened unless the reasons for the withdrawal were satisfactory to the Council.

C. J. STEWART,
Spring-gardens, S.W., Clerk to the Council.
September 3rd, 1898.

COUNTY of SOUTHAMPTON.

COUNTY LUNATIC ASYLUM, KNOWLE,

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A deposit of one Ten Pound Bank of England note will be required for each set of plans and specification. The deposit will be refunded on the return of the plans and specification, together with a bona-fide Tender.

Tenders, strictly in accordance with forms supplied by the County Surveyor, to be delivered to me on or before OCTOBER 11th next.

The Committee do not bind themselves to accept the lowest or any Tender.

JOHN R. WYATT,
Clerk to the Committee and Visitors.
Knowle,
August 31st, 1898.

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TO BUILDERS AND CONTRACTORS.

The London County Council is prepared to receive TENDERS for the ERECTION of TWO BLOCKS of DWELLINGS to be known as Benson and Abingdon Buildings, respectively, on the Boundary-street area, Bethnal Green, and also for the ERECTION of COTTAGE DWELLINGS at Brook-street, Limehouse.

Persons desiring to submit Tenders may inspect the drawings and obtain the specifications, bills of quantities, form of Tender, and other particulars at the Architect's Department, 17, Pall Mall East, S.W., upon payment of the sum of £5 in cash in each case.

These amounts will, after the Council or its Committee has come to a decision upon the Tenders received, but not before, be returned to the tenderer, provided he shall have sent in a bona-fide Tender and not have withdrawn the same.

Tenders must be upon the official forms, and the printed instructions contained therein must be strictly complied with. As regards all work to be done at the sites, or elsewhere within a radius of twenty miles from Charing Cross, the contractors will be bound by the contract to pay to all workmen (except a reasonable number of their legally-bound apprentices) employed by them wages at rates not less and to observe hours of labour not greater than the rates and hours set out in the Council's list, and such rates of wages and hours of labour will be inserted in and form part of the contract by way of schedule.

Tenders are to be delivered at the County Hall in sealed covers addressed to the Clerk of the London County Council, and marked "Tender for Benson Buildings," "Tender for Abingdon Buildings," and "Tender for Brook Street Cottages," respectively.

No Tender will be received after TEN o'clock a.m. on TUESDAY, OCTOBER 4th, 1898. Any Tender which does not comply with the printed instructions for Tender may be rejected.

The Council does not bind itself to accept the lowest or any Tender, and it will not accept the Tender of any person or firm who shall on any previous occasion have withdrawn a Tender after the same has been opened, unless the reasons for the withdrawal were satisfactory to the Council.

C. J. STEWART,
Spring Gardens, S.W., Clerk to the Council.
September 5th, 1898.

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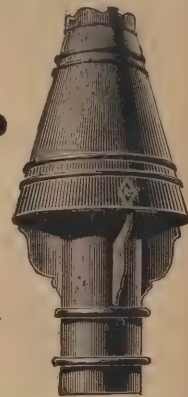
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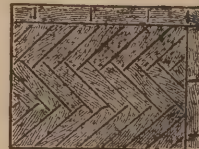
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The Cremation of Sewage.

ARCHDEACON SHERINGHAM'S letter on sewage disposal has called forth a lengthy commentary on the subject by "Non-Pollution," who has written to *The Times* as follows:—"Your correspondent, Archdeacon T. W. Sheringham, Canon of Gloucester, calls attention to the failure of our present methods of sewage disposal in England and the scandalous pollution of our rivers and sea coast, and pleads for 'the erection of huge furnaces at the outfalls of our drains' and the cremation of sewage. No one who travels in England can fail to agree with Archdeacon Sheringham as to the disgraceful state of things at present, or withhold sympathy with him in his desire to render the rivers and sewage farms more pure and less offensive. But the improvement of these matters is not a simple problem, but one calling for much study and special knowledge, as will at once be apparent from a consideration of the circumstances under which the existing conditions of our rivers and sewage farms have grown up. So far back as 1875, when the Public Health Act of that year was passed, the disposal of the sewage of our towns was sufficiently important to call for legislative action, and in the following year the Rivers Pollution Prevention Act of 1876 was passed, under which Act, no one, neither a sanitary authority dealing with the sewage of a district nor a private manufacturer dealing with the trade waste of his business, was allowed to discharge any polluting matter into a stream unless he could show that he was using the

'BEST KNOWN AND AVAILABLE MEANS

of rendering such polluting matter harmless.' Here we find an authoritative admission of the difficulty to be overcome, and a loophole of escape for an offender which has naturally been made the most of during the past twenty odd years. But the Government of that day, recognising how real were the difficulties to be overcome, appointed a special Commission to investigate the subject and assist with advice, which they did in a report issued in 1881. In that report, the Commission having ascertained the very great intricacy of the problem and the insufficiency of our scientific knowledge at that time to deal satisfactorily with it, declined to fix any definite standard of purity which should be legally considered unpolluting, and uncertainty and considerable variability on that point exists to this day. The only practical result arrived at by that Commission was that no treatment of sewage by chemical precipitation and filtration was good enough to give an effluent sufficiently pure to be discharged into a stream, but that the safest method of purifying sewage was to irrigate land with it, trusting to the nitrifying action of the micro-organisms in the soil to dispose of the nitrogenous organic putrescible matter in the sewage. This rather vague and uncertain finding of that Commission has formed the basis of what may now be considered as the law in England, viz., that all sewage be treated on land before it can be allowed to flow into a stream; hence the universality of the sewage farm. At the time this ruling of the Special Commission was published the action of the bacteria in different soils had not been carefully or sufficiently studied; it had not been considered how slow this action is under natural conditions at different seasons of the year, even in suitable soils, and how practically useless such treatment is on many soils. The elements of

FAILURE BY LAND TREATMENT

are too numerous and too important ever to make this method a safe and satisfactory process of sewage disposal. The unsuitability of the soil, the great difficulty of proper and even distribution of the sewage, the fall of the temperature below 37° F., when bacterial action is practically suspended; all these are elements of failure, which are more than sufficient to account for the state of our sewage farms, which, as Archdeacon Sheringham points out, are, in most cases 'miserable subterfuges.' Though the sewage farm, in 99 cases out of 100, may be admitted to be a failure, we see

there was some good reasons for its adoption, and in principle it is sound. Can as much be said for Archdeacon Sheringham's suggestion of huge furnaces in which to cremate liquid sewage, and is such treatment likely to effect the object sought for—viz., the purification of our rivers? Any one who has had experience of the evaporation of sewage, or even the burning of dry-pressed sewage sludge, knows what fearful offence is caused. Such works can be felt for half a mile at least. The nuisance could, no doubt, be minimized by the construction of lofty chimneys and the use of chemical ingredients as suggested, and the introduction of scientific and costly destructors, but will not the great cost of such treatment prevent its being used or enforced? To hang a man for sheep-stealing is not the readiest way to put an end to the stealing of sheep, it would in these days only make it impossible to get a conviction; and, in the same way, to make

THE COST OF THE SEWAGE PURIFICATION

practically prohibitive would make it impossible to put pressure on an offender. The difficulty of enforcing the law would seem to be great enough now when our large cities like Manchester, Salford, Leeds, Bradford, and others, are allowed to continue to pollute because the sums of money involved in purification are so great, and the influence brought to bear to avoid such heavy outlay is so powerful. I fear the only effect of Archdeacon Sheringham's suggestion would be that, while the water of our rivers and the land of our sewage farms remained polluted much as at present, we should in addition foul our air as well. To put a stop to the scandalous pollution of our rivers is perfectly feasible, and to do this at such a trifling cost as shall afford no excuse for non-performance of their duty on the part of any sanitary authority, or the non-enforcement of the law on the part of any county council or river authority, is also within easy reach, and it is to be hoped that the Royal Commission now sitting to consider this very important subject will, in the light of the knowledge of to-day, give a more certain sound than could be obtained in 1881. The principle laid down by the Commission in 1881 was correct. Sewage can practically only be purified

BY MEANS OF MICRO-ORGANISMS

as proved and designed by Nature; but to suppose that man may convert millions of pure water, stored and collected for the use of crowded communities, into foul sewage, and then on whatever land may be within reach reconvert this into pure water again, is to expect too much. The requirements of civilized man have created certain artificial conditions which can only be met by corresponding artificial treatment, but the law of Nature need not be transgressed or departed from. In the working of Nature it will be found that the purification of sewage on land is effected only in the upper few inches of the soil where air in the necessary quantities can penetrate, and that the land itself must be open and porous, and under such conditions the area of land required must be large, and the distribution of the sewage on it must be regular and even. Now, if an artificial filter be prepared in which the interstices in the filtering medium be sufficiently open to allow a free passage of air, and the sides of the filter be made porous so that air can enter throughout the entire depth of the filter, we have the same condition as Nature works with, only the operation, instead of being confined to the upper few inches, can be continued through a depth of many feet, thus enabling the area of treatment to be greatly curtailed, whereby accurate distribution of the sewage can be effected at little expense, artificially warmed air can be supplied in winter, and all the conditions of Nature can be complied with. The operation of such an aerated bacterial filter as above described has been tested for a considerable time at the sewage farm at Hendon on the Brent, within an hour's drive of London, and should be seen by all those interested in the non-pollution of our rivers."

"NOISOME EXHALATIONS."

A second letter on the subject utters a protest against sewage farms. "Cheltonian,"

writes:—"Archdeacon Sheringham, in his letter, hits the nail on the head when he says that the turning of fair streams into foul drains is 'not only a hideous blunder but a hideous crime,' and he drives it home when he calls attention to the 'miserable subterfuges' called sewage farms, which 'at their best result in the spread of noisome exhalations over fair fields instead of fair rivers.' Let me take an example in the archdeacon's own county, viz.,—the town of Cheltenham. By means of its sewage, Cheltenham has partially surrounded itself with hundreds of acres of land which has become simply rotten through excessive saturations with foul liquid, and the various brooks running ultimately into the Severn (of the state of which the archdeacon complains) are nothing more or less than open sewers. Various landowners and farmers, for the sake of individual gain, have from time to time either sold their land to the Cheltenham Corporation or allowed it to be used for irrigation purposes, whilst their neighbours—and especially the poorer classes—have, without compensation, had the air which they breathe polluted, and in some cases their water supply contaminated. And this, forsooth, is done by the sanitary authority of a town calling itself a health resort! There are, no doubt, other towns worse than Cheltenham, and it seems certain that, if Parliament much longer allows corporations and manufacturers to go on acquiring as it were prescriptive rights to pollute the fields and streams of England, the evil will have grown beyond control. In the meantime, Archdeacon Sheringham has done a public service by calling the attention of our legislators to it. There are many of us who would prefer that the attention of Parliament should be directed more to the social welfare of the people and less to political quackery."

THE chancel of All Saints, Bristol, has recently been restored. The alterations to the chancel have been well carried out. The roof, which for some time previously had been in a somewhat dilapidated condition, has been entirely re-erected with beautifully carved oak, and the walls on either side have been thoroughly restored. Another feature of the work is the large window that has been made in the tower wall, this having been carried out with a view to the organist being more in touch with the choir. The organ is at present also in the repairers' hands, it having been resolved to thoroughly overhaul the instrument.

In the course of the excavations for the new main drainage works in Dublin, some finds of antiquarian interest have been made. There is in the old records of Dublin, mention of a supply of pipe-water to the city as early as the twelfth century, and notifications have been brought to light of the prices charged. There were no taps or stop-cocks. The water appears to have been constantly running, and the price was a sort of rent, the amount of which was regulated by the diameter of the pipe, "the breadth of a quill" being apparently the unit of measure. In the course of the excavations in Patrick Street, the pipes of these ancient waterworks were discovered. They were made of rough beams of oak, squared, and a foot or more in thickness, and of various lengths, with a three-inch bore, which appeared to be burnt through the log. The ends of these rude pipes were fastened by iron couplings. In Upper Ormond quay, at a depth of 18ft. below the surface, the workmen came upon boats. The boats were of different sizes, and were built of oak on a strong oaken frame, the peculiarity of their construction being that there were no iron fastenings, the timbers being fastened together with nails made of hard oak. In every portion of the city where the excavations were made, small clay smoking pipes were found. These are what are known as "Danish pipes." They are, however, assigned to the time of James I. They are only two or three inches in length, with a small bowl, into which the little finger would scarcely fit.

Surveying and Sanitary Notes.

FOR some time past Messrs R. H. Dorman and Henry Shillington, civil engineers, have been conducting experiments at Portadown in the treatment of sewage by a new and novel system of filtration. It is now about twelve months since the first experimental filter in connection with the septic tank at Obin Street depot was laid down. During dry weather nearly the whole of the sewage reaching the works is passed through the septic tank, when the solid matter contained in the sewage is thrown into solution by the agency of micro-organisms, and the sewage is thus brought into a suitable state for passing through the filter beds.

THESE beds are, however, very small and shallow, while the material contained in the bottom layers is too coarse, and, as a consequence, the best results are not produced, the filtrate discharged from the beds being faintly coloured, while there is a perceptible smell from it. Still the results obtained from this simple process are wonderful. The sewage is delivered daily into the tank, and the effluent discharged into the two small filters alternately, and finally discharged into the Corcain River in a clarified condition, and in a totally different state from the crude sewage which formerly entered the river. These experiments have been carried out at a very small cost, and for a very little further expenditure the works can be made capable of dealing with the whole of the dry weather flow, and a filtrate discharged into the river nearly equal in quality to the river water itself. A committee of the Town Commissioners has been appointed to watch the results that are being obtained, with power to expend a small sum on the laying out of the ground and the enlargement of the filter bed area.

THE Sanitary Committee of the Bradford Corporation have just now in hand an excellent work. It is the abolition of slums. The Medical Officer of Health has declared a considerable area on the west side of Westgate as insanitary, and under the Housing of the Working Classes Acts the Corporation have power to demolish the property condemned. In awarding compensation to the owners, account is taken of the fact that the property is insanitary, deduction is made if overcrowding has occurred, and, moreover, the usual 10 per cent. for compulsory purchase is not allowed. The legislation affecting the question attaches much importance to the report of the Medical Officer of Health, and if the Corporation should decline to take action it would be possible for ratepayers to petition the Local Government Board. However, there seems no reason to doubt that the Sanitary Committee has the welfare of the city at heart, and its action so far certainly gives promise of good work in the future. It may be noted that it often happens after condemnation of an area in this way the improved dwellings are let at rents which are too high. The Sanitary Committee contemplate the erection of through houses in substitution, which will be let for 4s. 6d. per week.

At the Berkshire Petty Sessions at Newbury last week, the Thames Conservators took proceedings against the Newbury District Council for an alleged pollution of a stream in the parish of Donnington, the same being a tributary of the River Thames. In support of the complaint two Conservancy inspectors and Professor Groves gave evidence, the latter proving that the water taken from the stream in question was badly polluted with sewage matter; indeed, far above the average. In defence, Mr. Pinniger said the district council had been doing their best to remedy the evil, but had met with a number of obstacles. They had employed an engineer, who had prepared a scheme, but the council had been unable to obtain a site for a pumping station, and it seemed likely they would be driven to

put compulsory powers in force. The justices said they were of opinion that the complainants had made out their case, and therefore the district council must pay a penalty of £3 and £5 costs. The justices said they considered the conservators should give a longer notice than three months.

In the blue-book just published, containing a report of Mr. W. N. Shaw, F.R.S., to the Local Government Board, on the ventilation and warming in certain of the Metropolitan Poor Law schools, to which we refer elsewhere, the author states that he has kept in view the intimation contained in the letter of the Local Government Board, dated Jan. 4th, 1897—namely, that it was proposed to cause the inquiry to be made "with a view to obtaining practical suggestion for the improvement, where necessary, of the ventilation and warming of each type of room in each of these schools in such form that general principles might be laid down in respect of such types, to which the guardians or managers to whom the schools belong might give effect, with the assistance of their respective architects." The various aspects of the problem of ventilation and warming are fully considered, and plans and tables are furnished to illustrate the text and make it clear in its technical bearings. Recommendations are given at the end of each section as to the best means of ventilation and warming for adoption in the various apartments of the institutions under consideration.

THE chairman and the members of the sub-committee of the Leeds Corporation, under whose direction the meat market and abattoir are being erected, have visited Birkenhead and Birmingham for the purpose of inspecting the overhead gearing at the meat markets and abattoirs in these towns before making a final selection. They had an opportunity of seeing in operation the latest improvements in overhead gearing, which have only been adopted within the past few weeks, and they were very favourably impressed by what they saw. Tenders are now invited.

THE law calls upon the owner of a house, and not upon the tenant, to open and clear choked drains. If the drain has collapsed, the owner does not grumble at being required to rectify the mischief, but he finds it hard when, as in a recent case in Liverpool, he is required to bear the cost of restoring to the negligent tenant an umbrella, a broom, and a Bible. Another grievance on the part of houseowners as against careless tenants is found in the tearing of lobby papers and plaster by means of bicycles especially and bassinettes generally, the pedals of the one and the wheels of the other being very destructive. An elastic, or at least a wider, lobby may be found in the house of the future, but only care will prevent damage in the house of to-day.

THE Town Council of Retford has received the formal sanction of the Local Government Board to the borrowing of £40,000 for carrying out a sewage scheme.

A PIER of the Ottawa and New York Railway bridge over the St. Lawrence River fell recently, carrying two spans. Thirty workmen were killed and twelve injured.

THE Stockport Corporation is about to make an effort to acquire the property of the Waterworks Company which supplies Stockport and a surrounding district, in which the total population is over 200,000.

MESSRS. BELL, of Liverpool and Nottingham, the contractors for making the new railway bridge across the estuary between St. Issey and Padstow, have succeeded in reaching to the foundation in the fourth and last cylinder in over 54ft. of mud, below low-water mark. This work has entailed a considerable amount of labour, skill, and anxiety, both by night and day, and entailed the use of special machinery to carry it out.

Builders' Notes.

THIS is an exceptionally active era of bridge re-building on the Thames. Vauxhall, Lambeth, and Kew bridges are coming down, to be replaced by others more suited to the enormously increased traffic of these later years; while already, within the last decade, Battersea and Putney bridges have been reconstructed. It is now being discovered that the old bridge at Richmond is too narrow and has too steep a roadway for the very busy suburban traffic, including lines of omnibuses which now cross the Thames at this point. Preliminary discussions are arising about the expediency of replacing it with a newer and more commodious edifice. The existing bridge was built between 1774-7, and, architecturally speaking, is a fine and interesting object in the river scenery, so that a proposal which has been made locally to build a new bridge rather lower down the river and to preserve the old one as a promenade is rather a happy one.

WILLIAM WHITE MORGAN, carpenter, was killed at Newport on Saturday week by being impaled on iron railings. The deceased was assisting another joiner in fixing in place a large piece of timber to support rafters on the roof of the extension to the Alexandra Dock Hotel, Newport. Cann, the other joiner, was standing on the top of a wall a brick and a-half thick, holding one end of the piece of timber known as the purlin, the other end resting on another wall 20ft. away. He had the end on his shoulder, and asked deceased, who was on the scaffold 3ft. below the top of the wall, to cut a length of strut shorter, as the one put in was too long. Then Cann took the shorter piece and held the notched end to the purlin, directing deceased to knock away the longer strut, and to be very careful about how he did it. Deceased used the 2½lb. hammer too vigorously, or the strut was not fixed as he supposed, and he lost his balance and fell backwards as the strut came out. The drop was 28ft., and deceased fell on his chest on to iron railings, three of the spikes of which penetrated his body and killed him almost instantaneously.

THOUSANDS of Londoners have gazed inquiringly at the curious structure that has been slowly emerging from the Thames at Charing Cross during the past four months. The structure is connected with the forthcoming electric railway from Waterloo to Baker Street. The fact is that one of the excavating stations of the electric railway is to be formed in the river at this point almost under the shadow of the South-Eastern Railway viaduct. The sinking of piles for the staging began about Whitsuntide, and the timber frame structure, which is 226ft. long by 50ft. broad, is now nearing completion, being surmounted by a derrick and two steam cranes. It projects at a right angle from the first pier of the railway bridge in a westerly direction, and is parallel to the Embankment. From the centre of the staging a caisson will be sunk, and by its means the excavation will be carried on, and the iron-work for the electric line will be conveyed below the surface. As the work is estimated to take five years, the public will have ample time to grow familiar with the somewhat ungainly structure that is now one of the most prominent objects at this part of the Thames. There are, of course, certain advantages in the site from an engineering point of view. For instance, the excavated material can be conveyed directly to barges alongside the staging. The work is entrusted to Messrs. Perry and Co., of Tredegar Works, Ordell Road, Bow.

THE Maidstone Corporation is inviting plans for a combined scheme of electric lighting and dust destruction for the borough. The idea is to utilise a portion of the Lock Meadows as a site for the electric lighting station and dust destructor, and to erect stables, &c., for the Town Council's horses and appliances on the same spot.

MASONRY.

By JAMES WILDING.

(Continued from page v.)

No. VII.—TRACERY WINDOWS.

BEFORE a mason can hope to grapple successfully with the work entailed in setting out tracery windows he should be familiar with plane geometry. Often is a well designed window spoiled because the setting out is faulty. Very accurate squares and trammels are needed for the work on the large drawing board—a very slight error soon becomes much magnified by repetition. Usually the drawing supplied by the architect is one to the scale of one-twelfth, and is nearly always drawn completely—it has often been

should be treated as though it was the voussoir of an arch, and the beds placed parallel to the joints. In all laminated rock this is very necessary. The mullions are usually set with the beds to the reveal—if set on the natural bed the expense of working is much greater—the result is, however, more satisfactory.

The example chosen to illustrate this article is a simple one. The window has, as its underlying construction, three circles placed inside one circle. This is shown as follows: Divide the circle A, B, A, into six equal parts, viz., A, 1, 2, B; 3, 4, A; produce 2 4 indefinitely in length; produce a line from point A to the right horizontally to cut 2 4 in C.

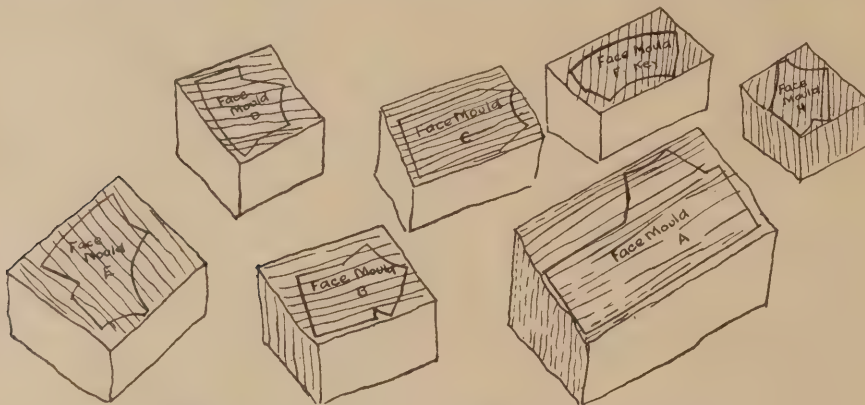
Bisect this angle as follows, with C as centre and any distance, in this case CK, describe the arc KF, with F as centre, radius KF, describe KM, with K as centre, radius KF; describe FN, intersecting KM at R; produce line from

i.e., must give the same result when applied from either face. Nearly every mason will differ slightly in the way of working—the essential point aimed at in each case is accurate squaring through of the face mould which gives the containing lines. The “nose” lines are put on by means of straps or are “trammelled” round, where this can be done with advantage. Much nicety is required with the mullion mould as it is carried round, the grooving for the lead lights needing very delicate handling.

A very useful guide to masons when working a large window, required to be as much as possible on its natural bed, is to place the large scale drawing in the shed, with each stone lettered and numbered on the drawing.

All tracery windows have to be “handed,” i.e., the right and left hand side have to be worked to suit their respective positions. Usually the method of working is to work with the “line-up” (i.e., the nose lines and cusp lines) for one side and “lines down” for the other. A little examination of the window used as an example will make this matter clear.

(To be continued.)



SKETCHES OF FACE MOULDS IN POSITION TO NATURAL BED.

Trade and Craft.

DUCKETT'S SLOP-WATER CLOSETS.

Some time ago the Lincoln Corporation gave notice to an owner of property to remove several of Duckett's slopwater closets, and to substitute closets which entailed the use of Corporation water. It was alleged that the existing closets were not sufficiently water-closets and were insanitary. The owner declined to comply with

observed by men who have to make the working or full-size drawings that if one-half was left so as to show the generating lines many mistakes and much time might be saved. On a smooth well-chalked board the window is set out full size—that is one-half fully, and so much of the central portions as are needed. The positions of the joints are then decided upon and so arranged that each joint is directed from the point which is used to describe the arc of the circle from which it starts—it often happens that two or more circles will be intersected by a joint—hence it is seen by examining the simple example shown that the striking points of the various curves are also the points to which or from which the joints should be directed. The occasions where the joints are not so directed are very rare indeed. The forms of traceried windows are very varied. It should be clearly understood that they all have a geometrical basis. The triangle and polygons with the circle are the main underlying structural features.

To set out a tracery window well the following simple directions will be found of much value:—

(1) If the window is a very large one, a drawing made to, say, the scale of one-sixth or even one-fourth full size will give greater facility for the study of constructional difficulties.

(2) The production of such a drawing will fix in the mind of the setter-out the geometrical forms underlying the design.

(3) The said enlargement submitted for the approval of the architect with the joints marked thereon will settle any difference of opinion there may be as to joint position.

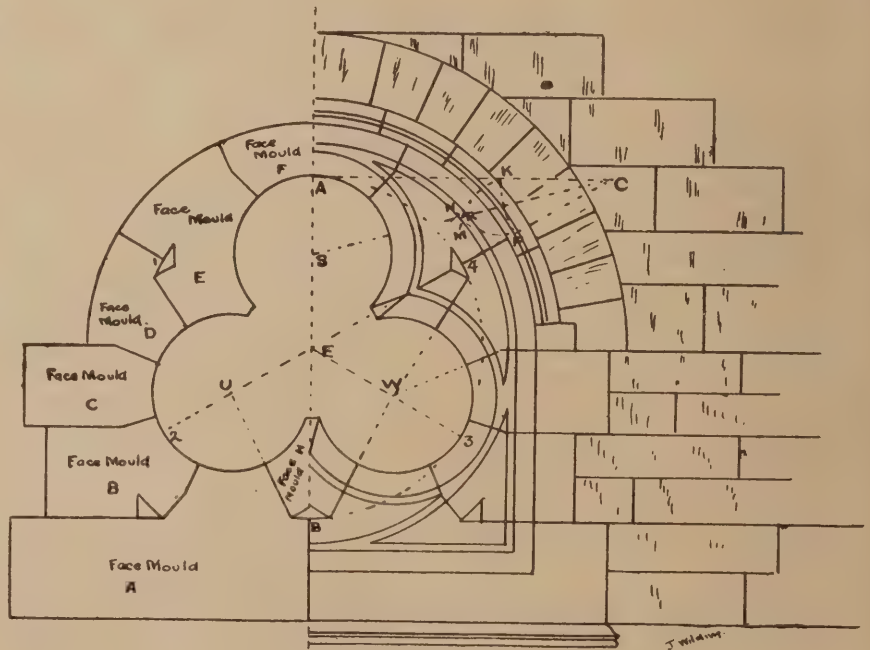
(4) The enlargement to full size is a simple matter calling only for extreme accuracy. Many set out the centre line of each nose, and allow them to form the network of the design.

(5) One-eighth of an inch should be allowed for joint room.

All dowels should be of slate or copper.

All joints should be grouted with cement. Wherever a trammel can be used for fixing purposes it should be so used.

The vexed question as to the position of the natural bedding of stone in tracery is always to the front. Many hold—and rightly so—that so far as is possible each piece of tracery



TRACERY WINDOWS.

C through R, to cut centre line of main circle at S. S A is the radius required.

Mark the centre of the main circle with the letter E, with E as centre and E S as radius; set off V W on lines 2, 4, and 1, 3 respectively. With the centres S V W describe the three circles, which should just touch, but should not cut each other. By careful examination of the figure, the joint line will be easily followed. The left hand side shows the face moulds only. The stone is sawn to a proper thickness, and the several moulds arranged on the “tooth” of the slab, so that waste may be avoided. The sketches show the face moulds applied to the slab, with the direction of the natural bed indicated in each case. Great care must be taken in squaring the lines through from face to face—the square must “turn”—

the notice, and the Corporation therefore carried out the work, charging £17 as the cost thereof. Payment was refused by the owner, and an appeal was made by him to the Local Government Board. A local inquiry was held in March last, and evidence taken by the inspector. The decision of the Local Government Board has now been given, and an order has been made that the owner be not called upon to pay the charges of the Corporation or any portion thereof, and that the Corporation pay the Local Government Board's costs in the matter. The closets referred to were examples of Duckett's well-known patent closet arrangement B. The Local Government Board evidently considers this closet is sufficiently sanitary for outside use in connection with cottages.

VENTILATING AND WARMING SCHOOLS.

THE Local Government Board has just issued an elaborate report by Mr. Wm. N. Shaw, F.R.S., of Emmanuel College, Cambridge, on ventilating and warming in certain Metropolitan Poor Law Schools. It gives the opinions of an expert on both questions; and we, therefore, give some passages of general interest. He first lays down the

GENERAL PRINCIPLES upon which his criticisms are based. First, as to the amount of air required for ventilation. Since the rooms can be thoroughly aired by opening the windows fully in the "recess," after about an hour's use we may restrict the amount of air to that required for keeping the air within the limits of respirable impurity for an hour. This consideration enables us to reduce the supply from that required for ventilating with a view to continuous occupation in the ratio of two to three. Dr. de Chaumont fixed it at 2000 cubic feet per hour for an average audience. If we allow some deduction on account of the members of the audience in our case being smaller than the average, we may, perhaps, put down 1500 cubic feet per hour per child as the amount required. Dr. Carnelly, in his "Report on the Heating and Ventilation of Schools," wherein he supported the view that

MECHANICAL VENTILATION by propulsion is the best method in practice for ventilating schools, quoted quantities between 800 and 1400 cubic feet of air per head of accommodation as supplied by mechanical arrangements in good order at certain schools reported upon, so that 1500 cubic feet per hour would seem to be a good allowance. This allowance per head implies, however, an enormous flow of air through the windows or other openings by which air is supplied for ventilation. We require for classrooms more effective cross ventilation, and a greater window opening than in the case of dormitories. At the same time there is need for quite as great, or even greater, care to protect the children against draughts, for they are more exposed to the cold than when they are under the bedclothes. It is not, therefore, a matter for surprise that when schools are to be ventilated, the mechanical method, by which a certain definite volume of warmed air can be delivered where it is wanted, should gradually gain ground as the most effective method of

SOLVING A DIFFICULT PROBLEM. As regards temperature, Morin gives 59 deg. F. as the proper temperature for schools. Some latitude may be allowed, but the temperature ought not to be allowed to fall below 57 deg. F. In order to maintain the temperature, closed stoves, open fires, fires with fresh air supply, hot water pipes, steam pipes, or steam radiators, are used in different school-rooms. Closed stoves cannot be regarded as a permissible form of heating for rooms that

require warming and ventilating for a number of persons distributed more or less uniformly over the whole floor space. Their numerical efficiency as warming agents is very high, but they afford very little assistance to the ventilation. The most serious practical difficulty arises when the warming has to be combined with ventilation for a large number of persons. All the air inlets are cold. The stove distributes most of its heat by combustion, the direct heating is very local, and is associated with a rapid upward current of very much heated air all round the stove. The cold incoming air reaches the stove by coming through floor ventilators, or by dropping down to the floor and moving along it towards the vertical rising column round the stove. Before it becomes warm it has already performed its ventilating. There is, therefore,

NO SATISFACTORY DISTRIBUTION OF HEAT and air together. A room heated by closed stoves is always close if it is warm. Open fires are themselves very active ventilators; they are unsuitable for warming and ventilating rooms occupied by a large number of persons, because they distribute their heat mainly by radiation, and in a schoolroom it is practically impossible to distribute the desks so that each occupant gets an equal share of the radiation. The ventilating grates with fresh air supply afford considerable improvement, if the supply of warmed air can be successfully distributed over the room. The warmed air naturally rises at once to the ceiling, and there is danger of its passing into extract flues without having been used. In a room warmed by an open fire there is an upward current of air near the grate rising to the ceiling and passing along it. The warmed air from behind the grate should be delivered into this current. The system is very much disturbed when a room is lighted by gas jets unprovided with separate flues, for in that case a reservoir of air

VITIATED BY THE GAS collects at the ceiling and must find its way out at the top of the room, otherwise the whole air of the room becomes very heavily loaded with impurities due to the gas. To deliver warmed fresh air into this reservoir of heated and vitiated air is simply to waste it. It is from this point of view an advantage to have the amount of air delivered from behind the fires as large as possible and only slightly warmed, and to have it delivered not higher than the top of the grate. One open fire will provide ventilation for about fourteen children in a classroom under the conditions indicated. A good deal of supplementary ventilation will therefore be required in the way of cross ventilation, where a classroom for sixty children has only a single open fire. Hot-water pipes and steam pipes distribute the heat satisfactorily, and they diffuse the air of the room by the local air circulation which they produce, but, as applied to schoolrooms, they are open to the objection that of themselves they give rise to so little head for ventilation that it is difficult to get the necessary amount of air through the rooms.

FELLING A CHIMNEY.

A HUGE, solidly built, circular chimney, some 80yds. high, and containing, on a rough estimate, about 3500 tons of bricks, has just been razed to the ground at Preston. There is something fascinating in the spectacle of a big building, which has taken perhaps several months to erect, being levelled to the ground in as many seconds. The work of felling this huge stack had been entrusted to the renowned "Lancashire Steeple Jack," Mr. Joseph Smith, of Rochdale, who has had a unique experience as a repairer, straightener, and feller of chimneys. Of course, a good deal of careful preparatory work is necessary before the coup de grace is given which brings the towering giant to the earth. On Monday week Mr. Smith's experts and the contractor's workmen began the process of cutting away a portion of the base of the chimney stack and inserting stout timber props, which, at a given time, are to be burnt away, with the result that the chimney collapses. The principle is simplicity itself, but its application requires the exercise of great skill and judgment, and the nerve and control of a master mind. The great gap cut in the bottom of the stack was neatly filled with 160 props, 5ft. 6in. long, 6in. wide, and 6in. deep. The combustibles employed consisted of 6½ tons of coal, four tons of coal pitch, four barrels or 168galls. of tar, three barrels or 126galls. of paraffin, 40 bags of shavings, and 6 tons of firewood—material for quite a respectable bonfire. Mr. Smith had arranged that the chimney should fall along a vacant plot of land in the direction of Strand Road, and a rope was carried round this enclosure. The chimney had

CANTED DURING THE UNDER-PINNING. Its declination from the perpendicular was, of course, infinitesimal and undiscernible, but Mr. Smith pointed out some slight, almost microscopical, rifts in the mortar joints at the back of the square base of the chimney, which told their tale to the practised eye. When the match is applied the flames spread with amazing rapidity; the combustibles crackled and roared fiercely, and dense volumes of smoke rolled to leeward. Mr. Smith remained behind, intently watching the progress of the fire, and feeding it continually with bucketsful of paraffin. The flames mounted higher and the furnace roared with redoubled fury. Ten minutes had elapsed. The steeplejack went round to the rear of the chimney and minutely scrutinised the surface. He listened for the characteristic "groan"—weird sounds which echo in the chimney, and which announce that the structure is about to collapse. A few more bucketsful of paraffin are dashed into the furnace. A few more moments elapse, and then the huge structure topples, and with a grinding crash descends to the ground along the track prepared for it by the "steeplejack."

THE Hampstead Guardians have accepted a tender for £1025 for fitting up their work-house with the electric light.

COMPLETE LIST OF CONTRACTS OPEN.

DATE OF DELIVERY.	WORK TO BE EXECUTED.	FOR WHOM.	FROM WHOM FORMS OF TENDER MAY BE OBTAINED.
BUILDINGS—			
Sept. 23	Bridlington—Warehouse	W. Neal	S. Dyer, Bridlington Quay.
" 23	Bridlington—Villas	W. Neal	S. Dyer, Bridlington Quay.
" 23	Churchtown—Villa		Horn's Hotel, Churchtown.
" 23	Coe-france—Walls, &c., at Board School	School Board	J. C. Rees, Church-place, Nenth.
" 23	Glasgow—Erection of Iron Fencing, &c.	Corporation	A. B. McDonald, City-chambers, Glasgow.
" 23	Glasgow—Erection of Retaining Wall	Corporation	A. B. McDonald, City-chambers, Glasgow.
" 23	Gloucester—Cattle Lairs, &c.	Corporation	E. Read, Guildhall, Gloucester.
" 23	Mallow—Repairs, &c.	Guardians	Borough Engineer, Mallow.
" 23	Lewes—Asylum Buildings		H. Card, County Hall, Lewes.
" 23	Stroud—Additions to Workhouse	Union	W. H. C. Fisher, Rowcroft, Stroud.
" 24	Abbotskerswell—Loose Boxes, &c.		W. F. Tollit—Gate House, Totnes.
" 24	Bath—Disinfector House		C. E. Fortune, Guildhall, Bath.
" 24	Exmouth—Shed	Urban Sanitary Authority	W. D. Harding, Town Surveyor, Exmouth.
" 24	Bury St. Edmund's—Chimney Shaft	Corporation	J. C. Smith, C.E., Bury St. Edmund's.
" 26	Buxton—Bridge	Urban District Council	Town Surveyor, Town Hall, Buxton.
" 26	London, S.E.—Boundary Fencing	London County Council	Parks Dept., County Hall, Spring-gardens, S.W.
" 26	Chepstow—Rebuilding Hotel	Councillor E. Hughes	Veall and Sant, Cardiff.
" 27	London, S.E.—Cart Shed, Bothy, &c.	London County Council	Architect's Department, County Hall, Spring-gardens, S.W.
" 27	Ross—Post Office	Commissioners H.M. Works	H.M. Offices of Works, Storey's-gate, S.W.
" 27	Walsall—Enlargement of Post Office	Commissioners H.M. Works	H.H. Offices of Works, Storey's-gate, S.W.
" 27	Swansea—School	School Board	A. W. Halden, Board Offices, Swansea.

COMPLETE LIST OF CONTRACTS OPEN—continued.

DATE OF DELIVERY.	WORK TO BE EXECUTED.	FOR WHOM.	FROM WHOM FORMS OF TENDER MAY BE OBTAINED.
BUILDINGS—Continued.			
Sept. 28	Cwm—Rebuilding Royal Oak Hotel...	Town Council...	Rosser and Roberts, Victoria-chambers, Abercarn.
" 28	South Shields—Convenience ...	"	S. E. Burgess, Chapter-row, South Shields.
" 29	Hartlepool—Destructor House ...	Corporation ...	H. C. Crummack, Town Hall, Hartlepool.
" 30	Bridlington—Orphanage, &c. ...	"	Council's Offices, 222, Solly-street, Sheffield.
" 30	Londonderry—Rebuilding Premises...	"	E. J. Toye, Strand, Londonderry.
" 30	Port Talbot—Hotel ...	"	G. E. Robinson, Cardiff.
" 30	Wolverhampton—Alterations to School	School Board ...	T. H. Fleeming, 102, Darlington-street, Wolverhampton.
Oct. 1	Dartmouth—Alterations to Gaol ...	Town Council ...	T. C. Veale, Castle View, Dartmouth.
" 1	Leeds—Kirkgate Market Extension...	"	T. H. Hewson, Municipal-buildings, Leeds.
" 3	Kew—Bridge ...	County Council ...	A. C. Brereton, 21, Delahay-street, Westminster.
" 3	Westbury-on-Tyne—Workhouse Additions	"	W. F. Jones, 21, George-street, Gloucester.
" 4	London, E.—Two Blocks of Dwellings	London County Council ...	Architects' Department, 17, Pall Mall East, S.W.
" 4	London, W.C.—Additions to Schools	Holborn Union ...	C. E. Vaughan, 25, Lowther Arcade, W.C.
" 5	Ramsgate—Refuse Destructor ...	Town Council ...	T. G. Taylor, Broad-street, Ramsgate.
" 12	Leigh—Kitchens, &c. ...	Hospital Board ...	Banks, Fairclough and Stephen, Leigh.
" 12	Swanage—Police Station ...	Standing Joint Committee	W. J. Fletcher, Wimborne.
" 12	London, W.—Laundry at Workhouse	Guardians ...	E. T. Hall, 57, Moorgate-street, E.C.
" 13	Greenwich—Workhouse ...	Union ...	T. Dinwiddie, 12, Croom's-hill, Greenwich.
" 17	Birkenhead—Baths ...	Corporation ...	C. Brownridge, Town Hall, Birkenhead.
" 20	Cholsey—Asylum Additions ...	"	G. T. Hine, 35, Parliament-street, Westminster.
Nov. 9-21	Sophia (Bulgaria)—Public Offices	Bulgarian Ministry of Public Works	Commercial Department, Foreign Office.
No date.	Ashton-under-Lyne—Six Houses	"	T. D. Lindley, Ashton-under-Lyne.
"	Buxton—Premises ...	M. Salt... ..	Garlick and Flint, Terrace-road, Buxton.
"	Cardiff—Two Houses ...	"	6, Machen-place, Riverside, Cardiff.
"	Castleford—Two Houses ...	"	G. F. Pennington, Central-chambers, Castleford.
"	Dartford—Fifty Cottages ...	"	Greenhithe Brick & Land Co. Ltd., 9, Southampton-row, W.C.
"	East Wittering—Two Cottages	"	Estate Office, Goodwood, Chichester.
"	Gateshead—Alterations ...	W. H. Scott ...	J. G. Croone, 50, Grainger-street, Newcastle.
"	Harrogate—Additions to Granby Hotel	Granby Hotel Company Limited	Bland and Brown, North Park-road, Harrogate.
"	Haydon, Bridge-on-Tyne—Lodge, &c.	C. J. Bates ...	H. W. Taylor, St. Nicholas-chambers, Newcastle-on-Tyne.
"	Hereford—Additions to Premises	Industrial Aid Society	W. W. Robinson, 10, King-street, Hereford.
"	Kendal—Hotel ...	Whitwell Mark and Co. ...	J. Stalker, Kendal.
"	Killacoran—Cottage ...	"	E. Ellison Corballis, Rathdrum.
"	London, N.W.—Block of Flats	"	Palgrave and Co., 28, Victoria-street, S.W.
"	Plymouth—Plastering Four Houses	"	S. Roberts, New Town Chambers, Plymouth.
"	Stanley—Two Cottages ...	J. Todd ...	W. T. Jones, North Bailey, Durham.
"	Wigton—Additions to School House	"	Oliver and Dodgson, Carlisle.
"	Staplehurst—Villa, &c. ...	"	W. Brooks, Staplehurst.
"	Hinckley—Cottage Hospital ...	"	J. Wigg, Berridge-street, Leicester.
"	Hipperholme—Two Houses ...	"	J. F. Walsh, Hipperholme.
"	Sheffield—Five Houses ...	"	W. Saynor, 60, Charles-street, Sheffield.
"	Taunton—Stone Bridge ...	North Riding County Council	W. Stead, County Surveyor, Northallerton.
"	Leeds—Workshops, Engine Houses, &c.	Harding and Co. ...	W. Bakewell, 38, Park-square, Leeds.
"	Gateshead—Additions to Houses	W. H. Scott ...	J. G. Crone, 50, Grainger-street, Newcastle-on-Tyne.
ENGINEERING—			
Sept. 23	Crawley—Well Sinking ...	Waterworks Company ...	C. O. Blaber, 64, Ship-street, Brighton.
" 24	Malvern—Steam Road Roller, &c.	Urban District Council	H. P. Maybury, Council Offices, Malvern.
" 24	Nelson—Culverting ...	Corporation ...	B. Ball, Borough Engineer, Nelson.
" 26	Darwen—Crane ...	Corporation ...	Borough Engineer, Darwen.
" 26	Beckenham—Ventilating Columns	Urban District Council	J. A. Angell, Beckenham.
" 27	Hastings—Two Wells ...	Corporation ...	F. H. Palmer, Town Hall, Hastings.
" 27	Hastings—Reservoirs ...	Corporation ...	F. H. Palmer, Town Hall, Hastings.
" 28	Eastbourne—Gasholder ...	Gas Company ...	H. E. Jones, Gasworks, Harford-street, Stepney.
" 29	Bristol—Bridge Superstructure	Docks Committee ...	Engineer's Office, Cumberland Basin, Bristol.
" 29	Hull—Steel Roofs, &c. ...	Corporation ...	A. E. White, Town Hall, Hull.
" 30	Calstock—Waterworks ...	Rural District Council	Board Room, Delaware.
Oct. 1	Pembroke Dock—Waterworks	Town Council ...	Corporation Offices, Bush-street, Pembroke Dock.
" 3	Northam—Waterworks ...	Urban District Council	B. Latham, 15, Victoria-street, Westminster, S.W.
" 5	York—Extension of Staithe	North-Eastern Railway Co.	C. A. Harrison, Central Station, Newcastle-on-Tyne.
" 7	Hastings—Trench ...	Corporation ...	P. H. Palmer, Town Hall, Hastings.
" 11	Southampton—Boilers, &c.	"	W. J. Taylor, The Castle, Winchester.
" 17	Edinburgh—Gasholder Tank, &c.	Gas Commissioners ...	Gas Engineer, New-street, Edinburgh.
Nov. 10	Belem (Para Brazil)—Water Supply	Government ...	Brazilian Consulate, England.
No date.	Lochgelly—Water Supply	School Board ...	Williamson and Inglis, Kirkcaldy.
IRON AND STEEL—			
Sept. 23	Tamworth—Cast-iron Pipes	Rural District Council	H. J. Clarkson, Tamworth.
No date.	Evesham—Mains ...	Corporation ...	P. H. Fletcher, Gasworks, Evesham.
ROADS—			
Sept. 23	Durham—Road Works ...	Rural District Council	G. Gregson, Eastwood, Western Hill, Durham.
" 23	Sandal—Supply Granite...	Urban District Council	Surveyor, Regent-street, Belle Vue, near Wakefield.
" 24	Altofts—Causeway ...	Urban District Council	W. Wilkinson, Altofts, near Normanton.
" 24	London, W.—Road, &c. ...	"	E. Millard, 47, Finsbury-circus, E.C.
" 26	East Preston—Footpath Works	Rural District Council	H. Bartlett, Railway Approach, Worthing.
" 26	Beckenham—Widening Roads	Urban District Council	J. A. Angell, Surveyor, Beckenham.
" 27	London, N.W.—Paving Works	Willesden District Council	O. C. Robson, Public Offices, Dyne-road, Kilburn, N.W.
" 27	Sheerness—Road Materials	Urban District Council	Surveyor, Council Offices, Trinity-road, Sheerness.
" 29	Basingstoke—Wood Paving	Works Committee ...	G. Fitton, Town Hall, Basingstoke.
" 30	London, N.—Road Works	Urban District Council	C. J. Gunyon, Town Hall, Wood Green.
Oct. 4	Bracknell—Street Works	Rural District Council	C. J. Cave, Bracknell, Berks.
" 5	London, S.W.—Granite Spalls	Guardians ...	A. M. Henderson, Union Offices, St. John's Hill, Wandsworth
No date.	Barnard Castle—Road Metal	Urban District Council	J. Ingram, Clerk to the Council, Barnard Castle.
SANITARY—			
Sept. 23	Shardlow—Removal of Night Soil	Rural District Council	J. W. Newbold, Becket-street, Derby.
" 26	Milford—Sewers ...	Guardians ...	Workhouse Guardians, Milford.
" 26	Witney—Drainage Works	Rural District Council	N. Lailey, 16, Great George-street, Westminster, S.W.
" 27	Bury—Manholes ...	Corporation ...	Borough Engineer, Bank-street, Bury.
" 28	Bingham—Sewer ...	Rural District Council	W. Whitworth, Titchby, Notts.
Oct. 1	Epping—Sewerage Works	Urban District Council	N. Smith, 41, Parliament-street, Westminster, S.W.
PAINTING AND PLUMBING—			
Oct. 3	Castleford—Painting School	School Board ...	A. Wilson, Welbeck-street School, Castleford.
" 4	London—Re-painting Work	London County Council	Engineer's Department, County Hall, Spring Gardens, S.W.

COMPETITIONS.

DATE DESIGNS TO BE SENT IN.	DESIGNS REQUIRED.	AMOUNT OF PREMIUM.	BY WHOM ADVERTISED.
Sept. 24	Plymouth—Shops, &c. ...	£250 ...	Plymouth Town Council.
" 29	Wivenhoe—Water Supply and Drainage Schemes	"	Wivenhoe Urban District Council.
Oct. 3	Liverpool—New Buildings for Royal Institution	£52 10s., £21 ...	Harold Waterhouse, Hon. Sec., 3, Cook-street, Liverpool.
" 3	Rotherham—Extension Baptist Schoolroom (£600 limit)	"	A. Crowcroft, Clifton-crescent, South Rotherham.
" 6	Reigate—Municipal Buildings...	"	Reigate Town Council.
" 15	Ardrossan—Hospital	"	Committee of Saltcoats and Ardrossan Joint Hospital.
" 28	Chertsey—Sewerage Schemes...	£50, £30, £20 ...	Chertsey Urban District Council.
Dec. 1	Aberavon—Extension of Market	£21 ...	Aberavon Corporation.

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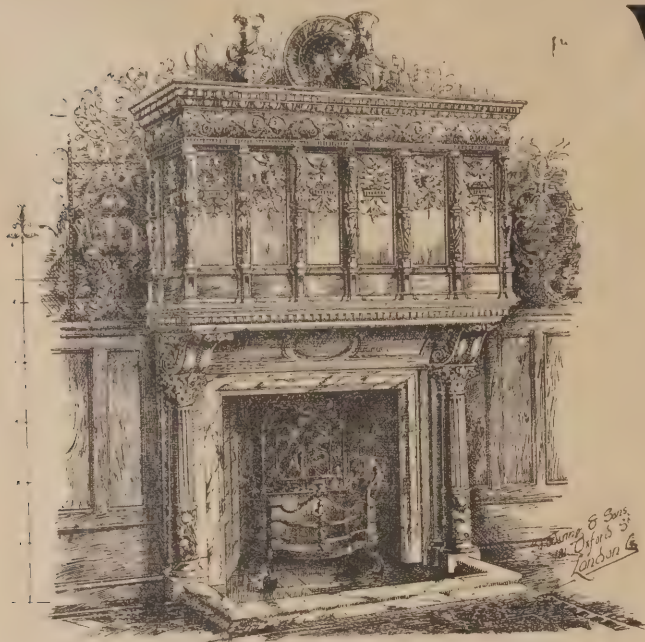
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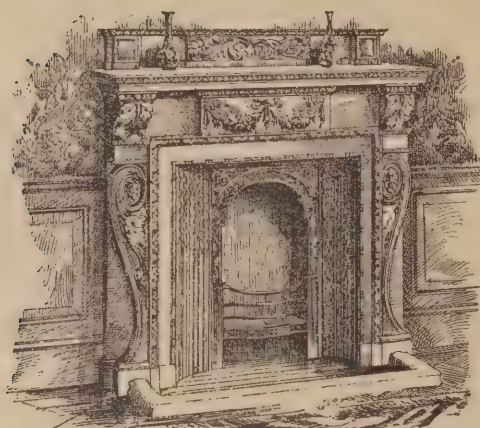
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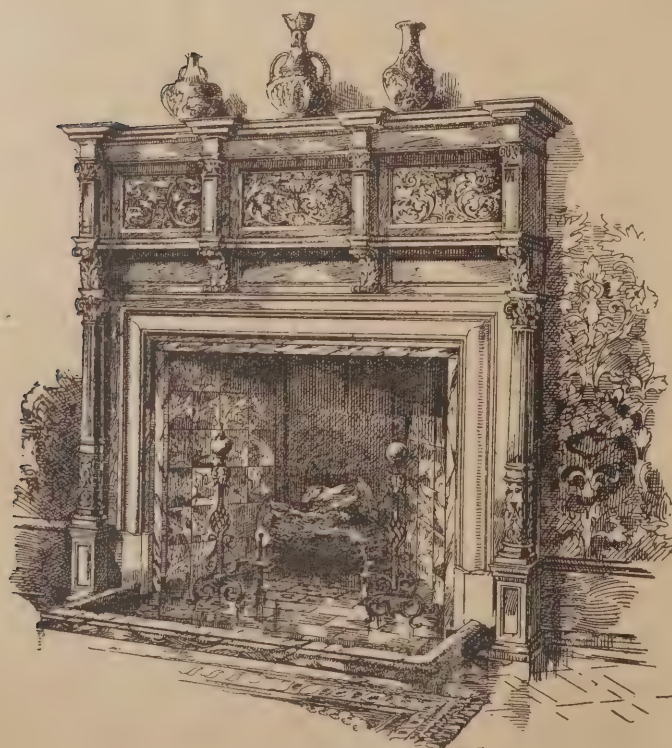
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An Architectural Causerie.

The Poetry of Stairs. PERHAPS no architectural image has become so popular with poets and painters as the representation of stairs. From the rude ladder by which primitive man climbed to his "garret" or "bewareing-place" to the luxuriously-carpeted staircase down which the modern heroine sweeps in silken gown, few structural features lend themselves so well to pictorial treatment, or have been so frequently associated with poetic ideas. In the Architecture of ancient Egypt, as we know, the conception of the symbolic beauty of stairways took splendid and permanent form:—

The mighty pyramids of stone
That wedge-like cleave the desert airs,
When nearer seen and better known,
Are but gigantic flights of stairs.

In the history of religions, "Jacob's ladder" stands as the favourite expression of that idea of different planes of being, and of actual and helpful communication between them, to which, apart from all theology, humanity returns with perpetual joy. In epic and in lyric again we find the simile used to illustrate the ascent of man, and his painful gropings. "on the great world's altar-stairs that slope through darkness up to God." Then, in the realm of imaginative painting, we have Burne-Jones's "Golden Stairs"—whose construction may seem dangerous, and even impossible, to the cold professional eye, though they serve so well their decorative purpose, and give its name to the most popular of the artist's works. And passing to humbler levels of fancy and sentiment, how many memories and associations gather round the common structural necessity of stairs! Alike in life and in romance, they are the scene of some of the most vividly remembered moments in the history of the home. With such traditions as cling around it, and therefore such scope for poetic treatment in Architecture and furnishing, it is sad to see the neglect of the staircase in the average home, and the failure to turn it to picturesque account. Often, indeed, it is nothing but a straggling lumber store, a refuge for ornaments rejected by the rest of the house. Here are assembled the third-rate pictures crowded out from the living-room walls; old-fashioned diploma studies from the antique, and the young ladies' copies of Sir Edwin Landseer; hither is exiled the stuffed canary, a melancholy and moth-corrupted bird; here the sportsman of the household may display samples of his miraculous draught of fishes; here the relics of the summer holiday may linger on until the next "spring clean." Here, if there be an alcove, we shall find the condemned easy-chair, so placed between the window and the water-tap that no one would ever be likely

to engage it for an after-dinner doze. The staircase window, too, in most old-fashioned London houses, would debar any sensitive person from loitering on his upward way, being fashioned of frosted stars, with the crudest coloured squares at each corner, through which the angles of the cistern, like the charmed sea in the "Ancient Mariner," "burn blue and green and white." Happily the newer generation of architects are restoring the staircase to its former place in the structural scheme; not as a mere convenience to be grudgingly included in the plans, but as an integral and interesting feature of the dwelling, to be decoratively treated in relation to the whole. This, of course, was the mediæval ideal; and it is only during the present century (largely no doubt through the increased price of building land) that the staircase and entrance hall have shrunk to the mean dimensions they now occupy in town and suburban terraces. Roughly speaking, there are two methods of arranging the stairs. They may either rise openly out of the central hall, which itself may partake more or less of the nature of a living-room, or they may be enclosed—in the distinctively mediæval fashion—in a chamber of their own, square, spiral, or turret-like, as the case may be, and approached by an archway or door similar to that of a private room.

This method is, perhaps, the more refined and romantic of the two; but the idea of letting the staircase spring from a central hall, sufficiently sheltered and furnished as to afford a reception-room and general *salon* for the household, may commend itself to many as a more dignified and sociable way. It also gives a certain breadth and variety to the ground floor, and a pleasant sense of space above it—the qualities which one misses most in a modern "flat." In the more commonplace of the Victorian houses the staircase is an ineffectual compromise between these two plans; the entrance hall is too meagre to sustain an air of hospitality and ease, while the stairs themselves are not housed with any snugness or seclusion. The different methods of setting the treads—whether with a closed or open string—are but the carrying out in miniature of these alternative principles; and in the arrangement of them round a centre—whether wall, well, or newell—there will of course be ample scope for diversity and ingenuity of design. The main contention of the critic is that the staircase, recently neglected and abused, should be brought more within the decorative scheme of the whole dwelling, and should have shed upon it more of the spirit of hospitality and beauty which should pervade the dwelling-rooms around it. E. W.



MARKET CROSS, EDINBURGH. RESTORED BY MESSRS. MITCHELL AND WILSON

"SOME LATTER-DAY PROCLIVITIES."

To the Editor of THE BUILDERS' JOURNAL.

SIR.—The article having the part honour of your front page in last week's Journal has moved me to question the omniscience of the writer, and his conclusions and denunciations on "some latter-day proclivities."

I had some little consolation when reading it, for I realised that the writer was not at present armed *cap-à-pie* and was riding atilt at the world in general. He confines himself at first, with moderation marvellous to behold, to denunciations of "the insect which gives itself up to inordinate self-applause." I wonder who would recognise in this the harmless and most necessary barn-door fowl! From the contemplation of this "insect" destroying the "smiling peace of mind" of the hen-loft, which he informs us is so essential to the laying of eggs, he leaps with an agility, which cannot but be admired, to the contemplation of the modern architect and the "whole brood of latter-day artists."

Who the whole brood of latter-day artists are I cannot imagine from the characteristics he gives us with such lavish hand. I am completely in the dark as to their identity, yet have a vague conviction that they are some new "insect" whose fame has not come down to us.

The sincerity of his attack upon English art of to-day cannot be doubted. Yet I cannot help thinking that its great fault to him is its present tense. The ease with which he takes up the cudgels against it imply a want of sympathy with the newer ideals of to-day; and because they are of to-day, because he sees the travail of their birth, he doubts of their genuineness and sneers at their self-consciousness.

War! plague! revolution! he cries, with the abandon of a child who knows not consequences, would bring about an ascendancy, a reformation in the arts. This, no doubt, is true, but what an awful price to pay for a mere momentary flame of vigour and revival in the arts.

Enthusiasm, passion, living activity; all this would doubtless come about, but above it all would be heard the voice of wailing which could not be comforted.

His attitude here seems that of asceticism run mad. He must be reminded that there is a world of men outside the ascetics who have to go through an unchanging round of toil without the consolation of his quaint conceits.

He is in a petulant mood with to-day; it is natural enough when the great masters come before one, but he should use of that self-examination he so hates, and he would see how irrational his point of view is to a man of action.

Many reading his attack would say "Here is a writer of capability and power, but where are his actions?" Ah! indeed; where are they? Is he adding to the necessary vitality of the age?

It is always safe to kick the labouring present century; call it bad names—degenerate, unproductive, &c.; but when it is gone the mellow halo of distance transforms into beauty that which was seeming vile. This will doubtless happen to the writer, and when the twentieth century is well on its way, he will then transfer his kicks and cuffs to the new detestable present, while the old nineteenth will gain his applause.

It requires little to refute his arguments that consciousness in art is degenerate. We have only to consider the old-time giants to see how false it is. Who was more divinely conscious in his art than Shakespeare; more convinced of his genius, and conscious in his composition than Wagner. Bright, in his greatest flights of eloquence, had still some of the "tricks that speakers use"; while Raphael in his cartoons was splendidly confident of his power and completely conscious of his art. Michael Angelo in his sculpture ventured even into the grotesque in the consciousness of his genius, yet that same consciousness helped to bring about the wonderful beauty of the Giotto Tower.

It seems the writer is confusing mere common personal egotism with that wide consciousness great men must possess. The artist truly great, the writer truly superb, know each the extent of their greatness, providing always that they are sufficiently great to do so. The men on the middle rung of the ladder of genius are troubled with doubts, but the truly great have their heads above the clouds and see the heavens undulled by vapour. Having mastered that height, they have first mastered themselves, and pass to that sphere in which they know all things thoroughly, even their own genius.

This the writer must some day acknowledge if he would help in the great period of art which must one day burst upon England. He is at present a stranger to his own imperfections, which I think is but one degree less harmful than being "a stranger to his own perfection."—I am, sir, yours faithfully,

F. B.

COUNTRY COTTAGES.

CORRESPONDENCE has appeared in The Times during the last few days under the heading "Town and Country Life," dealing with the subject of the depletion of our village populations. One correspondent, a lady signing herself "Chairman of a Parish Meeting," assigns as one of the causes of advancing depopulation the lack of suitable cottage accommodation. The correspondent proceeds: "I have never yet known a comfortable cottage with a good garden that was allowed to remain empty. During the late years of agricultural depression fewer cottages have been built, and a certain number of the worst have fallen into decay and been pulled down. In very many districts the farmers and others cannot get enough men to do their work because there are no houses for them. And not only are cottages scarce, but in many country villages they are in a wretched state of neglect and overcrowding, whole families being still reared in the single bedroom, while it is an exception to find good water and sanitary arrangements. The parish councils cannot do much, for reasons that are obvious to all who are familiar with village life; and medical officers of health and inspectors of nuisances are never seen in most agricultural villages. For advice as to the appointment of these officers, and for plain facts as to the

STATE OF COTTAGES GENERALLY,

both good and bad, all over the country, see the last Blue-book, 1894, on 'The Agricultural Labourer,' to be obtained from Eyre and Spottiswoode for 2s. 1d. Village life is not nearly as dull as it used to be. Concerts, amateur plays, sports, libraries, cricket, bicycle, and workmen's clubs are now universal, as well as lectures and classes of all kinds arranged by county councils and local committees. Every village now has its post-office, and oftener than not its second delivery and telegraph. If some means could be devised for building cottages at remunerative prices the inventor would earn the lasting gratitude of country mankind, and in my opinion do more than anything else to keep the people in the country." This view is also taken by other correspondents. Mr. T. Roger Smith, of Llan-drindod Wells, is one of them, and he suggests the use of wood in cottage construction. He says: "Why not try building them of wood? We are all familiar with wooden railway stations, and now that the most serious drawback to the employment of wood as a building material—namely, its liability to burn—can be got over, is would surely be worth while to try whether the employment for the walls of a wooden framework such as the

SO-CALLED IRON BUILDINGS

start with, covered outside with good weather boarding and lathed and plastered inside, would not so far reduce the cost as to make cottage building a less hopeless investment than it now is. Such a wall is probably as warm as and drier than a one-brick wall, and with care the building would be fairly durable—e.g., the railway station buildings at Reading, which were pulled down this summer, after

standing ever since the Great Western Railway was begun, proved to be still in good condition." This idea of wooden cottages is commented upon by "A Would-be Builder and Occupant," who says: "With regard to the erection of wooden v. iron buildings as cottages, I fancy many landowners would willingly put them up if allowed to do so. Unfortunately, some district councils—that of Uckfield, Sussex, for example—refuse to permit their erection for human habitation. The reasons for disapproval are inscrutable, as from personal experience one knows them to be inexpensive, sanitary, and perfectly comfortable as dwellings." And as a cause of the lack of cottage accommodation "the inflexible and often unreasonable local by-laws" is, in the opinion of another correspondent, important. He gives an instance. "In altering part of a commodious

BARN INTO A COTTAGE

it was necessary actually to diminish the accommodation in order to comply with the requirements. One reason was that a large and airy upstairs room could not be used because, being partly in a roof, it was not 9ft. high for two-thirds of its floor space. The medical officer made a special trip to see if the by-law was satisfied as to 15ft. clear space in front and rear. There are no buildings within half a mile on two sides and a large open yard on the third. Lastly, although there only wanted a ventilator to a drain, already unduly costly, the surveyor could not give a certificate, and is now away on his holiday. Should the tenants be put in from their present inconvenient quarters, a technical offence will have been committed. Can you expect owners to build cottages when so hampered—to say nothing of the fact that they will be immediately rated for their improvements?" "W. M. A." raises an interesting point in the controversy—the thatching of roofs. He says: "One of your correspondents points out that the model by-laws of the Local Government Board prevent the erection of wooden houses. I may add that they also prevent

THE THATCHING OF ROOFS,

though, as everyone who has had the advantage of sleeping under it knows, thatch is vastly cooler in summer and warmer in winter than the flimsy slated—to say nothing of corrugated iron—roofs with which the urban wisdom of Whitehall is disfiguring our country lanes. In a close-built village the prohibition of wooden buildings with thatched roofs is at least intelligible, but the almost universal custom when a rural sanitary authority makes by-laws under the Public Health Acts is for these by-laws to be applied wholesale to the entire district. It would be a good thing if some member of Parliament, who cares for the comfort and picturesqueness of rural life, would take the matter up. If building by-laws are wanted at all for detached houses and cottages they ought at least to be drawn up from this point of view. It is absurd that rural buildings should be restrained by rules made to deal with urban or even village requirements."

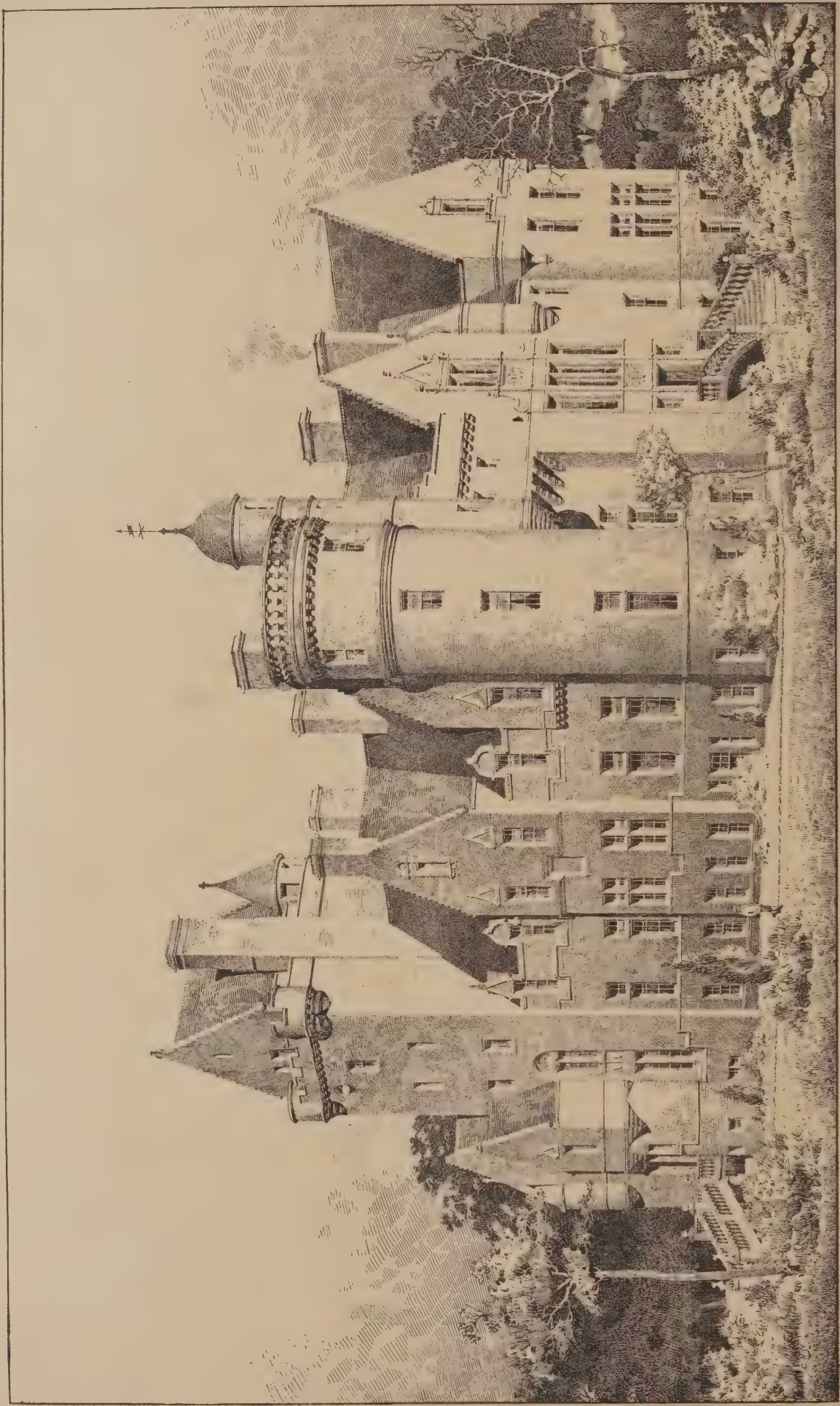
A NEW girls' school and pupil teachers' centre has been opened at Smethwick. Mr. F. J. Gill is the architect, and Mr. J. Harley the builder.

THE Corporation of Aberdeen has entered into an agreement with the Rubislaw Granite Company to widen Queen's Road, at an estimated cost of £1640.

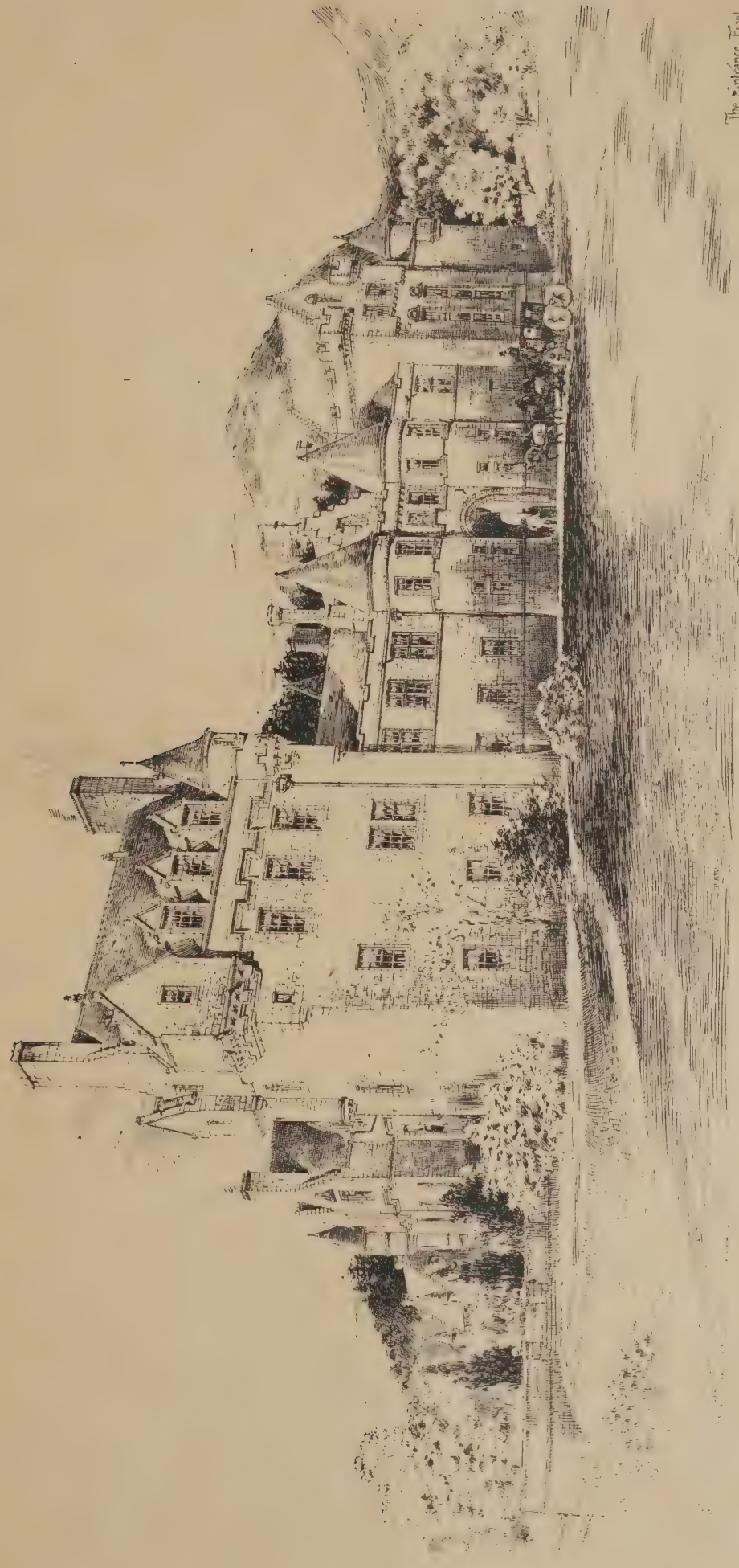
THE City Council of Liverpool has approved of plans for the extension of the City Fever Hospital, East Mill Lane, Old Swan, and an application to the Local Government Board for sanction to borrow £40,000 for that purpose.

IN reply to a question put by Mr. Parnwell, at a meeting of the City Corporation last week, the Lord Mayor promised to unveil at an early date the two panel pictures now being fixed in the Royal Exchange, and depicting "The Aldermen and Commoners Offering the Crown to Richard III." and "William the Conqueror Granting the Charter to the Citizens."

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"DUNTREATH CASTLE," FOR SIR ARCHIBALD EDMONSTONE. MESSRS. SYDNEY MITCHELL AND WILSON, ARCHITECTS.

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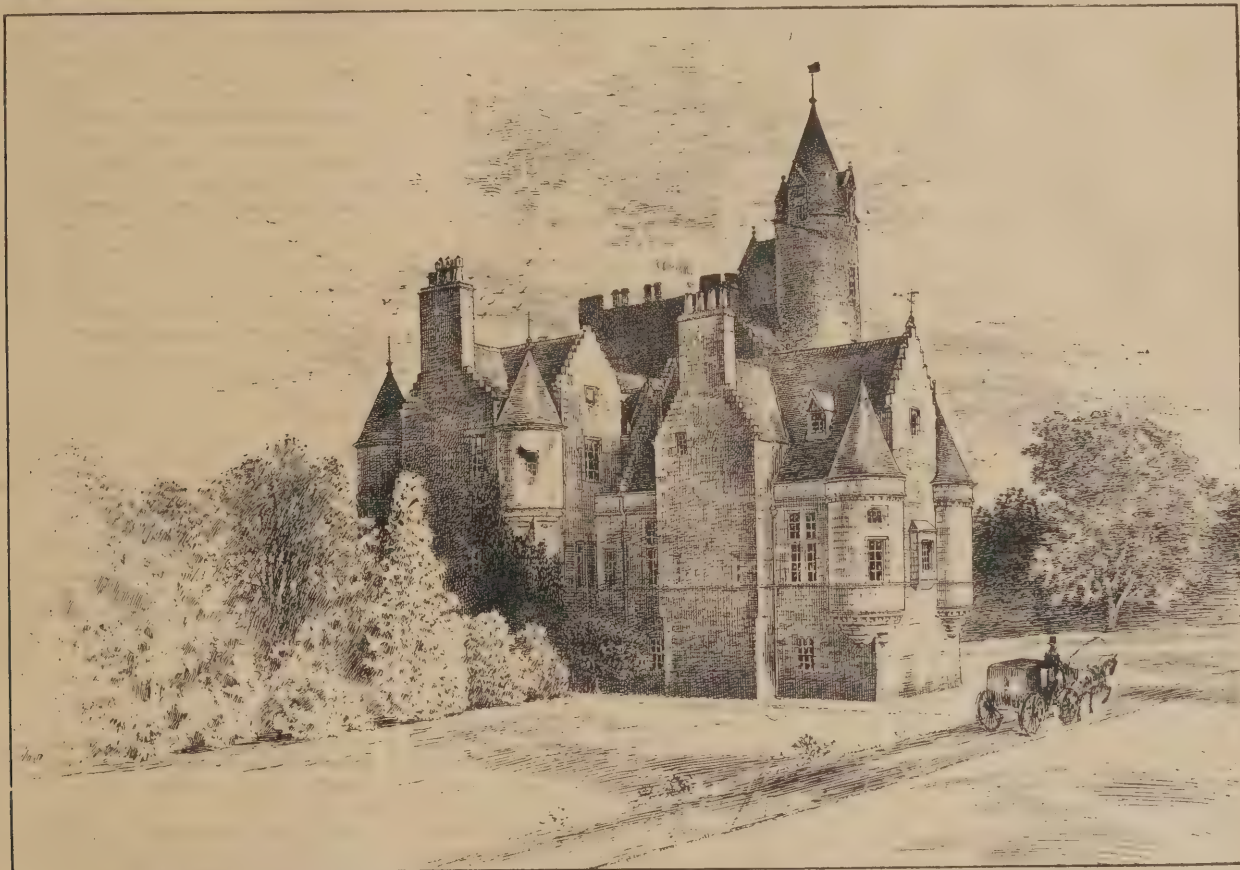
Men Who Build.

MESSRS. MITCHELL AND WILSON.

THOSE who can enjoy the spectacle of a beautiful city, rich in fine and true Architecture, and loaded with those subtle appeals which haunt the ancient habitations of man, and who have not yet made the acquaintance of "Auld Reekie," as the Scots have nick-named their capital, should hasten and make an opportunity to do so. The familiarity, "Auld Reekie," is neither just nor appropriate; it is not of the city, but derives from the country round about, whence, from afar, in clear keen air, may be seen the thin plume of smoke wafted leeward from the city's wind-scoured streets and alleys. It is not for nothing, indeed, that Edinburgh has been

These physical configurations of Edinburgh are so curious, and are so closely related to the architectural history of the place, which indeed has been largely influenced by them, that some knowledge of them is almost necessary to a right understanding of the motives which inspire the subjects of this article, who are partners in one of the best known and most esteemed of Scottish firms of architects, who live and carry on their work in Edinburgh, and who have each individually been educated and trained in the practice of Architecture amid those strong appeals of romantic traditions and a noble Art which characterise the Scottish capital. Edinburgh, it should be understood (if we except the wide-spreading suburbs which are springing up upon all sides), is of two divisions, which are as distinct in social style and in the character of their respective Architecture as they are in locality. Each of these divisions is built upon a hill which is separated from its neighbour by a considerable depression, with steeply

left lie a multiplicity of courts and alleys, "wynds" and closes, leading to more gaunt grey frontages and more perspectives of fluttering linen, with glints here and there of the fresh sky between, and of the Forth and the rolling blue country beyond. The backs and sides of these houses in their heterogeneous combinations spring up in firm, strong lines from the steep, green slopes of the public gardens, and look out across to the new town with its rolling carriages and luxurious conventions of fashion and prosperity. The old town, where poverty cowers, rambling and barren of architectural impulse, as it is for the most part, is yet essentially Gothic; but once across the Waverley bridge, where wealth and prosperity sit at ease, and every object betokens the metropolis of a cultivated and refined people, and in all these streets, squares, terraces and crescents in the Renaissance manner which lie about the broad level boulevard of Prince's Street, you shall scarce see a stone to remind you of



"BONALY," NEAR EDINBURGH. MESSRS. MITCHELL AND WILSON, ARCHITECTS FOR ADDITIONS.

called "Modern Athens" and "the Athens of the North." The visitor, widely travelled though he be, commonly admits without reservation that he knows no more inspiring and imposing spectacle than that presented by the city and its environments; and, so far, as a matter of taste and opinion can be decisively stated, it is generally laid down that, excepting only Venice, which has unique claims upon our wonder and admiration such as must ever set it alone and apart from all comparisons, and with reservations perhaps in favour of Constantinople and Athens, Edinburgh stands unsurpassed by any city in the world. Nor is the familiar comparison between the northern city and the Greek capital any mere catch-phrase, nor one of those trivial analogies which the modern fashion of globe-trotting engenders and cherishes. It is not due merely to the fact that the salient, characteristic feature of each bear such a strange likeness as do the Castle Rock and the Acropolis that the saying has arisen, for we may read that from the low spur of the Pentland Hills, just above Colinton some seven miles from the city, the landscape is exactly similar to that in the vicinity of Athens, as seen from the base of Mount Anchemus.

sloping sides. This, which was once partly filled by a lake—the St. Mary's Loch of history—is now laid out in public gardens, and the green grass rolls in a valley between the buildings of the old and the new standing above on either side. These habitable quarters are connected by viaducts and by a sort of embankment called The Mound, which was formed of the earth dug from the foundations of the new town. The hill, upon the crest of which the old town is built, rises in a sloping ridge, which culminates in the famous Castle Rock, whose rugged sides fall abruptly away in precipitous lines, upon its three other sides, two of which formerly sprang from the waters of the loch. This old part of the town consists of a clustering mass of tall gabled dwelling houses of rough grey stone apportioned in flats, and tenanted by the poorer classes of the people. The long declivity of the High Street and the Cannon Gate shows a crowded vista of these towering cold grey walls and chimneys and gables, where the washing of each family hangs from a wooden gear thrust from every window, and flutters of various dingy colours, in the strong breeze which seems ever to attend the dwellers in the high quarters of the city. Right and

the buildings that stand piled above you not three hundred yards away. This Renaissance Architecture is of the best that is in the British Isles, and there is more of it that touches upon excellence than exists in any other of our towns or cities. It may be mentioned that this New Edinburgh was built during the latter years of last century in accordance with the scheme planned by James Craig in 1767, though the designs of much of the Architecture owe to other architects.

From what has been said of these two traditional styles of Architecture in Edinburgh, and the emphatic contradistinction in which the physical conditions of the site of the city has caused them to be placed, it will be perceived that the native of Edinburgh, and, indeed, every good Scot, who would follow the practice of Architecture in his own country, will incline to favour either the mediæval or the Renaissance styles in his work; and although there are men who make, if it may be so said, a speciality of both these manners—as, indeed, may be instanced of Dr. Rowan Anderson himself—the general inclination is for the architect to be associated with one style or another; and it will only need a glance at the illustrations which accompany this



article to determine in which category we shall place the inclinations and proclivities of Messrs. Sydney Mitchell and Wilson. And the Scots, it is to be noted, are much less cosmopolitan in their architectural tastes than are the architects of England. Their patriotism, and a certain exclusiveness of attitude, are well known; and they are content for the most part to avail solely of their own traditions, and to let their Architecture eulogise and commemorate Scottish traditions and conventions, rather than adopt those of alien races. Much may be said in criticism of this conservative attitude towards Architecture; but when the indigenous architectural style of a country is at once so flexible and suggestive as is this castellated domestic style of Scotland, and lends itself at once to dignity and breadth of treatment, and to the needs of the picturesque, while retaining always that rugged archaic impress which links it indelibly to the

"Land of brown heath and shaggy wood,
Land of the mountain and the flood;
The land of its origin; we may excuse and even
admire the prejudice which has fostered and
cherished it.

Those who would study the traditional examples of this noble Architecture, usually known as "Scotch Baronial," will find it drawn in the ample pages of Billing's "Baronial and Ecclesiastical Antiquities," and also in a volume, entitled: "Castellated Domestic Architecture in Scotland." In these pages will be found several instances of the application of this manner to the needs of modern requirements.

The joint architects of these works are both Edinburgh men, and owe their professional training to the opportunities afforded by that city. Mr. Mitchell, who though the senior

member of the firm, is junior to his partner in point of years, graduated, after a private education, at the University of his native town, and thence passed into the office of Dr. Rowan Anderson, to whom he was articled. Here he met Mr. Wilson, his present partner, who was at that time assisting Dr. Anderson, and after spending five years in the routine of the Edinburgh architect's office, he travelled in Europe, occupying himself with a study of the Architecture of France, Germany, Belgium, and Holland before he returned to Scotland to practice upon his own account. Mr. Wilson, who was a pupil of David Bryce, the famous country town architect, who died some ten years ago, also completed his professional training in the city in which he now practices. His architectural studies took him to France and Italy, and before he joined in partnership with Mr. Mitchell he had held the post of chief assistant in Dr. Anderson's large office.

It will be noticed, as has already been said, that our architects' predilections tend in the direction of the field of Mediæval and Gothic Architecture. One of the largest buildings shown illustrated, "Duntreath Castle," lies in a beautiful situation near to Loch Lomond, and overlooking the Blane Valley. It was built for Sir Archibald Edmonstone, and is constructed of a light grey sandstone, and roofed with green slates. The ornamental ridge stones, or finials, set at intervals to break the roof line, are a characteristic feature of this style. The sketch by Mr. Baldwin, of the Edinburgh Town Cross shows a conjectural restoration of an interesting feature. These crosses are common throughout Scotland, and were designed to afford a platform, or rostrum, from which the various Acts of Parliament might be proclaimed. This custom of proclamation still

exists, and is duly observed in Edinburgh at this day. The original cross was pulled down in the last century to relieve the pressure of traffic, the shaft alone being set up to mark the spot, and it is due to Mr. Gladstone that the cross now stands restored. He was staying with Lord Rosebery when he visited the old town, and, noticing the condition of the cross, obtained leave to commission the architects to rebuild it.

"Sanchieburn" overlooks the field of Bannockburn. This finely drawn perspective by Mr. W. E. English loses much of the impressiveness of the design by failing to show the jointing of the stonework. The character of these buildings, with their many quoins, saddle-backs, and brackets, calls for a great deal of skill in the arrangement of the stone joints, and a great deal of the satisfaction which the beholder derives is due to the unconscious recognition of the constructional qualities of the various parts. The best examples of this style do not contain great stones, but rather follow the true Gothic principle of enhancing the scale of the mass by keeping the stones small. To an eye which is all too unfamiliar with this Scottish Baronial tradition, it would seem as though the balustrade upon the tower were an anomaly, and somewhat of an indiscretion of judgment; and the same incongruous note is struck again in the steps to the main entrance. The architects, however, were a good deal hampered by vexatious restrictions in executing their design, and perhaps it is to these difficulties that the points in question may be attributed.

The picturesque little house at "Bonaly," near Edinburgh, at the foot of the Pentlands by Colinton, owes only the wing to the right hand of the drawing to our architects. This house may serve to introduce a curious feature of the style which governs most of the designs. The reception rooms are usually upon the first floor, and the staircase if it does not ascend to that level upon the outside of the house, does so in a stair that opens direct upon the hall door and conducts the visitor up a tunnel to the house proper. This stair is often merely the entry to the house; it has no other purpose.

In mediæval times the retainers, and attendants, and cattle lived below, and their lords above, and now the arrangement is in general use, because it raises the habitable house above the damp cold mists and snow drifts of the climate. Of the churches illustrated in these pages, it should be pointed out that they follow the Scottish traditions. Fergusson says upon this subject of the Scottish Ecclesiastical Architecture: "Though so near a neighbour" (to England), "the Scots never borrowed intentionally, but, owing to the Celtic element, all their affinities and predilections were for continental nations, especially France. Though not entirely French, the spirit is continental." The chief characteristic of the Scottish churches rests in their towers. These have no buttresses, but a plain square stalk showing unbroken lines, and with the enrichment concentrated in the top, thus following the Italian rather than the Gothic model, and fulfilling Mr. Ruskin's requirements of what a tower should be. Another characteristic feature is the corbelled battlement; and, yet another, a wooden slated spire of a stunted proportion, which has many quaint forms, and owes to the influence of the Dutch, who have had much to say in matters of Architecture and furniture in Scotland.

A GREAT fire broke out on Monday week in the Millwall Docks, which resulted in the total destruction of a large flour mill and two warehouses. The property attacked consisted of a series of low-pitched buildings of varying height, which covered an area of close upon an acre of ground. Messrs. McDougall's flour mills and general stores were surrounded on almost every side with stacks of timber and other inflammable material. This accounted for the remarkable rapidity with which the flames spread to every corner of the premises. The damage has been estimated at nearly £100,000.

Improvements at the Guildhall.

THE Guildhall Library has just undergone a thorough and complete renovation. It is an astonishing fact that there have been no substantial repairs to the building since it was opened in 1872, while upwards of thirteen years have passed since it received even the ordinary "spring cleaning." The exterior of the building has undergone thorough repair, and not before it was badly needed. The stonework, which was in sad condition in some places, has been made good, and the roof has also been attended to. The inside of the building has been thoroughly cleansed from floor to roof. Advantage has also been taken of the closing of the library to carry out several slight but much-needed

STRUCTURAL ALTERATIONS,

and not the least of these is the provision of a better system of ventilation. Hitherto the ordinary "swivel" type of ventilation has been used in the clerestory windows in the large reading room, but for years past the result has simply been the admission of large quantities of dust, to the inconvenience of the reader and the annoyance of the staff. Now, however, the new "drop" window system has been introduced. Air is freely admitted at the top, but the entry of dust, except in infinitesimal quantities, is prevented; while the rain, which was a frequent obtruder in the days of the "swivel" ventilator, is now no longer able to find an entry. Another improvement consists of the removal of the unwieldy desk that stood in the middle of the room. This has been divided, and a portion placed on the left-hand side just inside the entrance barrier, where it will be available for the reception of all the new books, cataloguing, and other "working" purposes. This desk will also contain the card catalogue, for which four new cabinets are to be supplied.

THE DECORATIVE PANELS

of the desk have been utilized to make a second enclosure for the use of the senior assistant. Another portion of the desk has found a home in the committee room. The large glass skylights that were placed in the floor of the reading room for the purpose of lighting the museum underneath, and which were rather a disfigurement, in addition to being of no particular use, have been removed, and the space boarded over, so that the floor has now one uniform appearance. The newspaper room has been painted and distempered, and the whole place properly cleaned. They have been arranged in such a way as to allow of the assistant having a thorough command of the room, and have been augmented by several newspaper standing desks. It is interesting to note *en passant* that the old reading-tables which have been removed were originally taken from the old library in 1869. It is hoped that the City Lands Committee will soon be able to draw up a scheme for the provision of a special room for newspapers and commercial and trade periodicals, and this will probably be included in the new plans that are understood to be in preparation in connection with an extension of the library. The lighting arrangements have also been rearranged, and the electric lights in the library and museum have been lowered so as to give more light in both places.

THE foundation stone of St. Stephen's Church, Portsmouth, was laid last week.

PLANS for the erection of a new isolation hospital at Scarborough, at a cost of £15,000, have been passed by the local authority. Thirty-two beds will be provided, sixteen in the scarlet fever block, ten in the typhoid block, two for measles and diphtheria, and two for observation.

THE 1st of October will see the commencement of the demolition of old buildings between New Street and Union Street, Birmingham, preparatory to the construction of the new arcades. The building contract has been let to Mr. E. J. Charles, of Moseley. A feature in the buildings to be erected will be their flat roofs, which will be covered with vulcanite.

Another Old House Vanished.

AT this moment, writes Mr. Percy Fitzgerald in the Westminster Gazette, an interesting old London relic, nigh two hundred years old, is "passing away"—as we would say it of a living person—being dissolved into dust and broken bricks, under the hands of the "housebreakers." Many passing through Whitehall, whence King James has been promoted—will have noted the forlorn-looking and disused late United Service Museum, which seemed to invite speedy extinction. This quaint little building—who would guess it?—was once associated with Dr. Swift, and ridiculed by him in his verses. It was built as a residence for himself by the architect of Blenheim Palace and of a portion at least of Greenwich Hospital. Here the jovial Sir John Vanbrugh, architect, soldier, and successful dramatist, saw plenty of company and many a merry night. The stones that are now being carted away were the actual stones of the old Whitehall Palace, which Sir John, having to do with the public works, obtained leave or gave himself leave, to use. It always seemed a compact and rather well-designed little mansion, laid out with much variety, considering its small size. In the last century the eminent architect Robert Adam added on in front two pavilions with but awkward effect. Indeed, in this instance it was he, and not Sir John, who laid "a heavy load" on earth. Swift likened it to the pattern of a

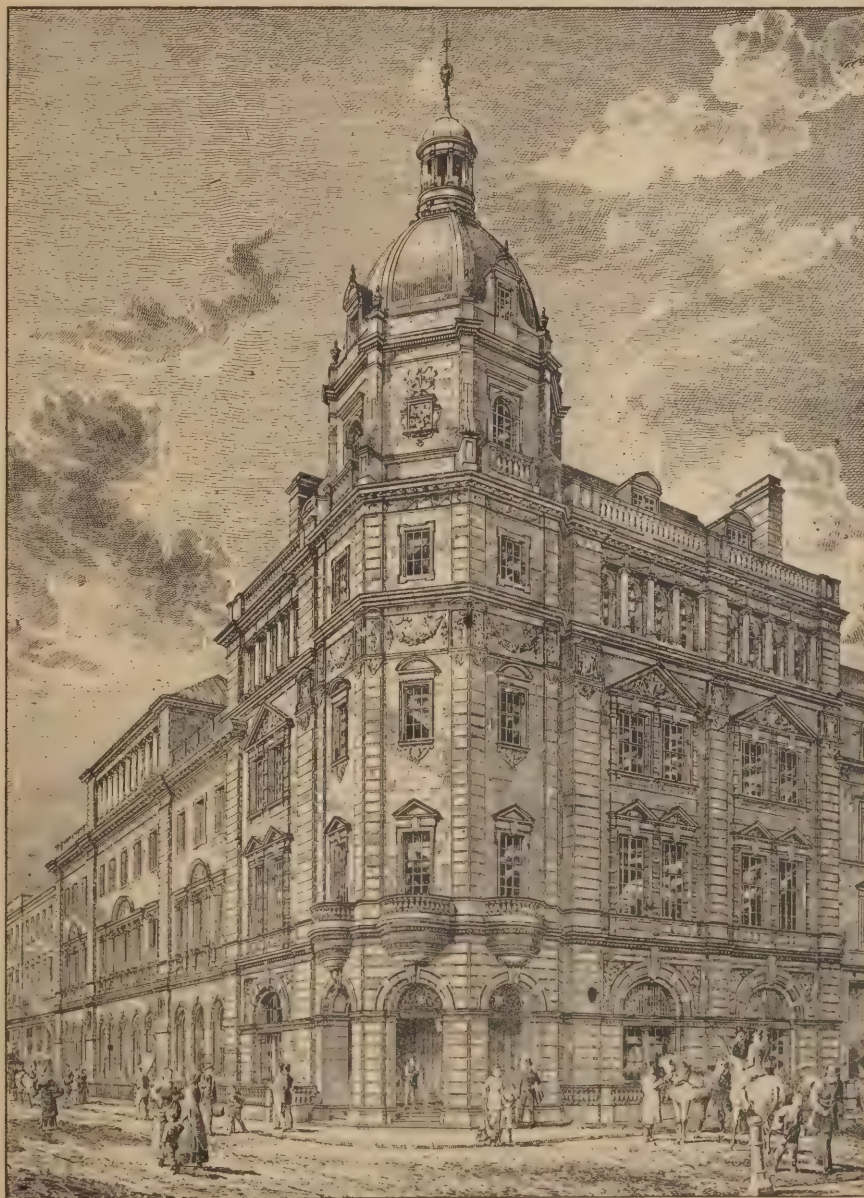
card-house built by some little miss, two stories high:—

Still at Whitehall it stands in view,
Just in the place where first it grew.
... At length they in the rubbish spy
A thing resembling a goose pie.

Mr. Knight died there in 1726. Thus the little building had interesting memories and associations which will be missed by those who care for such things. But I venture to say that not one in a hundred, or, it may be, thousand, knew anything of the history of this old building. At this moment there seems to be a sort of race as to who shall destroy these old buildings. They are coming down "right and left" with an alarming rapidity. I expect every day to come upon a hoarding set up round Dr. Johnson's house in Gough Square—one of the few sacred things left to us. But 'twill go, and that very soon.

A new hotel is about to be built on Coverack Headland, Falmouth Bay, from plans by Mr Sampson Hill, of Redruth. The estimated outlay is £7000.

THE "bicycle stable" which the authorities of the British Museum had in progress for the convenience chiefly of cycling ticket holders of the reading room, is now completed and in use. Situated under the massive granite plinth of the east block of buildings, it is approached down an incline, and is furnished with between fifty and sixty automatic "penny-in-the-slot" clips.



COMMERCIAL BANK, GLASGOW. MESSRS. MITCHELL AND WILSON, ARCHITECTS.

DEVELOPING A BUILDING ESTATE.

THE birth of a watering place is generally an interesting event. Many of the popular seaside resorts are now becoming too much like grimy old London in the matter of bricks and mortar, to suit the taste of those of a Ruskin turn of mind. New watering places are therefore in demand, and popularity is quickly gained by any and every resort where lovers of both ocean and landscape can find a quiet home, or spend their summer holidays "far from the madding crowd." Telscombe Cliffs, on the Sussex coast, is not yet a seaside resort catering for visitors, but it hopes to be in the near future. At present Nature is reigning there supreme, and the eye gazes upon no habitation of man. Roads, however, are being made for the formation of a coming town, and their names are boldly inscribed at the corners of the "thoroughfares," reminding one somewhat of "the thriving City of Eden," to which Martin Chuzzlewit journeyed. The estate, undoubtedly, has before it a bright future, mainly on account of its charming situation, its high elevation, and its proximity to the metropolis. It is located between Newhaven and Brighton, being some three miles from the former town, and six miles from the latter, or 56 miles from London.

THE PICTURESQUE VILLAGE OF ROTTINGDEAN, one of the popular drives for Brighton visitors, is just two miles distant along the romantic coast; and Telscombe village is about one mile away inland, nestling in downs. The first step towards the development of Telscombe Cliffs was taken a few days ago, when Messrs. Harman Brothers, of 75, Aldermanbury, conveyed down from London by a special train a company of some 250 builders and investors on the occasion of offering for competition 150 freehold sites forming a portion of the estate. At the sale, the auctioneer, in introducing the property, said that there was undoubtedly room for one more seaside resort near London, and a more delightful and healthy spot than that forming the Telscombe Cliffs Estate could not be selected anywhere upon the south coast. Almost all the other watering places there, he said, stood on low ground, but the land upon the estate he was about to offer stood nearly 100ft. above the level of the sea—a fact that ought to attract multitudes of jaded Londoners. In reference to railway communication, the auctioneer expressed his belief that in the near future a station would be

ERECTED ON THE ESTATE,

as it was within two miles of the line from Newhaven to Brighton, so that a branch could be constructed without any considerable outlay. Dealing with the water question, he said

that there would be no trouble in that direction, as an artesian well had been bored on the estate, and a good supply of water was obtainable. The auctioneer, in conclusion, promised the future inhabitants of Telscombe Cliffs entire exemption from rheumatism, in consequence of there being a subsoil of chalk upon the estate. With these cheerful prospects before them, it is no wonder that bidders entered into brisk competition to secure the sites offered, all of which were quickly disposed of at very satisfactory prices. Several of the principal lots were secured by buyers from Brighton and Newhaven, showing the high appreciation in which the estate is held locally. Shop lots in the Brighton Road, having a frontage of 57ft., and a depth of 200, realised £48 to £55 each, whilst corner lots obtained the good figures of from £75 to £80. Sites in the Esplanade (which directly faces the sea, and therefore forms the choicest portion of the estate) went for £57 10s to £67 10s. each, and

CORNER PLOTS

fetched no less than £87 10s. to £100—a good price, taking into consideration the fact that the frontages to these lots are only 30ft., with a depth of from 117ft. to 140ft. In the less prominent roads, named Eastern Avenue, Central Avenue, and Western Avenue, the prices ruled from £29 to £40 each, many of these lots being bought in blocks of six. The chief item of the sale, however, consisted of the hotel site, with a frontage of 125ft. to the main Brighton Road, and a similar return frontage to Eastern Avenue. This lot was offered on a lease of 99 years, at a nominal ground rent of £1 per annum, with the option of redeeming the ground rent on payment of £25 after the premises have been erected. There were considerable competition to secure the site, as it is the only one upon which a licensed property will be allowed. It changed hands at the excellent price of £450, a local property owner being the purchaser. The total of the day's sale amounted to close upon £7000. Other portions of the estate will shortly be offered.

STREET MUD.

THE Western Mail (Cardiff) recently set on foot some experiments with street mud. At Cardiff, it is stated, about 30,000 tons of mud are collected off the streets every year. For the experiments, cubes of various specimens of macadam in common use were submitted to tests by percussive attrition and absorption, as well as ordinary thrusting. The results of these experiments, which were carried out by Mr. Arch. C. Elliott, D.Sc., M.Inst.C.E., Professor of Engineering at the Cardiff University College, Mr. W. S. Boulton, F.G.S., A.R.C.S., furnishing the mineralogical description of each cube, have just been published in a report

signed by Professor Elliott. The specimens included three samples of basalt submitted by the London Basalt Stone Company Limited, and cubes of Penlee and Clee-hill Dhu basalt; Cornish, Clee-hill, Wicklow, Guernsey, and Aberdeen granite; Mumbles, Sweldon, and Cwmynofydd limestone; sandstone, and neat Portland cement. In the thrusting tests the London Basalt Company's three sets of specimens stood a respective average maximum stress per square inch of 9.35, 12.02, and 12.45 tons; the other basalts bore 5.54 and 9.45 tons respectively; the Clee-hill, Wicklow, and Guernsey granites went up to 5.49, 6.41, and 7.99 tons; the Mumbles limestone to 5.96; and the other two limestones to 3.99 and 3.09 tons. The real mud test, however, was that by percussive attrition, the specimens being separately subjected to rapid motion against the ribbed sides of an iron cylinder in a manner calculated to reproduce the action resulting from vehicular and other traffic. The reports on the tests were as follows:—

PERCUSSIVE-ATTRITION TESTS.

Date of Testing, August 18th, 1898.

Material.	Dust or dry mud produced in four hours' test per cent.	Average compressive strength, tons per sq. inch.
Basalt C	3.2	12.45
Basalt A	5.9	9.35
Basalt B	6.5	12.02
Clee-hill granite	7.0	5.9
Penlee stone	7.2	5.54
Clee-hill Dhu stone	7.9	9.45
Wicklow granite	8.0	6.41
Guernsey granite	9.3	7.99
Aberdeen granite	15.7	—
Red brick (hard)	16.9	—
Black limestone, Mumbles	20.0	5.96
Cornish granite	22.1	—
Road metal from Cardiff Gaol Store (Castell Coch)	22.5	—
* Road metal from Cardiff Gaol Store (Ely)	26.4	—
Sweldon stone	30.2	3.99
Cwmynofydd, Tongwynlais	37.7	3.09
Hard sandstone	89.4	—
Neat Portland cement	89.5	—

* Laid down in Plasterton district.

ARCH. C. ELLIOTT, D.Sc., M.Inst.C.E.

ABSORPTION TESTS.

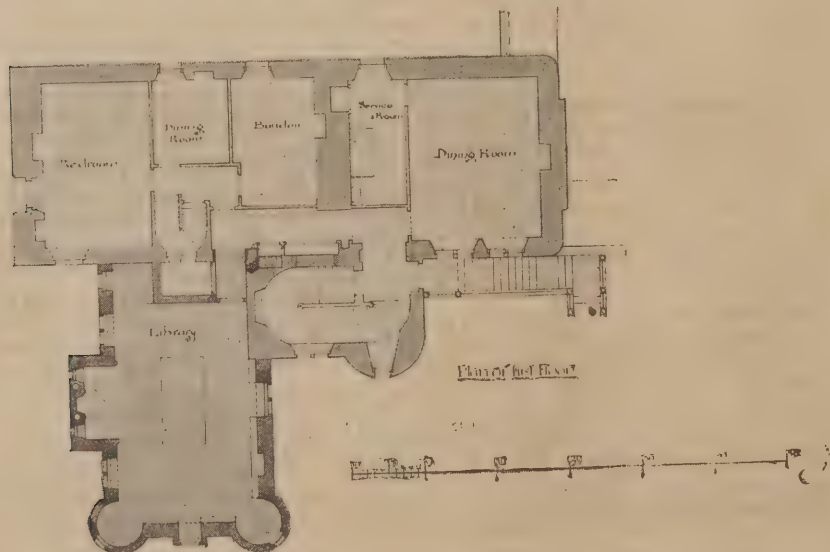
Material.	Hours soaked.	Per cent. absorbed.
Basalt A, B and C	72	More tr. cc.
Penlee stone	78	"
Clee-hill granite	72	"
Clee-hill Dhu stone	72	"
Wicklow granite	78	"
Guernsey granite	72	"
Black limestone, Mumbles	29	"
Sweldon	54	8.7
Cwmynofydd, Tongwynlais	102	15.9

THRUSTING TESTS.

The following abstract of results shown in the thrusting tests gives the specimens in order from the highest to the lowest:—

Stone.	Max. load. Av. stress, tons, per sq. inch.
Basalt C (submitted by London Basalt Co.)	12.45
Basalt B " " " "	12.02
Basalt A " " " "	9.35
Clee-hill Dhu " " " "	9.35
Guernsey granite " " " "	7.99
Wicklow granite " " " "	6.41
Mumbles limestone " " " "	5.96
Penlee " " " "	5.54
Clee-hill granite " " " "	5.49
Sweldon limestone " " " "	3.99
Cwmynofydd limestone " " " "	3.09

Hitherto very little information has been available as to the qualities of macadam in common use, and it is claimed that these are the first experiments made in this country by means of experimental attrition, and that the machine, specially constructed at the Cardiff University College for these tests, is the first of its kind in the United Kingdom.



"RONALD," NEAR EDINBURGH. MESSRS. MITCHELL AND WILSON, ARCHITECTS FOR ADDITIONS.

CONTRACT CONDITIONS.

AS an instance of the terms that are being imposed on contractors for municipal work, a firm of contractors send a verbatim copy of the general conditions attaching to a certain undertaking for one of the largest Corporations in the country. The firm writes: "The stipulations, or the tenour of them—for we cannot understand the phraseology—are such as no firm of free individuals should agree to. The ratepayers will be without our competition, whatever that may be worth."

"General Conditions.—The contractor shall to the (*sic*) at all times during the continuance of this contract abide by, perform, observe, fulfil, and keep all and singular the stipulations following—that is to say:—

"Wages of Workmen.—The contractor shall

the town clerk, which consent may either be withheld or given, subject to the terms such as the Corporation may determine, and particularly that the person to whom such contract may, or any part of it, share, or interest therein may be transferred, assigned, or underlet, shall abide by, perform, observe, fulfil, and keep the stipulations on the part of the contractor herein contained.

"Book-keeping.—The contractor shall, to the satisfaction of the Council, provide and keep proper books, in which shall be entered from time to time the names of, the wages paid to, and the hours of labour observed by all workmen employed by him, whether in or about the execution of this contract or otherwise, and shall from time to time, when required by notice under the hand of the town clerk, produce the same, or any of them, to him or to the deputy town clerk, who shall be at liberty to inspect and take copies or extracts therefrom.

THE ABBEY MANSIONS
COLLAPSE.

AT Westminster, last Thursday, under the Dangerous Structure Clauses of the London Building Act of 1894 and the Amendment Act of 1898, a summons was heard before Mr. Marsham, addressed to the owners of the building known as Abbey Mansions (North Block), requiring them to take down the cracked and defective portions of the stonework of the angle turret at the corner of Victoria Street and Orchard Street. Mr. F. F. Daldy, instructed by Mr. Seager Berry, appeared for the London County Council, and Mr. Pollard defended.—Mr. Daldy said the building was now in a very dangerous state, and something must be done, though the



Free Church Fort William N.E. View
Sydney Mitchell & Wilson Architects

pay every workman employed by him, whether in or about the execution of this contract, or otherwise, wages and wages for overtime respectively, and at the rate not less than that recognised in the district where the work or any part of it is being done as the standard rate of wages in such workmen's trade.

"Hours of Labour.—The contractor shall observe the, and cause to be observed by each workman, hours of labour not greater than the hours of labour (other than that union men only be employed) usually observed in the trade of such workmen in such district.

"Lock-out.—The foregoing conditions shall not apply to any trade, or trades, during the existence of a general lock-out in such trade or trades. The Corporation shall be sole judges as to whether such a lock-out exists.

"Underletting of Contract.—The contractor shall not transfer, assign, or underlet, directly or indirectly, this contract, or any part of it, share, or interest therein without the written consent of the Corporation under the hand of

"Breach of Contract.—In case of any breach of the contractor, or by any person to whom this contract, or any part of it, may be transferred, assigned, or underlet, of any one or more of the stipulations in this clause contained, it shall be lawful for the Council to determine this contract in the same manner and to the same extent as they have power so to do under the clause 5 in the events therein specified, and if the contract shall be determined under the present power, then all the provisions of that clause shall apply as if the contract had been determined under that clause."

"Tenders to be suitably endorsed and addressed to the Chairman of the Gas Committee, Municipal Buildings."

THE laying of the foundation stone of the new isolation hospital for Southampton at Mousehole Lane, Shirley, took place last Wednesday.

County Council had been placed in a great difficulty by the previous decision of the Court that the building was vested in, and in the occupation of, the Crown. The County Council had been in communication with the Government, and Sir John Taylor, surveyor to the Office of Works, would tell the Court

THE PRESENT POSITION OF AFFAIRS.

Mr. Marsham: Supposing it is Crown property or vested in the Crown, do you say that a magistrate has no power?—Mr. Daldy: No, sir. It is exempt.—Mr. Marsham thought it a pity that what was necessary for the public safety could not be done at once, and the question of liability decided afterwards.—Mr. Daldy said that there had been a promise to strengthen the defective part of the building with steel bands, but only one band had been put up.—Mr. Pollard said that five steel bands would be in position in a few days. Mr. Pawley, who was the owner, while not admitting any obligation, was doing everything he could.—Mr.

Drury, district surveyor, called by the prosecution to testify to the present condition of the building, said that the cracks in the brickwork were widening. He thought that the stonework of the turret was moving, and all the cracks developing. The indications showed the possibility of a very serious accident. On September 14th there was a piece of stone nearly falling from the front of the building.—Mr. Daldy: In your judgment it is necessary for the safety of the public that this building should be shored up at once?—Witness: I certainly think so. The cracks have extended considerably since the 19th. I think the second floor of the building is in a very critical condition.—Mr. Daldy: Assuming that five steel bands are put up, and taking into account what you have seen, would you be satisfied with the bands?—Witness: After my inspection this morning I am of opinion that the steel bands would not suffice.—Cross-examined, Mr. Drury said that during the last few days he had detected a number of

FRESH CRACKS IN THE STONEWORK.

Sir John Taylor, of Her Majesty's Office of Works, said he had nothing whatever to do with the construction of the building, his advice being given only on sketch plans as to accommodation which would be sufficient for certain public departments. On August 3rd last witness made an official inspection of the building, and seeing defects and fractures in the walls, he refused to give a certificate for the Government to take it over. He thought it unsafe for habitation, as unquestionably there was a settlement.—Mr. Pollard denied this. He said that there was no trace of subsidence, and the alarming reports in the Press which had been circulated to that effect were entirely devoid of truth.—Sir John Taylor said the Government had repudiated the agreement to take over the building.—Mr. Pollard said that there was an action pending for specific performance. His contention was that precisely the same circumstances existed as when the court before decided that there was no power to make an order.—Mr. Marsham suggested that the district surveyor and the defendants' surveyor should confer with an arbitrator and try to arrive at an understanding.—After a great deal of discussion the case was adjourned.

VANISHING LONDON.

THE coming demolition of the old Prince of Wales's Theatre, off Tottenham Court Road (its proper address is No. 21, Tottenham Street), may be mourned by those who remember the days when it was one of the most fashionable and crowded playhouses in London, but the majority of people who only know it in its present pitiful condition will hear of its disappearance without a pang of regret. Even in its palmy days the theatre could never lay claim to much external beauty, and nowadays, with its walls a patchwork of ugly posters, and its dirty and squalid surroundings, it is really a most deplorable-looking object. As a playhouse it was closed a decade or so ago. Originally it was the concert room of Signor F. Pasquali; then the directors of the Concerts of Ancient Music bought and enlarged it, and built a magnificent royal box for George III. and Queen Charlotte. Next it became the home of "The Picnics," a body of amateur players, "whose celebrity," writes Mr. Timbs, "rendered them objects of alarm to the professional actors of the day, and exposed them to the attacks of the caricaturist, Gilray." About 1807 it was transformed into a sort of circus, but it could never be compared in this line with Ashley's. Converted into a theatre it passed through many hands, and under almost as many titles. It was a dingy, dirty enough theatre in those days, so much so, indeed, that it was popularly known as "the dusthole." When, however, the house was taken over by Miss Marie Wilton, who improved the construction of the building and gave it its name as the Prince of Wales's, the tide in its fortunes took a decided turn for the better, and the days of its prosperity began.

LEEDS FEVER HOSPITAL.

LEEDS is soon to be in possession of one of the most complete and best equipped fever hospitals in the kingdom. The Manston Hospital is nearly completed. The building is arranged on the pavilion and isolation system, with the application of all the most approved methods in use. When the committee took the work in hand—which has unfortunately been delayed owing to the builders' strike that extended over six months—the estate was practically a green field, with the exception of the fine hall that still stands in the grounds, and which has now been turned into the headquarters of a portion of the hospital staff, with residence for the medical superintendent. Around the mansion, in isolated positions, stand the

LARGE NUMBER OF PAVILIONS

that have been erected. Of these pavilions—which are built of brick, with stone dressings, and concrete floors finished with oak—three are at present to be in readiness for the reception of patients. Each of these pavilions is entered by a suitably designed doorway in the centre, which breaks the building into two wards, and provides waiting-rooms and additional bedrooms. Every pavilion is lighted and ventilated on the most desirable principles. In addition to these three pavilions, which are to be at once in use, there is a fourth, built on precisely the same plan, and also intended for the treatment of patients, but which is for the present to be used as an administrative section. This arrangement, however, is only temporary, for when the number of patients makes it necessary this administrative block can be readily turned into a patient's pavilion, and other arrangements made for administration. These pavilions are roughly about 180ft. long and 30ft. wide. Besides these four pavilions directly intended for the treatment of inmates, there is a fifth of a similar character, which is known as a new isolation pavilion.

ANOTHER IMPORTANT NEW BUILDING

in the hospital is that known as the disinfecting block. This measures about 150ft. square. In its centre are three Lancashire boilers, which, besides providing heat for disinfecting purposes, are to heat the water necessary for wash-houses and laundries, as well as the requisite heat for the cooking for the whole of the building. It is interesting to note here that communication is carried on between one point of the hospital to another under glass-covered awnings supported by iron pillars. An advantage of this arrangement is that the food will be conveniently conveyed from the kitchen to the pavilions scattered over the estate. In another portion of the grounds are two new smallpox pavilions—one for the treatment of patients, and the other for administrative purposes. These supplement the old smallpox and administrative pavilions. Amongst other buildings and improvements on the estate are a porter's lodge and a caretaker's house. There are also six other pavilions which have been adapted for the isolation of families in whose midst disease has occurred. There are likewise two mortuaries. It is needless to say that great care has been taken in the sanitary arrangements. The hospitals may be justly said to be second to none of its kind in the country. The work has been superintended by Mr. E. B. Martin, under the city engineer. The principal contractors have been Messrs. William Irwin and Co., Leeds.

THE Lock Chapel in the Harrow Road has been redecorated and greatly improved.

THE sum of £1500 has just been expended upon the addition of a new wing to the Institute at Lytham. The new wing provides larger reading room, library, additional rooms for technical classes, and a gymnasium.

THE work of laying the electric light cable along the broad walk from the Marble Arch to Achilles Statue in Hyde Park has commenced. The lamps are already erected, and it is expected that in a few days the installation will be complete.

ECCLESIASTICAL ART.

AN Ecclesiastical and Educational Art Exhibition was opened on Monday at Bradford. The Lord Bishop of Richmond heads the list of exhibitors with the church plate from Stanhope; the Rev. E. W. Bereton contributes a very beautiful chalice and paten, set with precious stones, and from the Rev. R. G. Irving comes a silver chalice, 187 years old. The vicar and churchwardens have lent the Bierley communion plate.

AN OBJECT OF GREAT INTEREST

is a cast of the Moabite Stone, lent by Mr. David Parkes, of Sheffield. This contains an inscription of Mesh'a, son of Kemoshgad, King of Moab about B.C. 900, recording his victories over the Israelites, found at Dibon, in the land of Moab. The only other cast similar to this is in the British Museum. Mr. Farris has some interesting loans connected with St. Ethelburga Parish, Bishopsgate Street, London, including a silver flagon, of date 1694; a paten, a silver chalice, 1560; and the beadle's staff, with date 1787. Mr. William Scruton sends a very interesting collection of old views of Bradford and Yorkshire generally. A very noteworthy exhibit is No. 149, a golden chalice. This is to be presented to New York Cathedral, and is a magnificent piece of

PURELY MODERN WORK.

The design is of the fourteenth century period, and it has taken about four years to carry out. It does greater credit to the designer, Mr. W. Keith. The Rector of Whitby sends two engravings of Whitby Abbey as it was 100 years ago and as it is now; also some engravings of his unique church. Mr. J. Eyre Poppleton exhibits a number of casts from pre-reformation bells in Yorkshire church towers. Mr. Samuel Margerison, of Calverley Lodge, near Leeds, sends about 150 photographs, each one illustrating something of "what we see in an old parish church." For instance, No. 348 is a photograph of a bell gable from Howell, Lincolnshire; 389, a doorway from Brixworth, Northants; 412, a poor's box from Wellingore, Lincolnshire; 416, a font from Helpringham, Lincolnshire; 421, a font and cover from Calverley; 429, a pulpit from Hannington, Northants; 436, a lectern from Blythborough, Suffolk; and so on, until each part of an old church is illustrated by photographs of carefully selected specimens. The Ven. Archdeacon Kilner and the churchwardens of Bingley, Yorkshire, lend the Communion plate, and the Mayor and Corporation of Bradford have also placed on view the Corporation plate. A very handsome jewelled chalice of splendid workmanship is lent by the Rev. T. A. Curties, and a silver-gilt chalice and paten are shown by the Rector of Bacton, Herefordshire. This is without doubt one of the oldest pieces of

ENGLISH HALL-MARKED PLATE

known; a white altar cloth of historical interest is lent from the Church of St. Faith, Bacton. Admirers of the Brontë family will revel in the exhibits of Mr. J. Horsfall Turner, the greater part of whose large collection consists of Brontë relics. From the Rev. Hugh Williams comes a communion cup, temp. Charles II. and a curious old poor box from the Rev. W. E. Hancock, Knaresborough. The Rev. G. E. Redhead, of St. Mary Magdalene, White Abbey, and Churchwardens, show some very handsome embroidery; but it is to the Vicar of Bradford that the Exhibition is indebted for one of the finest works of Art in the collection, namely, the celebrated Flaxman tablet. This is universally recognised as one of the great sculptor's masterpieces, and as the church is now undergoing restoration, and the tablet has been temporarily removed, it has appropriately found a home during the Congress week in the Ecclesiastical Art Exhibition.

THE new Grammar School and William B. Barbour Academy at Paisley was opened a day or two ago. The new Grammar School and Academy has been erected, including site, at a cost of over £30,000.

Architectural and Engineering Jottings in the Midlands.

By W. N. TWELVETREES.

THE Institution of Mechanical Engineers, whose Summer Session has recently terminated at Derby, does not consist entirely of those whose interests are confined solely to mechanical appliances. Amongst its members are many eminent men who have been concerned in structural and other work more or less intimately associated with the duties of the architect. In view of the fact that iron and steel take so important a place in the construction and equipment of modern buildings, it is not surprising to find that amongst the visits arranged during the period mentioned there were many having for their object the inspection of public buildings and of public works designed to minister to the domestic necessities of mankind.

Birmingham, the capital of the Midlands, is purposely excluded from these notes, although the writer had occasion to visit that city from Derby on the day before the commencement of the session. The return journey was undertaken by the aid of a bicycle, a pleasant, if somewhat undignified, means of locomotion.

Leaving the noisy and not exceptionally agreeable outlying streets of Birmingham, the ancient city and county of Lichfield was reached, and in the cool eventide its deserted streets, and the quiet of its cathedral close, presented a striking contrast to the turmoil of the great city left behind. Most of our readers doubtless know the beautiful cathedral, with its richly ornamented front, and have admired its three spires surmounting the cool and shaded depths of Pool Well. These features of Lichfield are illustrated on a pictorial map in the possession of the writer, and described in the following terms, "Letch-tulce, their spiers from pool weil." Both the map and the language it is perhaps needless to explain were "made in Germany." Owing to a temporary mishap in connection with the tyre of his machine the writer was afforded an unhoped for opportunity of walking into and through the principal streets of Burton in search of an hotel. The first impression given to the traveller by Burton is that its distinctive characteristics consist mainly of breweries and of level crossings. It is not remarkable for good hotel accommodation, and in this respect there is certainly virgin soil upon which a novel architectural feature in the town might well be created.

To the archaeologist the glory of Burton lies in the past, notwithstanding the fact that a modern muse has applied a similar qualification to one of the staple products of the place, the consumption of which is popularly believed to largely occupy the leisure of some of the community.

Standing on the grand Roman highway—the Icknield Road—Burton was once famed for its bridge over the Trent. Some antiquarians have, indeed, contended that this structure had withstood the hand of time for upwards of two thousand years, and that the Icknield Road must have passed over it on the way to Derby. The present Trent Bridge, opened in 1864, is 460 yds. long, about 30 ft. wide, with twenty-nine arches, and has proved to be of great convenience to the inhabitants. Burton Abbey, founded in 1002, entirely disappeared in the year 1719, when the present parish church was erected on the same site. The only vestige remaining of the original structure is the west gate of a stone wall once enclosing land surrounding the abbey. Perhaps the most pleasant recollection to be taken away from Burton is that of the interesting church, which, charmingly situated on the banks of the Trent, also stands on the highest land in the town, thus furnishing another instance not only of the good taste but of the practical common sense possessed by ecclesiastical architects of the past.

Derby is a place of some antiquity, having been created a Royal borough in 1305 by Edward I. Situated in the immediate vicinity

of iron and coal there are contained within its borders some important industrial undertakings, besides the extensive works of the Midland Railway Company.

Mildly and even increasingly, prosperous Derby has not followed the example of some manufacturing towns, which have succeeded in driving all evidences of Nature from their midst, and the adjoining districts still present a pleasing illustration of the lion lying down with the lamb, in external relative positions—of agriculture and manufacture living together in harmony and peace.

The attention of engineers is naturally rivetted upon the locomotive works of the Midland Railway Company, which cover an area of about eighty acres in extent. In addition to the building of locomotives, however, there are several things of general interest to be seen. The Company manufacture their own gas in works purchased from the Derby Corporation in 1875, and last year the supply to stations, &c., in the district was upwards of 130 million cubic feet. Gas is here also made for the purpose of carriage lighting from shale oil by a very simple and interesting process, and one which might be more largely adopted in some country districts, especially as apparatus to suit very modified requirements is readily obtainable. All water used in the works and supplied to locomotives is softened and purified by the Archbutt-Deeley plant, which is here capable of treating 30,000 gallons per hour, but is also made suitably for domestic application in dwellings, hospitals, &c. In the carriage and wagon department, having an area of nearly 100 acres, the workshops are worthy of notice for substantial construction and exceptional size, their lengths being from 200 ft. to 400 ft., and widths varying from 100 ft. to 300 ft. The largest is the carriage painting shop, 400 ft. long by 300 ft. wide. Timber is here used and stored in enormous quantities; the principal timber yard covers an area of 13 acres, and is traversed for the whole length of 1400 ft. by three lines of rails. One side is used for stacking deals and battens, and the other for American and Stettin oak logs. On a portion stands a shed 600 ft. long and 100 ft. wide, for storing and drying oak scantling; this building is provided throughout its entire length with light overhead cranes.

There are several other timber drying sheds, built of timber, with louvered walls to admit of free circulation of air. The sheds are chiefly stocked with planks and scantling which have been cut into standard sizes, and are allowed to season naturally for an average period of two years before use.

In front of the sawmill is a gantry 350 ft. long and of 50 ft. span, with two 5-ton overhead travelling cranes for unloading, stacking, and otherwise dealing with oak logs, which are, as far as possible, cross-cut and ripped up on arrival. The sawmill is 320 ft. long and 250 ft. wide, and contains, in addition to circular and reciprocating saws, 138 machines for mortising, tenoning, boring, planing, grooving, band-sawing, carving, turning, dovetailing, panel-planing, and sandpapering. Carriage building, upholstering, and finishing are done in other shops of similar dimensions to those already mentioned, and all the castings and ironwork are made in the carriage works, which constitute an entirely self-contained department.

The Siddals Road Timber Mills were entirely rebuilt, owing to a disastrous fire, in July, 1897. They probably constitute one of the most complete establishments of the kind in this country, and are equipped with the most modern types of machinery obtainable. An extensive business is done in timber bending, turning, and joinery work, and amongst the clients of the company are H.M. Government, many leading railway companies, contractors, etc. The mill consists of three lofty and substantial bays lighted by electricity, and contains band saws, one of which, having 8 ft. pulleys, is capable of cutting trees 5 ft. in diameter, vertical log frames, horizontal, cross cutting, rack, and a number of circular saws, automatic lathes, and various forms of planing and other machinery.

There are in Derby a number of foundries and engineering works, in several of which

constructional ironwork forms a leading part of the work carried out.

Messrs. Eastwood, Swingler and Co., of Victoria Ironworks, are largely concerned in the construction of roofwork and bridges, both large and small. Their works cover over 27 acres, and find employment for about 1000 men.

Messrs. Andrew Handyside and Co., of Britannia Ironworks, have erected a considerable number of enclosed markets, winter gardens, drill halls; and are makers of fountains, vases, gates, etc. The number of men engaged here is also about 1000.

The Phoenix Foundry Co. were amongst the first to be associated with constructional ironwork, and assisted in the erection of the Columbia Market, London; Shudehill Market, Manchester; and others at Stockport, Halifax, Rotherham, and Derby. Battersea Bridge was also erected by this firm, who at the present time are interested in contracts connected with the Central London Railway.

To all lovers of Art, the examples of china, exhibited at the Royal Crown Derby Porcelain Works, are especially fascinating. They are also dangerously alluring to visitors, whose impulses are not kept under rigid control. Derby ware was first mentioned in 1750, and in the present works, the traditions of the Bow and Chelsea ware are also maintained. All kinds of ornamental and useful articles are made, and the delicacies of their fine pierced and relief work are only equalled by the exquisite character of the decoration afterwards applied. Egg-shell china, almost as thin, but far more transparent than the shell of an egg, is a speciality of this factory. These apparently fragile articles are mostly decorated in schemes of gold and various bronzes.

In Uttoxeter Road is the wall-paper manufactory of Messrs. W. G. Wilkins and Co. Erected in 1890, the premises have just been considerably enlarged, and further extension is likely to be needed in the near future. Sanitary papers are here produced and form a large proportion of the work carried out.

Following tram rails which extend round the interior of the works the large new surface-printing shop is entered, where ten powerful machines are working. The paper from a roll, nearly a mile in length, passes round a large cylinder, and comes into contact with the printing rollers, which each have a different part of the pattern in relief on their surface. As the wet paper comes off the roll it enters a huge drying machine. In "sanitary" printing the colour is forced by tremendous pressure into the paper. The copper printing rollers are made with sunk patterns, and in this process the colours are made to overlap, so that variously blended shades are artistically produced from prismatic colours. After printing, a wonderfully intelligent automatic machine picks wooden rods from a box and hangs the paper on them, next placing the rods upon chains, which travel up and down long tunnels fed with hot air. As the pattern dries, other machines roll the paper up, and deposit the sticks into the box ready once more for use. In the warehouse, rapidly working machines roll up the paper into single pieces or rolls, which are packed in bales ready for the trucks, which come up by the side of the little tramway station.

The streets of Derby are excellently lighted by electricity, supplied from the Corporation electric light station, whence current is also laid on for a number of private consumers for lighting power, cooking and other purposes. Designed by Messrs. Bramwell and Harris, of Westminster, the buildings containing the plant are of a substantial character, and have an effective ornamental frontage.

The public free library, museum and Art gallery is contained in a handsome building in the Flemish-Gothic style, of red brick, with white facings. On the ground floor are three spacious reading rooms (one being for ladies), reference, lending, and children's library, whilst the upper floor is devoted to a natural history museum. The curator's house and porter's lodge are separate erections.

Connected with the same building, but with a frontage on the Strand, is the Corporation Art Gallery, containing a magnificent collection

of Derby china and a collection of paintings. Three exhibitions of paintings are also held here every year.

As an instance of the wise forethought exercised with regard to the education of the rising generation, the Municipal Technical College is worthy of mention. The college is also an excellent combination of artistic and practical Architecture.

Built in the Gothic style from the designs of Messrs. Waller and Son, of Gloucester, the building is of rectangular form, and of its four elevations those on the south and east are plain and built of red brick. The frontages in Degge Street and Green Hill have Riga pitch face wall stones with Hollington stone dressings. Facing Green Hill, the elevation is treated in a very artistic manner, and has a generally pleasing effect. The principal entrance has a porch projecting about 6ft. from the main building, and there are two other entrances—one for Art students and the other for science students.

From the porch, the entrance hall has a good effect with its polished red granite columns, carved capitals, stone arches, and mosaic floors. The chief staircase from the hall to the first floor has York stone steps, wrought-iron ornamental balusters and skirting with a polished oak handrail. Glazed brick dados line the staircases and corridors to a height of 5ft. The corridors leading to the different rooms are lighted from two open courts faced with white-glazed bricks. The floors include a sub-basement, basement, ground, first and second floors.

In the sub-basement is the heating and ventilating apparatus, which is on the plenum system, having a steam heater and an electrically driven fan 7ft. 6in. in diameter. The basement contains engine rooms, plumbing shop, typography room, and a large room for manual instruction.

On the ground floor are a large Art lecture room, the physical laboratory, several class rooms, the committee room, and secretary's offices. A large antique room for Art purposes, a fine lecture theatre for physical and chemical demonstrations, and a mechanical drawing room are on the first floor, whilst the top floor has exceptionally well-fitted chemical laboratories, class rooms, and a spacious room, used for light and shade drawing.

All the rooms in the building are well lighted and lofty, the floors throughout being fireproof on the Dennett and Ingle system of concrete arches.

Advanced Art is taught with considerable success, and the science department includes the subjects of building construction, chemistry, hygiene, &c.

Occupying a site of over thirteen acres on the London Road is the Derbyshire Royal Infirmary, of which the foundation stone was laid by Her Majesty the Queen. The scheme for the complete infirmary includes seventeen distinct blocks, of which thirteen have been erected, the others being deferred for future requirements. Messrs. Young and Hall, of London, were the architects, and in their designs breadth of effect, rather than meaningless adornment, has wisely been attempted. Viewed from the boulevard-like London Road, these buildings, situated well above the road level, present a bold and striking appearance, pleasingly qualified by foliage in the grounds by which they are fronted. In the centre is the administrative block, through which runs the main corridor of the hospital. From it projecting right and left are the ward pavilions of two stories each, the operating rooms, eye wards, and chapel. At the south-west end is placed the out-patient block, with a waiting hall seating 230 persons, consulting rooms, dispensary, &c. The general wards are 127ft. long, 14ft. high, and each contains twenty-four beds. Each patient has 2066ft. of cubic space. The floors are made of terrazzo, and were the first ward floors laid of the material in this country. The chapel, seating 100 persons, was erected in memory of the late Sir William Evans, Bart.

The operating-room is lined with marble slabs up to a height of 7ft., above which the walls and ceilings are finished in Keene's cement. The floor is of terrazzo, and electric

lighting is adopted in the wards, the chapel, and the operating theatres.

Behind the main buildings are an isolation hut, mortuary, joiners' shop, &c. The nurses' home is completely detached from the remainder of the hospital, and affords accommodation for forty-eight nurses, each of whom has a separate bedroom. Steam laundries, disinfecting house, refuse cremator, and a large water tower are situated at the back of the rear administrative block.

Leaving the immediate vicinity of Derby, the extensive works of the Stanton Iron Company are well worthy of a visit. In addition to working iron stone mines yielding annually some 500,000 tons, and collieries from which about 4000 tons of coal are raised daily, the Stanton Iron Company have works covering some 90 acres, and largely devoted to the manufacture of cast-iron pipes and fittings for gas, steam and water. Machinery and appliances of the most improved modern types are used in this department, and pipes varying from 1½in. to 60in. diameter are made in various lengths up to 12ft. All pipes are tested by hydraulic machinery before leaving the works.

Another class of manufactured articles, applied both for artistic and utilitarian purposes, are those produced at Messrs. Minton's china, earthenware and tile works, near Stoke-upon-Trent. These works were founded in 1793, when the goods manufactured were for the most part plain in design, but neat, serviceable and excellently made. In 1821 semi-transparent porcelain was introduced, and soon afterwards the manufacture of china was commenced. In 1842 Parian ware was produced, followed by English majolica, which the firm were the first to make. The latter product is characterised by the opacity of the surface enamel. Cornish clay, blue clay, flint, Cornish stone and bones are the chief materials used. Cornish clay is mostly supplied from the neighbourhood of St. Austell, and is a compound of silica and alumina in about the proportions of 60 and 40 respectively. Blue clay comes from Poole, and is of a greyish colour, but turns perfectly white when fired. Flint, which is pure silica, can only be used after being calcined and ground to a fine powder. In the manufacture of ordinary earthenware blue clay is the foundation and flint the whitening medium. Cornish or china clay also conduces to whiteness, and renders the mass more porous, while Cornish stone increases the density of the clays and acts as a flux. When the ware is in the "biscuit" state patterns are printed upon it if required. Glazing is the next process, and after being kept for about 15 hours in the "glost ovens," enamel colour may be laid on. The burnishing of gold ornamentation, when this is employed, is the final process. In the studio of M. Solon, who was formerly in the Sèvres factories, is to be seen a process of ornamentation called "pâte sur pâte." In this method the clay is laid on by means of a brush and then worked with tools, and the artist is, of course, his own designer. Upwards of 1000 persons are employed in this establishment.

Nottingham, visited by the writer on the occasion of a garden party given by Mr. S. W. Johnson, President of the Institution of Mechanical Engineers, was not seen under the most favourable auspices. A special train, provided by the courtesy of the Midland Railway Company, arrived from Derby in the midst of a thunderstorm, accompanied by a downpour of rain, worthy of the best traditions of Manchester or of Glasgow. In the station portico a large number of members, accompanied by many ladies in gay attire, sympathised with the heroic efforts made by a solitary cabman to transport the party to Nottingham Castle. The belief was openly expressed by some rash individual that a second cab existed in the town, but this opinion met with very few supporters.

In spite of the unpropitious weather and its attendant difficulties, there was a very successful and enjoyable gathering, and when the sun finally reappeared, it was possible to wander in the charming grounds by which the Castle is surrounded. Standing on a precipitous rock, some 200ft. in height, the Castle commands a fine view of the Trent valley east and west. The

present building, although a good example of classical Italian Architecture of the Jacobian period in England, cannot be said to be appropriate in any way to the splendid position it occupies. Built on the site of an ancient Norman Castle and Fortress, Nottingham Castle was commenced in 1670 by William Cavendish, first Duke of Newcastle, and was attacked and burnt during the Reform riots in 1831. Restored through the energy of the late Alderman W. G. Ward, and with the help of Mr. Gladstone, it was adapted by the Corporation for the Municipal Museum and Gallery of Decorative Art, and opened in 1878. The collections consist of pictures in oil and water colours, drawings, engravings, pottery, metal work, textile fabrics, sculpture, classical antiquities from Greece, Italy, &c.

University College, Nottingham, erected by the Corporation in a central position, is probably one of the finest piles of public buildings in the provinces. In design it is Gothic, and built of Ancaster stone. The college consists of a principal façade in Shakespeare Street with a central block containing lecture theatres, laboratories, &c. Technical schools and a Natural History Museum are connected by a corridor with the remainder of the college buildings, the whole of the structures being of uniform style. In the basement of the college are the carpentering shops and boiler house, on the ground floor mechanical workshops, testing, dynamo and lace rooms, plumbers' and smiths' forges; on the first floor a commodious lecture theatre, mechanical laboratories, hosiery and professors' rooms; on the second floor, drawing office, class rooms, and an industrial museum.

The Central Free Libraries and Reading Rooms are situated in the east block.

Electric light is used in the whole of the buildings, and from the Corporation Electricity Supply Station, opened in 1894, the lighting of the town is effected. In addition, there are upwards of 500 private consumers.

Welbeck Abbey formed the object of the final visit, and, after inspecting the new collieries at Cresswell, a large number of members drove to Welbeck, where they were hospitably received by the Duke and Duchess of Portland.

In conclusion, it may be remarked that the session is considered to be one of the most interesting and successful known in the history of the Institution, and that the liberality of the Midland Railway Company in connection with the meetings generally was thoroughly appreciated.

An interesting historic mansion is offered for sale at Versailles—that formerly occupied by Madame Elizabeth, the sister of Louis XVI.

The Liverpool School Board has instituted a limited competition of local architects for new schools to be built in Lawrence Road and Bowler Street. Ten firms of architects have been invited, five for each group of buildings, and the Clerk to the School Board will act as adjudicator on the designs submitted.

Memorial stones of Rhyddings Chapel, Swansea, have been laid. Mr. P. J. Thomas, of Bridgend, prepared the plans, and the contract was let to Messrs. Weaver and Co. The cost of the new chapel is to be about £1550. It is being built in the Gothic style of Architecture, and will seat nearly 550 persons.

Two new hotels are about to be built at Southwold. One, to be called the Marlborough, will be built on the North Cliff. Mr. Pells, of Beccles, is the architect, and the cost is £7000, without furniture. The second hotel will be situated near the railway station, and will cost about £2000. Mr. T. Key is the architect for this, and also for a south wing to be added to the Cliff Hotel in the same town.

An accomplishment has been made of the decoration of the vestibule and the dome of the Liverpool Town Hall, in accordance with Professor Simpson's designs. One of the finest pieces of sculpture in Liverpool is Francis Chantrey's graceful statue of George Canning, which occupies a pedestal which is placed on the first elevation of the grand staircase leading to the beautiful suite of upper rooms of the Town Hall.

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WHAT IS ART?

By Count Leo Tolstoy.

**LONDON AS DICKENS KNEW
IT.**

**THE RENAISSANCE OF THE
ART OF ENAMELLING IN
ENGLAND:**

By Alexander Fisher.

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Bricks and Mortar.

EFFINGHAM HOUSE, ARUNDEL STREET,
September 28th, 1898.

"I know what it is to live in a cottage with a
deal floor and roof, and a hearth of mica slats;
and I know it to be in many respects healthier
and happier than living between a Turkey
carpet and a gilded ceiling, beside a steel grate
and a polished fender. I do not say that such
things have not their place and propriety; but
I say this, emphatically, that the tenth part of
the expense which is sacrificed in domestic
vanities, if not absolutely and meaninglessly lost
in domestic discomforts and incumbrances, would,
if collectively offered and wisely employed, build
a marble church for every town in England;
such a church as it should be a joy and a
blessing ever to pass near in our daily ways and
walks, as it would bring the light into the
eyes to see from afar, lifting its fair height
above the purple crowd of humble roofs."—JOHN
RUSKIN.

NEARLY every Londoner has caught a glimpse
of the Elizabethan mansion lying amongst the
trees of Holland Park, and just visible from
the tops of the omnibuses plying along
Hammersmith Road. But very few have seen
the inside of Holland House. It is a fine
country house that has been swallowed up by
the all-devouring City; standing yet in the
midst of its own lovely grounds, and holding
its treasures intact. It has changed hands
repeatedly, and for years now has ceased to be
a social centre.

It dates, says an article in the new Pall
Mall Magazine, from the beginning of the
seventeenth century. It was a Royalist house
in Stuart times, but for a few months it was
the residence of Cromwell and Fairfax, then
of Addison in his last years, and, later still,
of William Penn. It passed into the hands
of the Fox family in 1749, and thenceforward,
for a hundred years, it was the fount of
Whiggism pure and undefiled, and it reached
the height of its fame under Macaulay's Lord
and Lady Holland, the Whig potentates of
the Reform epoch. The house is packed with
treasures of art and objects associated with
half the famous people of Europe during the
days of its prime. Macaulay, to whom it was
almost home, might well write of all its
memories, "mixed with all that was loveliest
and gayest in the society of the most splendid
of capitals."

SLOWLY, but surely, the officials are effecting
the clearance of the site in Parliament Street
which is needed for the widening of White-
hall and the construction of the new Govern-
ment offices. All the houses are now vacated
up to the corner shop in the occupation of the
Aerated Bread Company, and this will be
handed over in the course of the next few
weeks, together with the adjoining premises
facing Parliament Square. No time will be
lost in demolishing the buildings, so that
probably by the time the next Session opens
the entire block on the north side of Parli-
ament Street will have been swept away,
opening up a clear view of Westminster
Abbey.

PATRIOTIC wall-paper is the latest thing in
the United States, and, but for the decided
strength of the colouring, the designs are by no
means lacking either in originality or in grace.
One of these represents the spread eagle with
the crest of the States on its breast, the laurel
branch and bunch of arrows in its jaws, stand-
ing on a knot of ribbon which forms a festoon,
and from which depends a single star attached

to crossed representations of the Stars and
Stripes, which again serve to hold up more
ribbons, which are again carried in festoons to
smaller stars surmounted by flags. The frieze
represents the same design in an enlarged
form, swords and anchors attached to knotted
cables being artistically introduced, while the
border at the top and bottom represents the
network, which is commonly seen forming the
upper part of the bulwarks of a steamer.

SOME cities boast of being built on a rock,
others of having seven hills for their founda-
tion; but the residents will awake one morn-
ing to the fact that their world-famous
Metropolis is a city built on tunnels. So many
underground means of communication have
been, are being, or will be, made that London
will soon have little geological basis left.
Recently the Mansion House itself showed
several cracks; and now buildings along the
route of the new tunnel for the Central Rail-
way from the Royal Exchange westwards are
following its example. No danger of collapse
or accident is apprehended, the tunnels being
far beneath the foundations of the houses;
but still the fact remains that the cracks are
there. Probably when the strata have got
over the disarrangement caused by navvies,
and have settled down to their normal solidity,
the crevices will be filled up and painted, and
thus obliterated until the leases of the build-
ings expire.

REPORTS that houses and halls in Cheapside
were chipping and cracking on account of the
excavation for the Central Electric Railway
have been current lately. At the top of
Ironmonger Lane stands the Mercers' Hall, a
very old building. Adjoining it, nearer the
Cheap, is one of Messrs. Benetfink's establish-
ments. At the level of the first story of the
hall, just where it joins Messrs. Benetfink's,
there is a zig-zag crack about an eighth of an
inch wide. It was first noticed in July. Some
three weeks ago a piece of thin paper was
pasted across the crack. This paper is still
intact, showing it has not widened recently.

MESSRS. JONES AND LANG, house and property
agents, have their offices in King Street. Here
again cracks are visible. Mr. Taylor, of
Messrs. Jones and Lang, speaking as a practical
surveyor, says he has little doubt a small
subsidence has occurred. After the tunnel
archway is fully completed the ground settles
slightly, and then the harm is done. All the
buildings affected must be carefully watched
for some time longer, but the fact that there
had been no expansion of the cracks during the
last week or two, points, he said, to the cessa-
tion of the subsidence. It is hinted that the
cracks might be due to the excessive drought,
but this theory is disproved by the fact that
they appeared before the drought became
severe. Sir Douglas Fox, the eminent consult-
ing engineer, has been called in. It is under-
stood that he does not regard the matter as
serious now that three weeks have elapsed with-
out any widening of the cracks. The construc-
tion of the subways and underground railways
has caused buildings to crack and chip similarly
in other parts of London. The phenomenon
is familiar to engineers. Under ordinary cir-
cumstances it is not attended with danger.

THE Rector of Croyland, near Peterborough,
in appealing for funds for the preservation of
Croyland Abbey, gives an account of the work
done this year. "The two bays next the tower
rebuild, one entirely so; the north wall of the
north aisle or present parish church underpinned
on the outside face; a cross wall between two
chapels rebuilt, and the east window in the
tower repaired and cemented. I therefore
greatly need pecuniary help," continues the
Rector, "in carrying on this great work. Now
for the reason of the urgency of this appeal.
Last Wednesday the whole north wall of the
eastern chapel moved 3 in. to the north, and
must be speedily taken down and rebuilt from
the foundations, as in the case of the two bays
next the tower. The sum still required is
about £1100. The portion of the abbey which
has caused so much work this year was built
by Abbat Ulketyl in 1061. In 1091 this

READY OCTOBER 1st.

1/- Nett.

portion suffered from fire during the abbacy of Ingulphus the Historian.

"THERE are many reasons for this decay to the fabric besides age and the drainage of the Fens. The abbey has suffered from fire on three occasions, from earthquake (1114), and the walls were built on the peat bed, having no spreading footings. The foundations are perfectly rotten, and how the building has held together for so many centuries is truly a mystery. One relieving arch was embedded only about 1 in., having a projection of 6 in. Dangerous in the extreme. In the peat bed last week we found a cluster of oysters unopened. The underpinning of the abbey proves the statements by Ingulphus to be perfectly correct, and the oak piles may be seen by visitors which have been since 947 A.D. the stay of the foundations. I do pray that the lovers of the ancient monuments of our land may help me by a generous response to this letter."

RAWMARSH Parish Church has been thoroughly restored, and very extensive alterations have, at the same time been carried out. The work of improvement—if improvement it be—was in some degree a matter of necessity, but when the primary work of renovation was begun its incompleteness was very marked, and so the scheme was enlarged, and eventually embraced the erection of a new chancel, the provision of a vestry and an organ chamber in addition to the complete repair of the nave. It is rather more than two years since Mr. J. Platts, the architect who has had the whole of the work in hand, pronounced the roof of the nave to be unsafe, and his investigation proved most of the timbers to be decayed. A new ceiling of pitch pine, roofed with Westmoreland slates, was put in, and during the course of the work it was discovered that the walls of the clerestory were damaged. These were therefore repaired. The old galleries were taken out, and then it was seen that one of the stone pillars of the nave was cracked down its entire length, and a new one had, of course, to be put in its place.

THE new chancel, which is much larger and more elegant than the chancel it superseded, is of octagonal shape, and contains a stained glass window. The floor is laid with encaustic tiles, and new altar standards and rails have been provided. The nave has been newly floored, and seated with pews of pitch pine, slightly stained oak colour, with worked and traceried ends. The hexagonal pulpit is of the same material as the pews, and is supported by traceried pillars, with open work above. All the internal stonework has been cleaned of the whitewash which formerly disfigured it, and new windows of cathedral glass have been inserted. The new chancel arch is of Roche Abbey stone, with old English carved capitals. The alterations have required a rearrangement of the heating system, which has also been renovated, and the total outlay necessitated has been about £2000. A new organ to be placed in the church is being made by Messrs. Abbott and Son, of Leeds, at a cost of £500.

REFERRING to the action of the London County Council with regard to the means of escape from factories in the event of an outbreak of fire, the City Press says:—"The provisions of the Act itself are unobjectionable. In old buildings as well as in new it requires only that such facilities shall be provided as can reasonably be required under the circumstances of each case. What is reasonable under the circumstances is unfortunately left in the metropolis to the decision of the County Council. We say unfortunately, because the Council's ideas as to what is reasonable in old structures are peculiar, so peculiar that in a large number of instances the perfectly legitimate requirement of the Act has been magnified into an oppressive and in many cases intolerable demand. We had hoped that the remonstrances which have been made by persons carrying on business in the City and elsewhere in Central London would have induced the Council to modify its require-

ments, and that we should have heard no more of the 'County Council Staircase,' the insistence upon which without regard to special circumstances has been the ground of complaint.

"It appears, however from the proceedings taken against Messrs. Blades, East, and Blades that it has not yet learned the wisdom of moderation. The firm's premises in Tabernacle Street are, of course, quite modern, and the neighbourhood has been within the last few years the scene of a terrible fire; but we do not think it was the intention of the Legislature that they should be put to the expense of carrying out the alterations now insisted upon. The Council requires two staircases of incombustible materials to be erected, the cost of which, as shown by the contract entered into by the firm, will be no less than £660. To this outlay Messrs. Blades, East, and Blades, after a lengthened correspondence, consented. The summons was taken out by the Council because there had been some delay in commencing the work, and the case has been adjourned for ten weeks for the alterations to be carried out. These, however, are mere details, which are of little interest to anybody excepting the parties immediately concerned. The serious feature of the case is the large expenditure which the London County Council has power to compel firms to incur for alterations, and its apparent disregard for those reasonable considerations which the Act recognises. We have nothing to say against County Council staircases when they are made obligatory in the construction of new buildings. What is objected to, and rightly looked upon as a hardship, is the insistence upon their introduction into existing buildings regardless either of necessity or expense."

THE announcement that the directors of the Grafton Galleries are about to hold an exhibition of Verestchagin's pictures will be of immense interest to English people. It will succeed the exhibition of the Society of Portrait Painters, and is expected to open on January 1st. The Russian soldier-artist burst like a bombshell in the world of Art some years ago. The first show of his pictures in this country made a prodigious sensation, and gave rise to a fury of denunciation, and a corresponding passion of praise. He has painted modern warfare as it has never been painted by any other man. He is an artist of astonishing force, and a realist who shrinks from nothing.

No one who saw Verestchagin's trio of pictures representing what the glory of war means for the private soldier can ever forget them. The first was an expanse of blue sky with a great snow-capped mountain in the foreground. No sign of war—nothing else in the picture save a small brown speck, apparently some sort of bird. The second picture was a lower scene on the same mountain. There is less of blue sky, the snow-capped peak has receded into the distance, and the brown, bare, barren lower slopes, flecked with the shadows of passing clouds, form the foreground. But the little speck has grown into a huge, repulsive-looking vulture. In the third picture we are presented with a dense tangled mass of green tropical jungle. It is at the foot of the vast Himalayas. In the foreground lies a young British soldier—dead. His dead hand still grasps his rifle, and round him sit in grim array a number of vultures, which have just alighted to gorge themselves on the flesh of the soldier lad.

ANOTHER trio, showing how great empires are maintained, was likewise very impressive. Three startlingly realistic pictures of great power showed the world how Rome, Britain, and Russia maintained their hold over their subjects. The first was a picture of the Crucifixion, the second depicted British artillerymen at the close of the Mutiny, blowing natives out of the mouths of guns, the third represented the execution of a Nihilist in a snowstorm. All were grim, terribly grim, and very powerful.

WAR was one of Verestchagin's favourite subjects, especially the Russo-Turkish War of 1876-77, in which he had himself taken part. Who does not remember "All quiet on the Schipka?" The conquest and retention of the vast domain of India, with all its glories and its wealth, and its millions of inhabitants by a mere handful of an energetic western race also appealed powerfully to Verestchagin's wonderful imagination, as it does to most Russians, whose eyes are on the Orient. The coming exhibition of Verestchagin's works will teach many Londoners somewhat of the new literary and artistic forces that are struggling to express themselves—the product of the emergence of a race from barbarism and childhood to civilisation and maturity. To have produced Tolstoy, Tourgenieff, Marie Bashkirtseff, and Verestchagin is to have challenged comparison with the Elizabethan age.

MR. ARTHUR HODGSON, Chairman of the Executive Committee, Shakespeare's Birthplace, has replied to the Times correspondent "W. L.," who, in speaking of Shakespeare's house and Anne Hathaway's cottage, remarked: "When I last saw the birthplace the great danger of its being burnt was in consequence of the hot-water pipes resting on the very old and very dry timber." "The boiler which feeds the hot-water pipes," Mr. Hodgson explains, "is fixed in a separate building at a distance of 80 ft. from the birthplace, and is worked by low pressure, seldom, or ever, at boiling heat. Iron rollers are used for the hot-water pipes, they avoid the woodwork made of solid oak. Last year the pipes were thoroughly overhauled and the circulation perfected by an experienced tradesman. The lightning conductors were at the same time tested and put in order. In answer to another correspondent in your issue of the 13th inst., I may say that the hot-water pipes do not affect the plaster, upon which some thousands of visitors' names have been pencilled (this custom no longer is permitted). It is true that the limewash on the plaster surface is liable to peel off with age, but the equal temperature produced by the hot-water pipes assists to preserve it.

"In regard to Anne Hathaway's Cottage, the dear old lady who is the custodian, and who is a lineal descendant of the Hathaways, has lived there fifty years, and under present arrangements resides in the cottage, which last year was thoroughly and carefully restored at a considerable cost. The birthplace and Anne Hathaway's Cottage are under the management of an executive committee, consisting of the mayor, three aldermen, and six prominent residents in the borough, who are appointed at the annual meeting of the trustees on the anniversary of Shakespeare's birthday (old time). Since the lamented death of Mr. Charles Flower in May, 1892, I have had the honour of having been elected annually chairman of the executive committee, who meet monthly on the first Wednesday in the month, the birthplace being constantly visited by myself and other members of the committee, who take the deepest interest in the sacred trust committed to their care."

It is not easy to think of the long-lost Gainsborough—the discovery of the missing Duchess in a Chelsea cellar was reported by the Daily Mail the other day—as anything but a kind of sea-serpent, whose outlines "fade for ever and for ever" as we come nearer. The mystery of the Chelsea cellar makes a pretty story of a find: so pretty that it ought to come true. The painting, we are told, "has been floated from canvas to paper." Has it, indeed? Here, at least, is a curious and instructive point, which we are pleased to note. "Floated" is an original word in this connection. It seems to imply that the author of the tale is sufficiently unacquainted with pictures to be tricked by a mare's nest. That flotation from canvas to paper is odd. The re-lining process is common enough; not, however, from canvas to paper, but the other way about.



THE N.A.P. Windows.

IMPORTANT ANNOUNCEMENT.



THE thorough and unanimous satisfaction which has now been expressed by Architects, Builders, and Users on behalf of the N.A.P. Windows, in most cases after prolonged trials, is causing them to be almost generally specified, and to make preparations for promptly executing the orders already in hand and shortly to accrue as the result of the N.A.P. Specialities having been specified for a long list of important buildings now in course of erection and being designed, arrangements have been concluded for acquiring the undertaking from the *Development Syndicate* (The N.A.P. Window Co. Ltd.) by a *Trading Company* possessing a working capital suited to the importance of the business.

THE PROSPECTUS OF THE (NEW) N.A.P. WINDOW COMPANY Ltd.

Will be next week published in the Daily Press on the 4th, 5th, and 6th October.

EXTRACTS FROM THE PROSPECTUS:

There are seventeen British Patents included in the purchase, the principal of which, and their respective advantages, are as follows:—

SLIDING WINDOWS.

- (a) "The N.A.P. Sliding and Revolving Sashes," which (hung with lines and weights in ordinary hollow sash frames) slide as usual, and when their outsides have to be cleaned or repaired, can be instantly reversed for the purpose.
- (b) "The N.A.P. Weightless Frame," for hanging either the N.A.P. Revolving Sashes or ordinary sashes in solid frames without the use of the ordinary lines and weights (one sash counterbalancing the other), or for hanging therein ordinary sashes in basements, &c.
- (c) "The N.A.P. Top Bolt Patent," which consists of an ordinary window, the sashes of which, by the application of certain inexpensive fittings, can easily be drawn inwards by a domestic servant, when it is desired to clean the outsides.

CASEMENT WINDOWS.

- (d) "The N.A.P. Wood Casement," which not only opens outwards for Ventilation, but also inwards for Cleaning.
- (e) "The N.A.P. Metal Casement" (6 different methods) each of which also open outwards for Ventilation and inwards for Cleaning.
- (f) "The N.A.P. Passable Hopper Cheeks," which enable bottom-hung fanlights, fitted with side-glazed cheeks for the prevention of lateral draught, to be inwardly swung down to a vertical position for convenient cleaning of the outsides of the Fanlights.
- (g) "The N.A.P. Accessories," which consist of a number of useful inventions connected with the details of windows; and all of which are capable of producing handsome profits.

Full size examples of the above can be seen at the Company's Showrooms, 159, VICTORIA ST., WESTMINSTER, and 65, GRACECHURCH ST., E.C.

Although the Patents have for some time been introduced to the Building World, no question of validity has been raised. The favourable opinion of Mr. Fletcher Moulton, Q.C., M.P., has been obtained with reference to the principal inventions, which are designated by the letters (a), (c), (d), (e), and (f) in the above list. Mr. Moulton's opinions were based upon an exhaustive search (extending from the year 1617) by Messrs. Alexander Browne and Co., Registered Patent Agents, 9, Warwick Court, Holborn. The originals of these reports, and the opinions as above mentioned of Mr. Moulton, can be inspected, together with all other legal documents, at the offices of the Company's Solicitors. Both the United States of America and Germany have granted patents; facts which are strong confirmatory evidence of validity, having regard to the fact that the Patent Authorities of these countries search the Patent Records of the World for inventions which anticipate current applications.

The Company will also take over, at the expense of the Vendors, their rights in the following Foreign and Colonial Patents, which have either already been granted, or in respect of which instructions to the Patent Agents to apply for patents have been given; and it is proposed almost immediately to form a Subsidiary Company for their purchase, upon terms which should provide this Company with an immediate substantial profit.

EUROPE.

France	Turkey
Germany	Italy
Belgium	Spain
Sweden	Hungary
Denmark	Switzerland
Norway	Austria
Russia	Portugal

ASIA.

India
Ceylon
Japan
Straits Settlements

AFRICA.

Cape Colony
Natal
Rhodesia

AMERICA.

U.S.A.
Canada
Brazil
Argentina
Mexico
Jamaica

AUSTRALIA.

Victoria
New South Wales
West Australia
South Australia
New Zealand
Tasmania
Queensland

Copies of the Prospectus, with forms of application for Shares, can be obtained at the Offices of the Company, or from the Bankers, Brokers, Solicitors, or Auditors.

Professional Items.

ABERAYRON.—The Aberayron school buildings, which have just been opened, are built on a commanding site near the Feathers Hotel. They are unpretentious. The buildings consist of a spacious central hall, two class-rooms, master's and mistress's rooms, workshop, laboratory, music room, &c. The architect is Mr. L. L. Bankes Price, B.A., of Lampeter, and the contractor Mr. E. Evans, of Llanybyther.

CARDIFF.—The Mayor of Cardiff has just opened the new premises in George Street for the Free Library for the Docks district. The building has been erected on the site of two cottages in George Street, and has been designed with a red brick front and a simple treatment in the Tudor style of Gothic Architecture. The roof over the back part of the library is vulcanite, manufactured by the Vulcanite Roofing Company, Belfast, under the supervision of Mr. W. Allen, of Cardiff, the top of which, covered with sand and gravel, forms a good drying-ground for the caretaker. The buildings have been erected by Mr. W. T. Morgan, contractor, Cardiff, from plans prepared by and under the supervision of Mr. W. H. Dashwood Caple, architect, Cardiff. The floor of the library is formed of wood blocks. The furniture has been made and supplied by Messrs. Turner and Sons from the drawings of the architect. The buildings are lofty and well lighted, and simple and excellent arrangements are made for the supply of fresh air and the extraction of the vitiated atmosphere. The total expenditure on the buildings was £1400, and the acquirement of the cottages cost £800.

CHARLEVILLE.—The foundation stone of the new Church of the Holy Cross, Charleville, was laid a few days ago. As the result of a limited competition, the design of the new building was entrusted to Mr. M. A. Hennessy, architect, of Cork; the contractor being Mr. Denis Creedon, of Fermoy. The style of Architecture is that of the thirteenth century, pointed Gothic, which lends itself with peculiar charm to the plan, which includes nave, aisles, transepts, and chancel. The main front is enriched by a moulded and recessed doorway, with two rows of pillars, and a statue of St. Colman, the patron of the diocese. The tower and spire, which are 150ft. in height, flank the nave gable on the left hand. From the belfry springs a graceful octagonal-pointed spire, flanked at the base by four spire-capped pinnacles, and the summit by a floriated wrought-iron cross, richly gilded and decorated. On the right-hand side of the north gable rises a pinnacled buttress. The tower door is on the side, deeply recessed, giving a good shadow. On the opposite side, leading to the adjoining aisle, is a graceful porch projecting beyond the walls of the church, with gabled frontages. The masonry throughout is of local white limestone, and the dressings, also of limestone, are from the famous quarries of Liscarrol. The total cost of the building is estimated at £14,000.

EARLS COLNE (Essex).—A new grammar school has just been opened at Earls Colne, Essex. The building is of red brick, faced with "Sible Hedingham" bricks, and covered with "Perfector" roofing tiles, obtained from Messrs. Thomas Peake, of Tunstall, Staffordshire. The windows are of the Elizabethan style, with leaded lights. Half-timbered work is employed under the eaves and in the gables. The floors are nailed into breeze concrete. The ceilings are of panelled plaster. The floors are carried on two iron girders, cased, placed on elaborate carved stone corbels. There are several winding staircases, with French polished handrails. The work has been carried out by Mr. Zach. Rogers, contractor, of Earls Colne. The figures of the original contract were £3700, but the extras, &c., will bring these up to upwards of £5000. Mr. Henry A. Cheers, of Twickenham, was the architect.

GILSLAND (Cumberland).—The new stone bridge over the Irthing at Gilsland has been completed. The bridge is built on the skew principle, and has cost £1400, including road diversions. The erection is in substitution of a narrow bridge with a square span and a very awkward approach on the left bank of the river. The bridge has been designed by Mr. G. J. Bell, Cumberland county surveyor, and built by Mr. Thos. Telfer, Langholm.

GLASGOW.—A new nurses' home has been added to the Gartloch Asylum, Glasgow. The new building will accommodate about fifty, and is to be of three stories, and built of red stone in the Francois Premier style of Architecture, similar to the main asylum buildings. It is quite detached from the asylum, and situated at a rather lower level in a pleasant part of the grounds. On each floor there will be sitting rooms, bedrooms, and bath rooms, while in addition on the ground floor will be matron's rooms, visitors' rooms, and kitchen. A sick room for invalided nurses will be found on the first floor. To ensure quiet for the night nurses, their quarters, reached by a separate staircase, have been placed in the top flat. The bedrooms will be of two sizes, and every nurse and servant will have a separate room in addition to sharing with others a parlour. The entrance to the home is placed so as to be equally convenient for asylum and hospital, and opening from it on one side is a parcel and enquiry room. The parlours, which have large bow windows, are placed at the corners, and the lavatories and bath rooms are in the wings. The ground behind, forming part of the old pleasure, will be laid out for nurses' recreation. The architects are Messrs. Thomson and Sandilands, and the contractors:—Messrs. Messrs. Paterson and Baldie; joiners, Messrs. Hutchinson and Grant; slaters, Messrs. A. M. Ross and Sons; plasterer, Mr. Mackenzie; plumber, Mr. J. L. Arnot; painters, Messrs. McCulloch. The total cost, including furnishings, it is estimated will be about £20,000.

GORSTY HILL.—The new schools at Gorsty Hill were opened on Tuesday week. The buildings, which can be used as day-schools and a mission church, have been erected at a cost of about £2000. The builder was Mr. W. Willetts, of Old Hill, and the architects were Messrs. Prothero and Phillott, of Cheltenham.

GOVAN.—The ceremony of laying the foundation stone of the Public Halls and Municipal Buildings in Govan Road, Govan, took place last Saturday week. The buildings are divided into two sections: first, the Burgh Building, comprising the Council Chamber, committee rooms, &c., and the offices for the various officials; second, the Town Hall, consisting of a large hall to accommodate 2000 persons, and a small hall to accommodate 500. The main entrance to the Burgh Buildings is from Govan Road, and placed in the centre of that frontage. On the left, immediately on entering, is the burgh officer's or enquiry offices, and on the right is a small waiting room. On entering the buildings a corridor is reached 8ft. wide, which joins the various departments of this floor to each other and to the Council Chamber. Immediately behind the corridor, in the centre, are two stairs: one leading to the right reaches the Burgh Surveyor's office, on the first floor facing Merryland Street; while the other, to the left, reaches the Sanitary Inspector's office, &c., fronting Summerton Road. The Council Chamber is placed at the rear of the main building, and directly in the axis of the main entrance door. This position was decided upon, after careful consideration, as being most convenient to the main entrance, and placed at the back the noise from the street will not disturb the business of the Council. Double doors have also been provided to keep out the sound. A retiring room, lavatory, and ante-room have also been provided, whilst space has been set aside for the Press, and also a gallery with separate entrance for the public. Along the Govan Road frontage are placed the Provost's room, committee rooms, library, and waiting room. The Town Clerk's office faces the Summerton

Road, while the Weights and Measures office has a frontage to Merryland Street, and in the basement under the office connected to the street by a hoist is a workshop, measure-testing room, and a fire and damp-proof room. The Burgh Treasurer's office faces Summerton Road, and is provided with a separate entrance for the public, and is also connected to the other offices by a corridor. The Town Hall extends along Carmichael Street from Summerton Road to Merryland Street, the main entrance being in Summerton Road and the artists' entrance in Merryland Street. There is a wide corridor along each side of the hall, with sufficient exits to allow the hall to be emptied in a few minutes. There is also a cloak room, smoking room, and lavatory accommodation over the entrance hall and in the gallery. There are no columns on the floor of the hall, and therefore no obstruction to the view or circulation. The small hall is on the first floor. The public enter by a wide and easy stair at one end, and the artists by a stair at the platform end, where there is also two dressing rooms. The idea aimed at in the exterior of the building is to give it a plain but dignified appearance without lavish expense and ornament, the style adopted being a free treatment of the Classic. The detail of the large hall is a little different from the rest of the building, so as to make it distinctive. The estimated cost of the new buildings is £30,000.

KILMARNOCK.—The foundation stone was recently laid, at Kilmarnock, of a public library and museum. The building is being erected at Elm Bank, and is estimated to cost upward of £11,000. The style of Architecture adopted is Italian, the leading feature of the design being a portico at the main entrance, surmounted by the figure of Britannia and the Kilmarnock coat of arms. The frontage is 138ft. in length, with a depth of 114ft. On the ground floor are the reading room, library rooms, and lecture hall. On the second floor the main staircase leads to a spacious vestibule with dome of coloured glass, to the right and left of which are the wings of the museum, each having a total area of 1750 square feet. The architect is Mr. R. S. Ingram, and the principal contractor ex-Bailie Calderwood.

KESWICK.—A new High School and hostel erected at Keswick at a cost of £6000 has just been opened. The new buildings, which are adjacent to Greta Hall, the former residence of the poet Southey, have been erected in accordance with the designs of Messrs. Austin and Paley, of Lancaster, the contractor being Mr. Isaac Hodgson.

LEEDS.—The contract for the new premises of the London and Midland Bank, situate in North Street, has been let to Messrs. Craven and Umpleby. The work is being carried out from the plans and under the supervision of William Bakewell, F.R.I.B.A.

NEWCASTLE.—The new Presbyterian Church of England at Benwell, Newcastle, has just been opened. The building stands with its side to Armstrong Road, the west front facing Hugh Gardens. The hall occupies the eastern portion of the site, and between the church and hall the class rooms and vestries are placed. The church is planned with nave and aisles, the aisles and west end having galleries, the whole providing seating accommodation for 650. The entrances are placed in the west front. The whole of the block of buildings is designed in the Early English style; the walling is of local stone, in coursed rock facing, with chiselled stone dressings, the bays of the nave having buttresses at every principal, and the alternate bays having the upper windows carried up as dormers. The west front has two projecting porches with mullioned and traceried window in gable over the same, and to the north a small octagonal turret breaks the line between the gable and staircase roofs, a buttress marking the southern division. Internally, the nave is divided from the aisles by an arcade of five bays on either side, and the east gable has a traceried rose window. The architects are Messrs. Badenoch and Bruce, of Newcastle. The estimated cost of the new building is £5500.

Enquiry Department.

LEGAL.

Enquiries involving legal points are dealt with below. These enquiries have been submitted to counsel (whose opinion we give in each case), and as the wheels of the law proverbially grind slowly, we are sure our correspondents will pardon the slight delay that has occurred in replying.

A PARTY-WALL NOTICE.

To the Editor of THE BUILDERS' JOURNAL.

SIR,—Will you kindly say in your next issue who has, in the case of a party-wall notice, to pay the adjoining owner's architect's fees—the adjoining owner or the building owner?—Yours truly, H. B.

"H. B." has not explained what he means by "a party-wall notice," but speaking generally, the adjoining owner must pay his own architect's fees.

TENANT'S RIGHT TO REMOVE.

To the Editor of THE BUILDERS' JOURNAL.

DEAR SIR,—Would you inform me if I can legally remove a wooden erection, put up by me and used as a cycle shed? The structure is a lean-to, and is secured to the property by means of six holdfasts, and the door cheeks are dowelled into flagging of yard. It is cement flashed on two sides, and has been erected some twelve months ago, having first obtained the landlord's permission to do so. Thanking you in anticipation.—Yours faithfully, "CYCLIST."

If "Cyclist" is engaged in trade and put up the shed for the purpose of his trade, it is legal for him to remove it during his tenancy, but not otherwise.

AN UNFULFILLED ENGAGEMENT.

To the Editor of THE BUILDERS' JOURNAL.

DEAR SIR,—A short time ago I prepared plans for some houses for A. Since then I find he has placed the work with B, and denies ever having engaged me. As he called at my office and we went to measure up the site together, is not that sufficient evidence of his having engaged me, and could I not sue him for expenses in preparing preliminary plans and surveying site?—Yours truly, "YOUNG ARCHITECT."

If A requested "Young Architect" to prepare plans without any stipulation that they were not to be paid for unless adopted, "Young Architect" is entitled to sue for the value of his work. His case will be corroborated by the fact of A having called upon him at his office, and having gone with him to measure up the site, but these circumstances, though strong evidence of A having engaged him, will not be sufficient evidence of the terms of the engagement.

REINSTATED WORK.

To the Editor of THE BUILDERS' JOURNAL.

SIR,—I should be much obliged if you can give me legal advice on the following matter: In April, 1897, I contracted to erect some buildings, the amount of the contract being nearly £19,000. When the buildings were in construction and nearly completed a fire occurred which did damage to the extent of £3000. Of course the building was insured jointly with myself and the proprietors, and the insurance company paid the claim (I may mention that I paid the premium for insurance), the proprietors receiving the amount from the insurance company. I also took out the quantities for the fire claim, and, together with an assessor, who has to be paid out of the amount received from the insurance

company, dealt with the insurance company assessor in respect of same. In the interval between the commencement of the contract and the time of the fire materials had advanced in price, and the schedule for the fire claim was, therefore, of course higher than the original schedule of the contract. No arrangements were made with regard to how the reinstatement was to be paid for, and I assumed I should receive the amount the insurance company paid, less any expenses incurred by the proprietors. I have reinstated the work and completed the contract, and the architects wish to measure the work damaged by fire and price the whole on the original schedule. I should like to know if they can legally do this; if so I shall lose money on the reinstatement, while the proprietors will have a good balance in hand after paying all expenses.—Yours faithfully, J. D.

In the absence of anything in the contract to the contrary, "J. D." having paid the premiums out of his own pocket, would be entitled to the amount received from the insurance company; the proprietor would be a trustee for him of whatever the property received from them unless the policy, "J. D.," would be bound to reinstate, and entitled to be paid only the price as regulated by the original schedule.

AN UNJUSTIFIABLE DEDUCTION.

To the Editor of THE BUILDERS' JOURNAL.

DEAR SIR,—As readers of the "Builders' Journal and Architectural Record," we should be much obliged if you could give us a legal answer to the following:—

We undertook a contract of £1400, to be completed by December; it was not completed until February—the end of the month. The proprietor set the stonework in a separate contract, causing us to wait for stonework, as we had no control over it. The proprietor also sank two wells and fixed two pumps and water-pipes over our house, also added a water-closet, which caused us to wait both for plans and plumbers. He also added a considerable amount of work to contract, making a bill of extras considerably over £100. Four of the houses were occupied on February 3rd, two on February 19th, and one on March 12th (this was waiting for shop-fittings extra to contract), and one in February (21st); this one could have been occupied earlier, but they had it papered and colour-washed extra to contract. When we came to settle up, the architect and the proprietor wanted to deduct us £20 for not being completed by time. We should be extremely obliged if you could answer legally whether the proprietor has the power to do so or not.—Yours faithfully, THOS. ORTON & SON.

In the absence of something special in the contract, the proposed reduction is quite unjustifiable.

A QUESTION OF COMPENSATION.

To the Editor of THE BUILDERS' JOURNAL.

SIR,—A, the contractor for B, is carrying out extensive building operations to property adjoining that which belongs to C, and A, in working to the drawings, excavates on B's premises and close down by C's wall to such a depth as to cause the wall belonging to C's establishment (the foundations of which are only about 4ft. below floor level) to crack, damaging plaster framing of windows, sills, etc., owing to the foundations settling. A has promised to make all good. Cannot C claim compensation for depreciation as well as make A put the drainage right? If the extra depth of excavations on B's property had not been done, there is no doubt the drainage to C's property would not have taken place. The architect for B holds the contractor responsible for all drainage to adjoining property. A has been told that compensation would be required, but he will not entertain the idea. Please say if C can compel A to give a reasonable amount for compensation.—Yours truly, "REVIEW."

If A is liable at all, he is liable for the depreciation. But in general such a liability

does not arise unless the building in question has been in existence for twenty years before the settlement takes place.

GENERAL.

VENTILATING ROOFS.

To the Editor of THE BUILDERS' JOURNAL.

SIR,—A building, 70ft. by 26ft., is to be covered by a hipped roof, 45 degrees pitch, boarded, felted, and tiled. There will be a plastered ceiling at the plate level. The interior of the roof will not be made use of. How can I ensure sufficient ventilation for the preservation of the timbers in a thoroughly concealed manner? There may be no projection beyond the ridge line or plain of the roof.—Yours faithfully, "AIR."

Ample ventilation may be secured in a hipped roof with visible eaves by leaving a space between the top of the wall (in line with the underside of plate) and the under surface of the boarding. Should fascia and soffit boards be used to cover the ends of the rafters, bore a few $\frac{1}{4}$ in. holes through the soffit boards or insert a small iron grating flush with the face. In the case of parapet fronts, omit the boarding below the gutter, and insert an "air brick" in each parapet wall. Leave an inch space on each side and end of tie-beam, and an "air brick" is sometimes built in opposite as additional precaution. It is advantageous to the boarding to batten on top of the boards, and stretch the felt on the battens instead of laying it directly on the boards. If the above is not clear, write again; a sketch shall be prepared.

Views and Reviews.

CITY OF LONDON COLLEGE.

The student of engineering, surveying, or sanitation, in need of a school in London wherein to pursue his studies during the coming session, may be recommended to obtain a copy of the recently-issued calendar of lectures and classes in the engineering department of the City of London College (White Street, Moorfields, E.C.). With a successful record behind it, this engineering school is entering on another session full of hope and vigour. Professor Henry Adams is at the head of the department. Mr. Adams needs no introduction to a technical audience. His wide and valuable researches in Engineering and Architecture, of which a small library of thoroughly helpful text-books has been the result, together with his long and successful experience as a teacher, furnish assurance that his lectures during the coming session will be of the utmost value to the student, as lucid as they are thorough. The subjects dealt with may be categorised as under:—Technical drawing, building construction, practical sanitary science, sanitary engineering, civil engineering, mechanical engineering, quantity surveying, valuation, land surveying, engineering field work, town surveying, laying out building estates, and compass traversing. The prizes obtainable as the reward of good work at the City Polytechnic should not only act as a stimulus to the present students, but should swell the number of those who avail themselves of the very excellent facilities offered at this institution.

A STAINED-GLASS window has been placed in St. John's Church, Brooklands, as a memorial. The window has been prepared from cartoons drawn by the late Sir Edward Burne-Jones. The design is symbolical of the Ascension.

It is in contemplation to demolish the modern part of Whitgift's Hospital of the Holy Trinity, in North End, Croydon, in order to improve the thoroughfare at that point. Mr. Alderman Rymer, chairman of the Whitgift Governors, states that the modern part is in a very dilapidated and unsatisfactory condition, while the original building is "as sound as a rock." The latter will in no wise be affected by the proposed demolition, nor will any injustice be done to the almspeople.

TENDERS.

Information from accredited sources should be sent to "The Editor." No results of tenders can be accepted unless they contain the name of the Architect or Surveyor for the Work.

BISHOP AUCKLAND.—For levelling, paving, &c., New-street, and Oakley-street, West Auckland, for the Rural District Council. Mr. C. Johnston, surveyor, 1, Cradock-street, Bishop Auckland:—

G. Hetherington ... £494 16 0
S. Walker ... 480 8 0
G. H. Bell ... 416 12 8
T. Hilton, Bishop Auckland (accepted) ... 416 0 0

BLACKBURN.—Accepted for the erection of a palm house and conservatories in the public park:—

Lockerie and Wilkinson, Ltd., Birmingham £1,495

CAMBRIDGE.—For erecting professors' houses at Westminster College, Cambridge. Mr. Henry T. Hare, architect, 13, Hart-street, Bloomsbury-square, W.C. Quantities by Mr. G. Fleetwood, 3, New-court, Lincoln's Inn, W.C.:—

Wm. Sindall ... £4,125 W. Bell and Son ... £3,998
Samuel K. Haliday ... 4,050 Wm. Saint (accepted) ... 3,376

CHELMSFORD.—For the erection of a laboratory and workshops, King Edward's Grammar School. Mr. Charles Pertwee, architect, Chelmsford:—

H. Potter ... £571 2 6 F. Johnson, Chelms-
Bunning and Son ... 536 0 0 ford* ... £528 10 8

CHELMSFORD.—For the erection of a small house in Queen's-road, for Mr. Bickmore. Mr. R. Mawhood, architect:—

W. Samms ... £248 W. Fincham ... £345
F. Johnson ... 345 J. Gowers (accepted) ... 328

CLACTON-ON-SEA.—For the erection of a cottage hospital, for the Committee. Mr. J. W. Martin, architect, Station Chambers, Clacton-on-Sea. Quantities by Mr. J. Kennard, 2, Devonshire-square, E.C.:—

Symes ... £2,475 Everett and Son, Col-
Dixon ... 2,412 chester* ... £2,250
McKay ... 2,380 Green and Hussey ... 2,058

DUBLIN.—For the erection of a residence for the Work-house Master, for the North Dublin Union Guardians. Mr. Denis J. Morris, architect, 24, Cabon-road:—

Pemberton and Son ... £2870 H. J. Monks ... £2800
J. Whelan ... 830 M. Glynn, Dublin* ... 789

ELLON (Aberdeen).—For additions to Gordon Hospital, for the County Council:—

Masonry.—Angus McDonald & Co., Aberdeen £400 0 0
Carpentry.—Wm. Auld, Ellon ... 325 0 0
Plastering.—W. Sivewright, Ellon ... 118 12 0
Slatting.—F. McRae, Ellon ... 65 3 6
Drainage and Water.—Geo. Fraser, Ellon ... 197 0 7

ENFIELD.—For the extension of Bushill Park School, for the Enfield School Board. Mr. G. E. T. Laurence, architect, Bridge House, 181, Queen Victoria-street, E.C. Quantities by Messrs. Campbell and Son, Finsbury-circus, E.C.:—

Jennings & Grenfell ... £10,843 P. Banyard ... £6,995
A. Porter ... 8,260 W. Lawrence ... 6,791
W. Wilmot & Sons ... 8,127 H. Almond and Son ... 6,750

ENFIELD.—For the erection of a school and teacher's house, &c., for Sir Cameron Gull, Bart., M.P. Mr. T. Gambier Parry, architect. Quantities by Messrs. Northcroft, Son, and Neighbour:—

Benfield and Loxley ... £1,659 J. Bottrill and Son, Reading ... £1,475

HAMPSTEAD N.W.—For the erection and completion of a block of residential flats, to be called "Priory-court," Mazenod-avenue, N.W. Messrs. Palgrave and Co., architects, 28, Victoria-street, S.W. Quantities by Mr. Geo. Stephenson:—

Stephens, Bastow, & Co. ... £23,389 F. John Bennett ... £19,945
Allen and Sons ... 22,500 F. T. Chinchin ... 19,590
F. Gough and Co. ... 21,534 Smith and Sons, Nor-
wood, S.E.* ... 19,516

HEXTHORPE (Yorks).—For the execution of street works, for the Balby-with-Hexthorpe Urban District Council. Mr. George Gledhill, Surveyor, Council Offices, Balby, Doncaster:—

S. Roberts ... £1,533 8 2 G. Gledhill ... £1,424 12 1
G. Hall ... 1,471 15 4 G. Ellis, Balby ... 1,356 8 1

LEEDS.—Accepted for additions, &c., to two houses and shops, Nos. 115 and 117, Burley-road, for Messrs. Perkins and Co. Mr. F. Mitchell, architect, Albion-street, Leeds:—

Brick and Stonework.—C. Lucas and Son,
Roberts-place, Burley-road ... £386 6 5
Joinery.—Irving and Bristow, Chorley-lane
Plumbing.—Arthur Britton, Burley-road
Plastering.—Thos. Moore, Concord-street
Painting.—Alfred Roberts, Burley-street

LEICESTER.—Accepted for the rebuilding of shop premises in High-street, Leicester, for Mr. William Hill. Messrs. Simpson and Harvey, architects and surveyors, Leicester:—

Charles Wright, Leicester ... £550

LITTLEHAMPTON.—For the supply of 1,000 tons flints, for the Urban District Council:—

W. Stanbridge, Worthing ... 5s. 2d. per ton

LONDON.—For the erection of two blocks of flats, Trouville-road, S.W., for Messrs. Joyce and Hall. Messrs. Bochmer and Gibbs, architects, 11, Spring-gardens, S.W.:—

Turtle and Appleton ... £2,320 L. Whitehead and Co.,
Britten ... 9,900 Ltd. (accepted) ... £2,250

LONDON.—Accepted for the erection of engine and boiler-houses, for the City and South London Railway:—

L. Whitehead and Co., Ltd. ... £10,749

LONDON.—For the erection of two shops at Roslyn Hill, Hampstead, for Dr. T. G. Munyard. Mr. E. H. Sim, architect, 8, Craig's-court, Charing Cross. Quantities by Mr. J. G. W. Buss:—

Bywaters and Sons ... £3,760 (A. Bush ... £3,277
Holloway Bros. ... 3,580 (L. Whitehead & Co. Ltd. 3,265

LONDON.—For renovations, &c., at No. 3, Arlington-street:—

W. Holt and Sons, Croydon ... £1,907

LONDON.—For the erection of a factory at 17, Albion-street, King's-cross, N., for Messrs. Stephenson, Mager and Co. Mr. H. A. Emmett, architect, Monney-road, Tufnell-park, N.:—

Holliday and Greenwood ... £4,089
Extra for lead roof ... 129

Patman and Fotheringham ... £3,791
Extra for lead roof ... 87

Scriveners and Co. ... £3,129
Extra for lead roof ... 97

Ford and Son (of Brentford) (accepted) £2,985
Extra for lead roof ... 96

LONDON.—For erecting a warehouse at Bayer-street, Golden-lane, E.C. Mr. J. Groom, architect:—

H. Irving ... £5,344 W. Shurmer ... £4,221
Woodward and Co. ... 4,926 Mattock Bros. ... 4,571

Kilby and Gayford ... 4,836 Grover and Son ... 4,546
H. L. Holloway ... 4,793 J. Greenwood ... 4,533

LONDON.—For rebuilding Nos. 70 and 71, Shoe-lane, E.C. Mr. H. Knight, architect:—

Nightingale and Co. ... £4,493 Turtle and Appleton ... £4,000
Woodrow ... 4,370 Chase and Son ... 3,997

LONDON.—For erecting new premises at Hackney for the Hackney furnishing Company. Mr. J. Hamilton, architect:—

Marten and Sons ... £3,910 Snewin Bros. ... £3,393
J. Grover and Son ... 3,650 W. M. Dabbs ... 3,360

B. E. Nightingale ... 3,585 Jarvis and Sons ... 3,127
W. Smith ... 3,529 W. Shurmer ... 3,141

LONDON.—Accepted for the re-erection of houses and shop premises at Nos. 32 and 34, Leman-street, Whitechapel, for Mr. Louis Sampson. Mr. W. A. Longmore, architect, 7, Great Alie-street, E.:—

A. Brown, Commercial-road, E. ... £915

LONDON.—For the erection of a warehouse at Great Arthur-street, Golden-lane, E.C. Mr. J. Groom, architect:—

Woodward and Co. ... £2,494 Grover and Son ... £2,279
Kirby and Gayford ... 2,436 J. Greenwood ... 2,271

H. L. Holloway ... 2,390 H. Irving ... 2,268
W. Shurmer ... 2,366 Mattock Bros. ... 2,259

LONDON.—For wiring for electrical installation, together with electric bells, at Abbey Court Mansions, N.W. Messrs. Metcalf and Greig, architects:—

Sharp, O'Brien, and Co., Minorities ... £403

LONDON.—For heating on the Low Pressure System a house, conservatory, &c., in Carleton-road, N.W., for Mr. C. Cheswright:—

Sharp, O'Brien, and Co., Minorities ... £141

LONDON.—For the enlargement of the Poor Law Offices, Isleworth, for the Guardians of the Poor of the Brentford Union. Mr. W. H. Ward, architect, Paradise-street, Birmingham. Quantities by Mr. F. W. T. Miller, surveyor, 10, Delahay-street, Westminster, S.W.:—

T. Hiseock ... £1,296 Dorey and Sons ... £1,055
W. Wisdom ... 1,087 T. J. Messan, Twicken-
ham (accepted) ... 1,023

LONDON.—For the erection of a block of residential flats Mazenod-avenue, West Hampstead. Messrs. Palgrave and Co., architects, 28, Queen Victoria-street, S.W. Quantities by Mr. George Stephenson:—

Stephens, Bastow & Co. £23,389 F. T. Chinchin ... £19,590
Allen and Sons ... 22,500 Smith and Sons, Nor-
wood, S.E.* ... 19,516

LONDON.—For rebuilding Nos. 69, 70, 71, South Audley-street, Mayfair. Mr. Howard Chatfield Clarke, architect, 63, Bishopsgate-street Without, E.C.:—

J. Thompson and Co. £14,782 Ashby and Horner ... £13,295
Holland and Hannen ... 13,893 Clarke and Bracey ... 13,000

Brown, Son, & Blomfield £13,341 E. Lawrance and Sons £12,977
Hall, Beddall and Co. £13,313 H. Lovatt (accepted)* £12,500

* Exclusive of foundations, already executed.

LONDON.—For making-up private streets, Hornsey, for the Urban District Council:—

	Barrington-road (third section).	Harefield-road.	Hampton-road (second section).
J. A. Dunmore, Crouch End ...	£91	£92	£1,637
Killingback & Co., Camden Town	902	911	1,617
T. Adams, Wood Green ...	905	796	1,534
H. Clark, Andover-green ...	979	937	1,042
Predrett and Co., Finsbury Park ...	1,078	928	1,893
G. Bell, Tottenham ...	917	803	1,547
W. Griffiths, Bishopsgate-street,			
Without ...	948	804	1,610
Williamson and Sons, Green Lanes	939	883	1,609

* Accepted.

LONDON.—For alterations and repairs at No. 13, Russell-square, W.C. Mr. W. Ernest Hazell, architect, 23, Moor-gate-street, E.C.:—

C. W. Patten ... £2,015 Parkinson and Sons ... £1,820
Stevens Bros. ... 1,856 Bristow and Sons ... 1,790

LONDON.—Additions and alterations to the "Faunce Arms" public-house, Kennington, for Mr. Chesterton. Mr. B. Wilkinson, architect:—

W. Smith ... £1,200 Barman and Sons ... £1,143
Edwards & Medway ... 1,157 R. S. Buckridge ... 1,100

LONDON.—For the construction of an underground convenience, Hoxton-street, for the Shoreditch Vestry. Mr. J. Rush Dixon, C.E., Vestry Offices, Town Hall, Old-street, E.C.:—

J. Dolman & Co. ... £2,666 G. Jennings, Lambeth £2,025
Doulton & Co. ... 2,150

LONDON.—For alteration and repairs to No. 13, Russell-square, W.C., for Sir George Williams. Mr. Ernest Hazell, architect, 23, Moor-gate-street, E.C.:—

C. W. Patten ... £2,015 Parkinson and Sons ... £1,820
Stephen Bros. ... 1,856 R. Bristow & Sons ... 1,750

LYTHAM (Lancs.).—For the supply of Welsh granite (800,000 tons), for the Urban District Council. Mr. W. Dixon, surveyor, Council Offices, Lytham:—

Threlkeld Granite Co. £382 10 Brundritt & Co., Run-
corn (accepted) ... £213 15

MARSTOWN.—Accepted for the erection of four small villa residences, for Mr. W. H. Simpson. Messrs. Simpson and Harvey, architects, Leicester:—

D. Halford and Sons, Blaby ... £1,030

MIDDLETON (Lancs.).—For the execution of street works, Blackley-street, and others, for the Corporation. Mr. W. Welburn, Borough Surveyor, Town Hall, Middleton. Quantities by Borough Surveyor:—

E. Cheetham ... £224 15 3 Eckeridge & Clarke,
R. Partington & Son 150 5 9 Manchester* ... £142 14 0

NEW BROMPTON (Kent).—For additions, &c., to chapel, Canterbury-street, for the Wesleyan Trustees. Messrs. J. W. Nash and Son, architects, High-street, Rochester:—

H. Wyles ... £780 H. E. Phillips, New
G. E. Woodard ... 660 Brompton* ... £580

NEWMARKET.—For the erection of a house, Bury-road, Newmarket. Mr. Walter K. Bedingfield, architect, 18, Friar-lane, Leicester. Quantities by the architect:—

A. Coe ... £1,986 H. Holland ... £1,800
Shillitoe and Son ... 1,950 Coulson and Lofts ... 1,790

H. Wilmott ... 1,950 Kerridge and Shaw ... 1,749
H. J. Linzell ... 1,857 J. G. Cowell (accepted) ... 1,748

NEWMARKET.—For the erection of houses at Newmarket. Messrs. Heaton and Gibb, architects, Newmarket. Quantities by Stoner and Sons, 8, Blomfield-street, E.C.:—

H. Plummer ... £2,765 A. J. Bateman ... £2,277
H. J. Linzell ... 2,447 J. G. Cowell* ... 2,146

* Accepted at £2,000 reduced.
[Architect's estimate, £2,058.]

OXFORD.—For the extension of sewerage works, for the Corporation. Mr. W. H. White, City Engineer, Oxford:—

B. Cooke & Co. ... £9,155 0 0 Bachelor & Snow-
den, Cardiff* ... £3,669 19 4

* Accepted.
[City Engineer's estimate, £8,709 12 10.]

PUDSEY (Yorks).—Accepted for the construction of filtration tanks, Fartown Mill. Messrs. Nelson and Savage, architects, 15, Park-road, Leeds:—

Thomas Wood, Radcliffe-lane, Pudsey ... £236

[Eight tenders received.]

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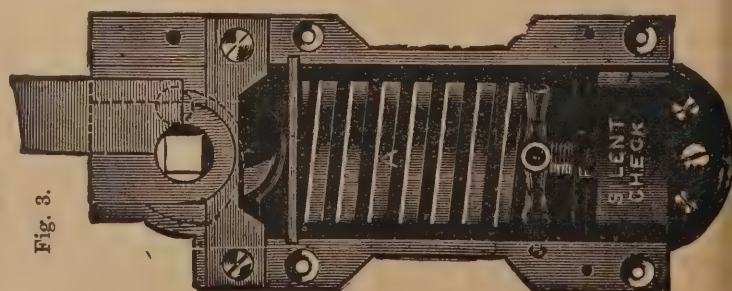
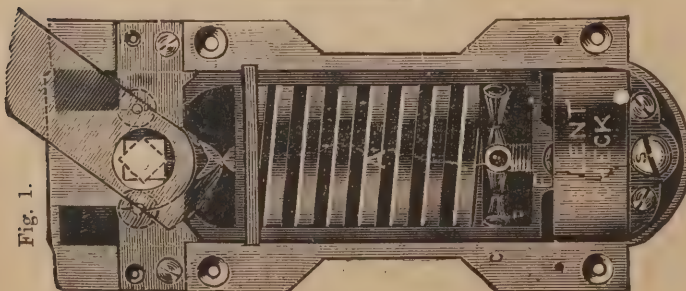
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RAMSGATE.—For the erection of offices for the Corporation. Mr. W. A. Mcintosh Valon, engineer, Rams-gate:—

				Extras for staircase.	
E. Padget and Sons	£5,198	13	0	.....	£79 0 0
J. M. Paramor and Sons	4,250	0	9	.....	135 0 0
C. Home	4,088	4	4	.....	51 12 5
Haywood and Paramor	3,998	0	0	.....	99 0 0
Jarman and Sons, Rams-gate*	3,931	2	0	.....	103 16 0

* Accepted.

READING.—Three houses in Berkeley-avenue East, for Mr. J. Bligh Monck. Messrs. Cooper & Howell, architects:—

	One Houses.	Two Houses.	Three Houses.
Higgs and Son	£1,109	£2,050	£3,160
G. S. Lewis and Bros.	1,088	2,012	3,090
Collier and Catley	1,068	2,018	3,086
J. Bottrill and Son	1,065	1,998	3,050

ROMFORD.—For the erection of a cottage, stable, &c., at Town Yard, Market-place, for the Urban District Council. Mr. J. Turvey, surveyor, Market-place, Romford:—

T. Bruty	£960	7	1
J. Newlin	920	10	1

G. J. Harvey, Rom-ford (accepted) .. £886 0

SOUTHEND.—Accepted for the execution of street works, Hadley-road, &c., for the Corporation. Mr. A. Fidler, C.E., Clarence-road, Southend:—

	Hadley-road.	
W. Iles, Sutton-road	£406
	Wickford-road.	
W. Iles, Sutton-road	£376
	Canewdon-road.	
W. Iles, Sutton-road	£577
	Claremont-road.	
W. Iles, Sutton-road	£288

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FOUNTAINS, STATUES,

ELECTRIC AND GAS PILLARS,

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"LIGHTMOOR" BRAND.

RUABON.—For the erection of a Wesleyan Chapel, Glyn Ceirog. Mr. R. T. Jones, architect, 3, Cambrian-terrace, Llangollen:—
 R. Williams ... £408 0 0 Morgan Jones, Os-
 Jones and Evans 368 2 6 westry* £261 0 0
 Richard Jones ... 308 0 0 *Accepted.
 The trustees supplied all building stones, roofing slates, and creosote lime and sand and concrete, sills, heads, quoins, plinths, and steps.
SENGHENYDD (Wales).—For the erection of a chapel, for the Calvinistic Methodist:—
 J. Howells ... £1,862 J. P. Williams, Seng-
 D. Evans ... 1,798 henydd* £1,670
 J. Rossiter ... 1,750 J. E. Lloyd ... 1,635
 J. Lewis ... 1,680 Spratt Bros. ... 1,484
 *Accepted.

STOWMARKET.—For additions, &c. to a warehouse, Bury-street, for Messrs. G. Thurlow and Sons. Mr. H. G. Bishop, architect, Cheapside, Stowmarket:—
 Taylor ... £390 Theobald and Sons ... £248
 Murray, Stowmarket* ... 500 *Accepted.
WALTHAMSTOW.—For alterations and additions to the "Rose and Crown," Hoe-street, North Walthamstow, for Mr. John Payne. Mr. Thos. Keating, architect and surveyor, Walthamstow:—
 A. J. Reid ... £1,873 W. Pringle ... £1,631
 E. Fuller and Son ... 1,795 A. Hood (accepted) ... 1,623
 [Architect's estimate, £1,529 8s.]

WOOLWICH.—For the removal of eleven water-closet apparatus, with cisterns, and other plumbing work, at the workhouse, for the Guardians of Woolwich Union. All goods specified to be Henry Doulton and Co.'s:—
 Greenaway ... £326 13 10 A. H. Inns ... £166 0 0
 Mills ... 193 0 0 Henry Doulton ... 143 13 0
 Cowley ... 182 10 0 Chapman Bros. ... 125 0 0
 Richardson ... 170 0 0 Beazley ... 125 0 0
 *Accepted.

CONTRACTS OPEN.

COUNTY OF HERTFORD.

TO BUILDERS AND CONTRACTORS.

NEW BRIDGE AT TOTTERIDGE.

The County Council are willing to receive TENDERS for the above WORKS.

Builders desirous of contracting for the works may see the drawings, specifications, agreement, &c., at the County Surveyor's Office, No. 41, Parliament-street, Westminster, S.W., between the hours of ELEVEN a.m. and FIVE p.m.

A copy of the bills of quantities and a form of Tender can be obtained at the County Surveyor's Office upon payment of Two Guineas, which sum will be returned to the contractor upon the receipt of a bona-fide Tender and the documents which have been supplied to him.

Sealed Tenders, addressed to the Chairman of the Highways Committee, and endorsed "Tender for New Bridge at Totteridge," must be delivered under cover, to me, here, not later than FIVE p.m. on WEDNESDAY, OCTOBER 12th, 1898.

Such security for the due execution of the works as the Committee may require must be given by the contractor.

The lowest or any Tender will not necessarily be accepted.

URBAN A. SMITH,
County Surveyor.

No. 41, Parliament-street, S.W.
September 22nd, 1898.

THE BOARD OF WORKS for the LEWISHAM DISTRICT.

KERBING, TAR-PAVING, METALLING, and CHANNELLING WORK.

The Board is prepared to receive TENDERS for KERBING and TAR-PAVING the Footpaths and CHANNELLING and METALLING the roadway of Colfe-road (part of), Forest Hill.

The plan and specification of the work and form of contract may be seen at these Offices (Surveyor's Department) on or after the 27th instant, where printed forms of Tender and other particulars may be obtained.

The Tenders must be on the forms issued by the Board, enclosed in an envelope, sealed, and endorsed "Tender for Colfe-road," and must be delivered on or before FOUR o'clock on TUESDAY, OCTOBER 4th, at the Offices of the Board, and placed in the box there provided for the purpose.

The Board does not bind itself to accept the lowest or any Tender.

By order,
EDWARD WRIGHT,

Lewisham Town Hall, Clerk to the Board.
Catford, S.E.
September 1st, 1898.

HANWELL URBAN DISTRICT COUNCIL.

CONTRACT FOR BROKEN GRANITE.

The Council are prepared to receive TENDERS for the SUPPLY of BROKEN GUERNSEY or CHANNEL ISLANDS GRANITE, for the year ending March 31st, 1899, to be delivered free at any place on the roads within their District, i.e., the Parish of Hanwell.

Forms of Tender (on which alone Tenders will be received), contract, and sureties' bond can be inspected at the Council's Offices any day between the hours of TEN a.m. and TWELVE at noon.

Tenders, sealed and endorsed "Tender for Broken Granite," to be sent in to me, at the Offices of the Council, not later than MONDAY, OCTOBER 3rd, 1898.

The Council do not bind themselves to accept the lowest or any Tender.

Dated this 12th day of September, 1898.

By order,
WARREN S. JAMES,
Clerk to the Council.

Urban District Council Offices,
Hanwell, W.

URBAN DISTRICT COUNCIL of WOOD GREEN.

WORKS OF PRIVATE STREET IMPROVEMENTS.

The Urban District Council of Wood Green invite TENDERS for the MAKING-UP of King's and Western roads within the said district.

The plans, sections, and specifications may be seen, and forms of Tender and bills of quantities obtained, on application to Mr. C. J. GUNYON, the Surveyor, at the Offices of the Council, Town Hall, Wood Green, upon payment of a deposit of One Guinea, which will be returned on receipt of a bona-fide Tender.

Sealed Tenders, upon the form supplied only, to be delivered to me not later than FIVE o'clock p.m. on FRIDAY, 30th instant.

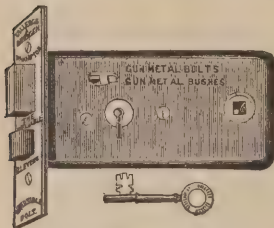
The Council do not bind themselves to accept the lowest or any Tender, and the accepted Tender will be subject to the sanction of the Local Government Board.

By order,
J. W. BRITTON,
Town Hall, Clerk of the Council.
Wood Green, N.
September 12th, 1898.

COLLEDGE & BRIDGEN,

MIDLAND LOCK WORKS,

WOLVERHAMPTON.



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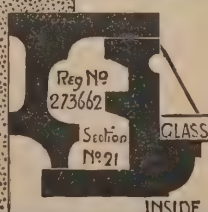
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SEPTEMBER 28TH, 1898.

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See Large Advertisement, Back Page, Monthly.

INTRODUCTION OF NON-FLAMMABLE WOOD INTO EUROPE.

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"NON-FLAMMABLE WOOD," as produced by the Company's process, is now in use on the following

UNITED STATES WAR VESSELS:—

BATTLESHIPS.—"IOWA" and "OREGON."

MONITOR.—"MIANOT."

CRUISERS.—"BROOKLYN," "CHICAGO."

GUNBOATS.—"HELENA," "WILMINGTON," "NASHVILLE," "ANNAPOLIS," "WHEELING," "MARIETTA," "NEWPORT," "VICKSBURG."

And is being used for the Battleships "KEARSAGE," "KENTUCKY," "ALABAMA," "WISCONSIN," and "ILLINOIS," now being built.

"NON-FLAMMABLE WOOD" has also been used for all the Carpentry and Joinery Work in the following well-known colossal Buildings in New York:—

THE COMMERCIAL CABLE BUILDING, THE QUEEN'S INSURANCE BUILDING, and THE R.G. DUN BUILDING, (each of which is over eighteen stories high).

"NON-FLAMMABLE WOOD" has been tested by H.M. Admiralty, and Large Orders have been given to the Company by the Government.

Quotations will be furnished on receipt of Specifications.

Address all applications to the General Manager,

BRITISH NON-FLAMMABLE WOOD CO. Limited,
2, Army and Navy Mansions, Victoria Street, London, S.W.

SANITARY CONGRESS.

THE HEALTH EXHIBITION AT
BIRMINGHAM.

THE Health Exhibition, which opened yesterday—the 27th inst.—at Birmingham in connection with the Sanitary Congress, contains all the newest forms of sanitary appliances and apparatus and machinery relating to municipal and domestic sanitation. There are four divisions, and in the first science in relation to hygiene is illustrated. This is not one which claims a large representation, though bacteriology, chemistry, demography, geology, preventive medicine, and physics are all well illustrated. The British Institute of Preventive Medicine supply a number of cultures in tubes, and illustrate by their exhibits the different forms and methods of cultivation and specimens of various bacteria. In chemistry the exhibits embrace

CHEMICALS FOR DISINFECTING PURPOSES, and the antiseptic treatment of wood, iron, and building materials are demonstrated. The demography section is a departure at this exhibition which medical officers of health and others who draw and base their conclusions upon statistical information will no doubt find very interesting and helpful. The co-operation of medical officers and of various sanitary authorities in the country was invited, and a very hearty response has been made in the offers of statistics and tabulated diagrams which should prove a special source of instruction. The Geological Society, to turn to another section, has loaned a complete set of maps of local geological interest, and physics, as applied to plumbing and building construction, will be illustrated by the Hygiene Referendum from London with a series of models. Division B, which embraces hygiene and special classes, trades, and professions, is largely covered by the diagrams and drawings incidental to the demography section. Several authorities have sent plans in connection with

HOSPITAL CONSTRUCTION.

The prevention of accidents by means of safety windows, precautions against fire and engine boiler explosions, are also illustrated in this department. The third division, which embraces construction and sanitary apparatus, is really the heavy one of the exhibition, embracing as it does two-thirds of the exhibits in the hall. The division is divided into three big classes, the first taking in its scope building materials, construction, and machinery. Here the Silicate Paint Company and the Duresco Distemper Company are prominent exhibitors of their special materials for wall covering and ordinary decorative purposes. The Adamant Company are well represented, and Messrs. A. R. Dean, Limited, find a fitting place to illustrate their fibrous plaster work. The machinery and mechanical appliances include a variety of inventions in use by municipal authorities, Messrs Shones and Adams giving useful information in this department. In Class 2 there are exhibits to illustrate the methods of sinking artesian wells, deep wells, the filtering, the softening, and the purifying of water, a feature which will be quite up to date, and a very important one at a time when the water supplies of the country are so defective, and the question of

DOMESTIC AND PUBLIC FILTRATION

is so much to the front. The latest forms of water-closets, waste preventives, flushing tanks, and sanitary appliances too numerous to mention are included in this very large class, the leading firms in the country being among the exhibitors. The British Sanitary Company, of Glasgow, illustrate their system of dry earth closets, and in the treatment of sewage all the newest methods will be exhibited, including the septic tank, which is the outcome of the Local Government Board inquiry during the last 12 months. Heating, lighting and ventilation are covered in the third class of the division. Heating by gas, hot water, and steam are demonstrated by exhibits; and cooking apparatus are shown by several of the best known gas stove firms.

POWER PRODUCED FROM TOWN'S REFUSE.

MR. G. F. CHARNOCK, Assoc. M.Inst. C.E., lecturing at the Bradford Technical College on the subject of "Power Production from Town's Refuse," pointed out as a remarkable feature of modern civilisation the increasing ability of science to turn to commercial profit products which, considering the expense previously incurred in their disposal, might be described as worse than waste. As a striking instance, the utilisation of bye-products of gas manufactured might be cited, but even more remarkable were the results of the recent developments which formed the subject of the lecture. The filth and refuse which accumulated in many of the dark and dirty ways of great cities had hitherto been a prolific source of disease. It had now been proved possible not only to make this refuse provide a means of lighting the very darkness from which it was derived, but also contribute to the sanitary improvement of the same district by furnishing a constant supply of hot water for public baths and laundries. After condemning strongly the barbarous practice still adopted by many local authorities of tipping refuse of all kinds on vacant land on the outskirts of the town, the lecturer proceeded to demonstrate the possibility of making at no very extravagant cost destructors which would consume all refuse without danger to health. The history of the subject was then dealt with, and the various systems of furnace critically described, with especial reference to the installations at Hammerton Street and Sunbridge Road, Bradford. It was stated that Bradford was one of very few towns where practically the whole of the refuse has been destroyed by fire for several years past. An interesting account was also given of the destructors at Hamburg, erected by the Horsfall Syndicate Limited, of Leeds, who were also the contractors for the Bradford furnaces. One outcome of the late motor-car agitation was the steam dust-cart introduced by Thornycrofts, the celebrated torpedo-boat builders, several of which carts were in successful use in London. Methods of collection should certainly receive more attention, the present open carts being most obnoxious. Although destructors had been in use in many large towns of this country for fifteen or twenty years, the object had been solely to get rid of the refuse in a hygienic manner, and it was not until 1888 that Professor George Forbes suggested for the first time that the heat produced should be utilised in raising steam for the electric lighting of public streets and buildings. Professor Forbes stated in his lectures that if properly consumed the ash-bin refuse of any population was sufficient to give steam to furnish electric light at the rate of one lamp of sixteen-candle power per head of population for two hours every night of the year. That was certainly a bold statement, and, although it had not yet been realised, there were several towns where a considerable amount of power was being obtained from refuse burned in destructors. At Oldham, for instance, by means of two Lancashire boilers, as much as 300-horse power had been supplied from the destructor works to the borough electric lighting station adjoining. Other similarly successful examples were described, and it was stated that at Plymouth a combined destructor plant is in course of erection for producing power for working the electric tramways. At Shoreditch, London, the experiment had been tried on a very large scale, which had now been in successful operation for more than twelve months. About 20,000 tons of refuse was consumed annually, and, without the assistance of any other fuel, 200-horse power was obtained with ease, and was utilised in lighting the main streets, the town hall, and other public buildings, while, in addition, a quantity of hot water was supplied to the public baths and wash-houses erected by the vestry.

THE Town Council of Bristol has rejected the scheme for providing docks at Portishead, at the estimated cost of £360,000.

Plymouth's Water Undertaking.

WHILST the London County Council has been casting envious glances towards the watersheds of Dartmoor, the authorities at Plymouth have been doing something of a much more practical order, and last week great jubiliations took place there over the completion of a huge scheme for securing to a population of nearly 200,000 for all time an abundant supply of pure water. Not that there is any scarcity of this much-needed commodity at present, for throughout the dry summer of this year there has been no appreciable diminution in the flow of water from Dartmoor. The necessity, however, of

PROVIDING A RESERVE STORAGE

has fully been appreciated, and last week a costly undertaking, designed to meet this necessity, was completed. Though the great Sir Francis Drake was the first to supply Plymouth with water from Dartmoor, he was not the first to appreciate the enormous possibilities in this direction of this vast acreage of hills and valleys and tors, and what he did was to continue as far as Plymouth a leat which had existed for years before his time. In the matter of quality, no less than in quantity, Dartmoor is remarkable for its water-yielding properties, the degree of hardness being only one and a-half. Long ago the town of Plymouth secured rights over a gathering ground of some seven miles in area, and just in a part most prolific in water. At one time the leats which conveyed the water to Plymouth—a distance of about twelve miles—were open, but they are now all piped. The completion has now attained, at the cost of something like £200,000, of reserve storage works which will enable the authorities to impound for the use of the people of the town and neighbourhood

650,000,000 GALLONS OF WATER.

The undertaking has involved the damming up of the neck of a valley three miles long and half as wide, situated at a spot called Barrator. The dam intercepts a well-known moorland river. It is a huge structure built of local limestone, and the surplus water will pass over the top of it. A second dam was found necessary at a spot at the side of the valley where the ground was porous, and this is carried many feet underground to the bed of the rock. The leat, which will in future supply 6,000,000 gallons of water a day to Plymouth, runs from the bed of the lake that commenced to fill last week.

THE Local Government Board has on sanitary grounds refused to sanction the Croydon County Council's scheme for new waterworks at Whaddon.

THE Maidstone Town Council has decided to promote a Bill in the next Session of Parliament for the compulsory acquisition of the Waterworks Company and the extension of the present sources of supply. The undertaking will cost the town, it is stated, about £120,000.

THE Glasgow and South-Western Railway Company are prepared to expend, during the coming half-year, some £300,000 on the extension of St. Enoch Station at Glasgow, and the widening of their line from St. Enoch Station to Port Eglinton Street Junction.

THE Urban District Council of Newmarket has adopted a scheme by Messrs. Beasley and Sons, of Westminster, for providing a main sewer for Newmarket and Exning, the sewerage to be disposed of by bacterial treatment. Application is to be made to the Local Government Board for sanction for a loan to carry out the works.

A MOVEMENT has been set on foot, and is being influentially supported, for promoting a Bill in the next session of Parliament under the Light Railways Act for the construction of a line from Leighton Buzzard to connect the London and North-Western Railway at that place with the Midland at Harlington and the Great Northern at Hitchin, with several intervening stations. The whole length of the proposed line is 18½ miles. The necessary surveys have been taken.

EAST LONDON WATER SUPPLY.

THE work of connecting the Southwark and East London systems by the Thames subway has been completed, and the reserve water store in the suffering East End has been considerably augmented thereby. Mains on both sides were charged up to the commencement of the subway, and during the day water was passed from one to the other. The critical operation, says the special correspondent of the Times, was the filling of the connecting main in the subway. It had to be carried out by degrees, but just before three o'clock the Southwark water gushed out on the northern side in a full stream from the "by-pass" or small pipe screwed into the upper surface of the big main, showing that the latter was full. I went down into the subway a little later, continues the correspondent, when a full stream was passing under pressure, and learnt that all the

JOINTS WERE STANDING FIRM.

The possibility of an accident on such occasions can never be eliminated until the actual trial is made, but happily everything went well, and the new supply now is pouring into the East London system. A good deal will depend on the effect which the withdrawal of so large a volume of water has in lowering the pressure on the Southwark side. With luck, however, an extension of the supply to six hours a day ought to be feasible before long. The work was begun on September 1st, and has therefore taken less than eighteen days. Credit for its completion in several days less than the most sanguine estimates must be given not only to the engineers and the contractors—Messrs. John Aird and Son—but also to the firms which supplied the special materials required at the shortest notice, and to various companies affected, whose hearty co-operation has greatly facilitated the proceedings: lastly, but most honourably, to the men who have toiled day and night in the tunnel throughout the hot weather. On Saturday one of them fainted from the excessive heat.

THE CISTERN QUESTION.

What has been said on the cistern question has aroused some comment. "An Architect" writes that "it is not true, to begin with, that all the discomfort would vanish if the houses had cisterns. Your own report shows that the water, under present conditions, cannot be relied on to reach a tap only 10ft. from the ground, and one 24ft. high is almost dry. A cistern to be of any use must be above the taps, and in two-storied or higher dwellings will be placed at the top. The Company is bound to supply water up to 40ft., but cisterns will not help it if the water never reaches them. It is quite true that most well-to-do houses have cisterns, but their owners, if they are wise, do not drink from them, but from the main, and they usually have the cisterns cleaned at intervals. The danger of pollution to a cistern is real enough; one of our most eminent sanitarians has found a dead rat in one in his own house, and within a small circle I have had two similar cases. In small tenements it is no one's duty to keep the cisterns clean, while they are generally exposed to

WILFUL FOULING,

and bathing in them, if accessible, has often occurred. For these reasons all towns and country districts having a constant service prefer, for such dwellings, the safety and simplicity of direct connection to the mains, and it is very rare, except in East London, that the system fails. The evil there is that a constant service has been promised, fittings have been made to suit it, rates are paid for it, but it is not supplied. In blocks of workmen's dwellings controlled by the various associations and companies it is not unusual to find cisterns supplying the closets and water laid on to the sinks from the main. This is an ideal system, but it involves control of the cisterns, and it fails where, as pointed out above, no water is delivered to them. In conclusion, no whitewashing can get over the sad fact that the Company, and the Company alone, are to blame for whatever inconvenience exists from the shortness of water in the East End."

Surveying and Sanitary Notes.

A SCHEME has been under consideration by the leading inhabitants of South Bedfordshire for the construction of a new railway in the southern portion of that county for the purpose of opening up the principal market towns. The London and North-Western Railway, the Midland Railway, and the Great Northern Railway have been approached, and there appears to be every probability of something definite being done. As the matter stands at present it is proposed to start a line from a station in the centre of Leighton Buzzard, run it to Hockliffe, and thence to Paddington and Harlington, where a junction with the Midland main line will be formed. From there the line will be carried through Barton, Pirton, and Shillington to Hitchin, where it will terminate at the Great Northern station. Steps have already been taken to promote a Bill in Parliament.

THE reclamation of land from the sea has always been more or less an enterprise of a difficult character, but one which has frequently proved successful. As far back as 1678 the expanse of Brading Harbour was first reclaimed, but the sea twice made inroads through the banks. Later an attempt was made by Sir Hugh Middleton, but again the force of water proved too much for the barrier which was built to check it. About twenty years ago Jabez Balfour secured the estate and built a strong sea wall, formed a harbour, constructed a railway, built gas and water works, and erected a fine hotel on the sea front. Since that time about 520 acres of land have been gradually brought under a state of cultivation, and it was this land, together with a building estate of some twenty-eight acres, that was sold by auction by Messrs. Douglas Young and Co. last week. The whole of the lots offered were disposed of, the total sale amounting to £13,890.

THE prizes gained in connection with a competition and exhibition of plumbers' work held in the Manchester City Art Gallery last April were distributed on Monday week. The competition was promoted by the Council for Manchester and district of the Association for the National Registration of Plumbers. Dr. M. Howe (London) delivered an address on the registration of plumbers and domestic sanitation. He said it was upon the efficiency of a system ensuring the qualification of plumbers and enabling the public to recognise the qualified man that sanitary plumbing materially depended. He urged that registration should be provided for by Act of Parliament. If the Plumbers' Registration Bill became law it would be easier than it now was to maintain the good work carried on by the Association. The trade no less than the public desired it. Public health largely depended upon the quality of the plumber's work. The time had come when the trade should be subjected by Parliament to the control of a national council.

MR. LEES KNOWLES, M.P. (who has charge of the Registration of Plumbers' Bill in the House of Commons), said that all parties in the House were committed to the principle of the Bill, the main object of which was to afford additional safeguards to the public health by enabling persons employing plumbers to select, if they so desired, men who had given some evidence of qualification. When it was shown that the creation of a monopoly was not intended, opposition to the Bill was withdrawn. The object was worthy of the support of any Government, and he hoped strong representations would be made by supporters of the measure throughout the country, which would ensure the early passing of the Bill.

Builders' Notes.

THE Admiralty intend keeping the tenders open of the contract for Gibraltar being converted into an up-to-date naval arsenal until the beginning of next month. Three millions of money is to be expended on the new works. Amongst the contractors who are likely to put in contracts for the work are Sir John Jackson, Topham and Co., Sir W. Pearson, Price and Wills, Morrison and Mason, and others.

SOME alarm was caused in Westminster the other day by the discovery of a further settlement in the great building in Orchard Street abutting on Victoria Street, the collapse of a portion of which some few months ago involved the loss of eight lives. An examination of the structure having shown that danger was to be apprehended, the police stopped all traffic through Victoria Street, diverting the constant stream of buses, cabs, and other vehicles going to Victoria Station at the Royal Aquarium. Not even pedestrians were allowed to pass the dangerous structure, but had to make their way along side streets. From the distance at which were gathered the little groups of curious bystanders who lingered about till midnight, nothing unusual was to be seen, except that the front of the block had been secured by heavy tie-beams.

AT the South-Western Police Court a few days ago, Mr. John Brett, A.R.A., residing at Daisyfield, West Hill, Wandsworth, appeared to answer a complaint of the Wandsworth District Board of Works, who sought to obtain the payment of £145 17s. 11d., being a share of expenses for paving Putney Heath Lane.—Mr. Michael Brett, barrister, and a son of the defendant, appeared for the defence, and raised the point that the lane was not a "new street" within the meaning of the Act. He cited cases showing that the judges had held that, in deciding whether a certain thoroughfare were a new street or not, attention should be paid to the general character of the houses in the neighbourhood.—Mr. Rose concurred.—Mr. W. W. Young, who supported the summons, urged that it was a most serious matter for the Board. If the contention of counsel were accepted it would amount to this, that a road lined with small houses could be called a street, while a road sparsely lined with large houses, of rentals of over £100 a year, could not be called a street. Surely his Worship would not say the Board would have to wait till the gaps between the large houses were filled before calling on the owners to pay for the paving?—The summons was dismissed.

A CORRESPONDENT writes to the Daily News from Interlaken: The first section of the Jungfrau Railway is now open, and nearly 500 passengers made the journey up the mountains to the Eiger Glacier on the first day. In the Jungfrau Railway, which starts from Scheidegg, already at an altitude of more than 6000ft. above the level of the sea, the use of steam as an auxiliary is dispensed with in favour of electricity, the motive power being derived from the Lutschina, near Lauterbrunnen. In the project which Mr. Guyer Zeller is pushing on very energetically, the line on leaving the Scheidegg runs on the western slope of the Bodenhübel Fall, making straight for the foot of the Eiger Glacier. Thence the direction determined upon is due east; later it will turn south in a tunnel winding round the solid body of the Eiger as far as the station, nearly ten thousand feet above the sea. The tunnel will then continue in a straight line towards the Mönch and the Jungfrau-Joch, and will finally curve round the uppermost solid block of the mountain, and will complete the journey on a plateau well known to the guides. At this point an altitude between 13,000ft. and 14,000ft. will have been reached, and a huge lift "will carry the passengers" to the snow-capped summit of the mountain. Mr. Guyer Zeller expects that it will be three or four years yet before the work, for which plans and material are well prepared, is finished.

PARIS ABATTOIRS.*

BY R. STEPHEN AYLING, A.R.I.B.A.

(Continued from page xx.)

IN Fig. 23 a view is shown of one of the killing courts, with echaudoirs on either side. These echaudoirs are fitted up with a number of iron brackets fixed to the walls, each capable of supporting three sheep, and in the centre are iron joists with wooden cross beams for beasts. In addition to this many of the echaudoirs have movable wooden stands for sheep, as shown on Fig. 22.

The upper story over the echaudoirs is used for stores and tools, access being obtained by the staircases in the centre of each block; w.c.'s and urinals for the employés are arranged at the corners of the buildings.

These buildings are erected in brick and stone with red tiled roofs and greatly projecting eaves (Fig. 20).

The killing court is covered by an iron and glass roof similar to that over the court between the bouvieries and bergeries, and is paved in granite blocks. The floors of echaudoirs are in cement on concrete.

At G G (Fig. 1) are the large "porcheries," or stables for pigs. These buildings are two stories in height, the ground floor being used as lairs and the lofts for storage and litter.



FIG. 23.

gressoires," or rooms for the preparation of the intestines, and these rooms are fitted with an

a central courtyard, and it is here that the work in connection with the preparation of blood is carried on.

During the process of slaughtering, the blood is all collected in circular bins, and is then placed in circular tin troughs, with perforations in the bottom, allowing the albumen to pass into a lower dish of similar size. The residue becomes a fairly solid mass, which is placed in large iron tins, treated chemically, and finally used as manure.

Adjoining the above is a rectangular building (K K Fig. 1), in which the skins receive the first treatment previous to being tanned and converted into leather.

At M M are cloak rooms and conveniences for the women employed in the abattoirs.

The clock tower N N (Fig. 27) is placed centrally with the entrance gates to the Route de Flandres. At the base of this tower particulars of the number of animals "declared" each market day are posted.

This tower, which is executed in brick and stone, is very pleasing in design.

To the north of the clock tower is the "Vente à la Criée" (O O), which is seen beyond the clock tower in Fig. 27. This consists of an octagonal building, with four wings, and it is here that dead meat is sold by auction. It is a comparatively small building but of sufficient size, as nearly the whole of the meat is carted away direct from the Echaudoirs.

On the opposite side is a building somewhat similar in plan, used as police offices, ambu-



FIG. 26.

They are built in brick and stone with red tiled roofs. A large open court divides the two blocks.

The "Bruloir," or killing and burning house for pigs is at H H (Fig. 1), and is placed at the end of the porcheries (see Fig. 24). The building has thirteen sides and is divided internally into six chambers separated from each other by dwarf brick walls. The materials employed are brick, with stone dressings and tiled roofs.

The animals are brought from the porcheries, and about six or eight of them are placed in one division. They are then stunned by a heavy wooden hammer, killed, and the bodies placed side by side. Straw is covered over them and ignited in order to burn off the hair from the carcasses. The smoke occasioned by this work ascends and escapes through the louvred ventilators at the apex of the roof.

The carcasses are then taken to the "pén-doirs," Figs. 25 and 26, when they are disembowelled, scraped, and prepared. This is a very fine hall covered by an iron roof. As shown in the illustration, dwarf iron columns support iron beams, fitted with hooks, from which the bodies are suspended.

On either side of this hall are the "de-

ample supply of troughs and sinks for cleaning purposes.

At J J are buildings occupying three sides of



FIG. 24.

* This series deals with the construction of the Cattle Markets and Abattoirs of La Villette and La-Rive Gauche, Paris.



Fig. 25.

lance station, veterinary inspector's office, and "Syndicat du Commerce."

To the right and left on entering the gates are two-storied buildings (Q Q and R R, Fig. 1) devoted to apartments for the concierge, octroi, recette, administration, declaration and chef de service and employés. At the entrances four weighing tables are also provided for weighing the carcasses as they leave the abattoirs.

Adjoining the boundary railings at the corner of the Rue Militaire, and also at the opposite side, are small wooden buildings used as merchants' offices, club for the butchers, labour bureau, &c. (S S and X X).

The small pavilions T T, U U, Y Y, and W W adjoining the entrance gates are offices of the octroi, Y Y for gas meters, and Z Z is a tool shed.

Adjoining the above is a small stone building of one story which is used as a police station, and also by the firemen and Republican Guard (A A A).

The long one-storied building abutting on the Quai de la Charente (B B B) is used as private bergeries, and at the end is a small shed (C C C) for sharpening knives, &c.

As will be seen in many of the illustrations, trees are planted on either side of most of the main avenues, which add a decidedly pleasing appearance to the group of buildings.

The concluding articles will deal with the

New Abattoirs of La Rive Gauche, in which many great improvements are manifest.
(To be continued.)



Fig. 27.

Trade and Craft.

MESSRS. ASPINALL, LIMITED.

Messrs. Aspinall, Limited, manufacturers of the celebrated enamel, last week circularised their customers, informing them that a slight delay in the execution of orders will necessarily occur owing to their extensive premises at North Road, New Cross Road, S.E., having been destroyed by fire. The building, which was four stories in height, and was used as a manufactory and store, was completely gutted.

THE CLYDE STRUCTURAL IRON COMPANY.

The Clyde Structural Iron Company have opened their new works at Scotstoun for the construction and erection of sheds, roofs, bridges, and structural work of all kinds. They have just secured the contract for the erection of the spacious workshops in connection with the tube works which are to be opened at Whifflet, Coatbridge, by the Clyde-side Tube Company.

A MEMORIAL WINDOW.

A memorial five-light window to the late Mrs. H. S. Richards has just been placed in the chancel of the Asbury Memorial Church, Handsworth, near Birmingham, together with two smaller side windows. The subjects are the Transfiguration and the True Vine and Good Shepherd. The windows were designed by Mr. T. W. Camm, of Smethwick, and executed at his studio.

COMPLETE LIST OF CONTRACTS OPEN.

DATE OF DELIVERY.	WORK TO BE EXECUTED.	FOR WHOM.	FROM WHOM FORMS OF TENDER MAY BE OBTAINED.
BUILDINGS—			
Sept. 30	Beverley—Extension of County Council Offices	East Riding County Council	B. S. Jacobs, Lincoln's Inn-buildings, Bowllay-lane, Hull.
" 30	Burnmouth—House	P. Smith	P. Smith, Burnmouth, Knockando, Scotland.
" 30	Canterbury—Shops, &c.... ..	Trustees St. John's Hospital	W. J. Jennings, 4, St. Margaret's-street, Canterbury.
" 30	Edinburgh—Reconstructing Tenement ... ..	.....	Borough Engineer, 1, Parliament-square, Edinburgh.
" 30	London, S.W.—Engineering Works ... ..	.....	W. D. Caroe, 8A, Whitehall-place, S.W.
" 30	Lynn Regis—Alms-houses ... ..	.....	W. J. Fletcher, Wimborne.
" 30	Sheffield—Alterations to Horseshoe Inn ... ..	.....	G. A. Wilson, Hartshead-chambers, Sheffield.
" 30	Wednesbury—Hospital	Corporation	E. M. Scott, Borough Engineer, Wednesbury.
" 30	Bridlington—Orphanage, &c. ... ..	.....	Council's Offices, 222, Solly-street, Sheffield.
" 30	Londonderry—Rebuilding Premises... ..	.....	E. J. Toye, Strand, Londonderry.
" 30	Port Talbot—Hotel ... ..	.....	G. E. Robinson, Cardiff.
" 30	Wolverhampton—Alterations to School	School Board	T. H. Fleeming, 32, Darlington-street, Wolverhampton.
Oct. 1	Dartmouth—Alterations to Gaol	Town Council	T. C. Veale, Castle View, Dartmouth.
" 1	Leeds—Kirkgate Market Extension ... ..	.....	T. H. Hewson, Municipal-buildings, Leeds.
" 1	Crawley—Four Houses ... ..	.....	W. Buck, Horsham.
" 1	Leeds—Twenty-four Cottages... ..	.....	J. E. Preston, 32, Northbrook-street, Chapel Allerton.
" 1	Leicester—Alterations to Museum Buildings	Corporation	E. G. Mawbey, Town Hall, Leicester.
" 1	North Walsham—School Additions... ..	School Board	Booth and Olley, 5, Queen-street, Great Yarmouth.
" 3	Kew—Bridge	County Council	A. C. Brereton, 21, Delahay-street, Westminster.
" 4	Westbury-on-Seven—Workhouse Additions ... ..	.....	W. F. Jones, 21, George-street, Gloucester.
" 4	London, E.—Two Blocks of Dwellings	London County Council	Architects' Department, 17, Pall Mall East, S.W.
" 4	Bexley Heath—Caretaker's House	School Board	W. J. Weaving, 199, Broadway, Bexley Heath.
" 4	Brierley Hill—Additions to Board Schools	School Board	A. Price, 34, Moor-street, Brierley Hill.
" 4	Solihull—Four Cottages	Great Western Railway Co.	Engineer, Wolverhampton Station.
" 4	Truro—Engine Shed	Great Western Railway Co.	Engineer, Plymouth Station.
" 4	West Ham—Repairing Works	London County Council	Engineer's Department, County Hall, Spring-gardens, S.W

COMPLETE LIST OF CONTRACTS OPEN—continued.

DATE OF DELIVERY.		WORK TO BE EXECUTED.	FOR WHOM.	FROM WHOM FORMS OF TENDER MAY BE OBTAINED.
BUILDINGS—Continued.				
Oct.	5	Halifax—Shed	Tramways Committee	E. R. S. Escott, Town Hall, Halifax.
"	5	London, W.C.—Additions to Schools	Holborn Union	C. E. Vaughan, 25, Lowther Arcade, W.C.
"	5	Ramsgate—Refuse Destructor	Town Council	T. G. Taylor, Broad-street, Ramsgate.
"	6	Guildford—School Additions	School Board	E. L. Lunn, 33, High-street, Guildford.
"	6	Pendern—Lighthouse, &c.	Corporation	Trinity Store, Penzance.
"	8	Cark—Barn, &c.		J. Hall, Cark.
"	10	Portsmouth—School	School Board	A. H. Bone, Cambridge Junction, Portsmouth.
"	11	Barking—Eighty-one Cottages	Urban District Council	C. J. Dawson, East-street, Barking.
"	12	Leigh—Kitchens, &c.	Hospital Board	Banks, Fairclough and Stephen, Leigh.
"	12	Swage—Police Station	Standing Joint Committee	W. J. Fletcher, Wimborne.
"	12	London, W.—Laundry at Workhouse	Guardians	E. T. Hall, 57, Moorgate-street, E.C.
"	13	Greenwich—Workhouse	Union	T. Dinwiddy, 12, Croom's-hill, Greenwich.
"	17	Birkenhead—Baths	Corporation	C. Brownridge, Town Hall, Birkenhead.
"	17	Ruthin—Alterations to House, &c.		E. Roberts, Solicitor, Ruthin.
"	18	Llandaff—Assembly Hall, &c.		G. E. Halliday, Cardiff.
"	20	Wallingford—Asylum Additions		G. T. Hine, 35, Parliament-street, S.W.
"	20	Cholsey—Asylum Additions		G. T. Hine, 35, Parliament-street, Westminster.
Nov. 9-21		Sophia (Bulgaria)—Public Offices	Bulgarian Ministry of Public Works	Commercial Department, Foreign Office.
No date.		Lincoln—Shops and Offices		W. Mortimer and Son, Lincoln.
"		Lincoln—Warehouses, &c.		W. Mortimer and Son, Lincoln.
"		Brighton—Six Houses		C. H. Court, 15, Beresford-square, Woolwich.
"		Culter—Villa		Heattie and Macdonald, 21, Bridge street, Abbeelen.
"		Darlington—Laundry		Martin and Davis, Skinnergate, Darlington.
"		Hebburn-on-Tyne—Rebuilding House		J. W. Warde, South Shields.
"		Ilkley—Residence		Islitt, Adair, and Hill, Princes Street Buildings, Bradford.
"		Kendal—Hotel		J. Hutton, Sanitary Engineer, Kendal.
"		Sheffield—Church		Ellis Bros., 37, Orchard-street, Sheffield.
"		Shoreham—Two Houses		H. Adams, Victoria-road, Shoreham.
"		Stalybridge—Re-erecting Iron Church		93, Town-lane, Dunkinfield.
"		St. Mellons—Additions to House		Landowne & Griggs, Metrop. Bank-chambers, Newport, Mon.
"		Tunbridge Wells—Fifty-three Cottages	Corporation	W. C. Cripps, Town Clerk, Tunbridge Wells.
"		Welwyn—Galvanised Iron Structure		E. H. Taylor, Welwyn Station, Herts.
"		Wimbledon—Club Additions		Liberal Club, 93, Merton-road, Wimbledon.
"		Woburn—Chimney		Thomas and Green, Limited, Woburn, Beds.
"		Bradford—Warehouse, &c.	W. Parkinson	Fairbank and Wall, Craven Bank-chambers, Bradford.
"		Sherringham—Business Premises	Co-operative Society	Watts and Co., Cromer.
"		Hereford—Additions to Business Premises	Industrial Aid Society	W. W. Robinson, 10, King-street, Hereford.
"		Salisbury—by Sea—Church Tower and Spire		Clerk and Moscrop, Darlington.
ENGINEERING—				
Sept.	30	Auckinill—Pier		J. Brims, County Clerk, Thurso.
"	30	Cyprus—Reservoir		Governor of Cyprus.
Oct.	1	Calstock—Waterworks	Rural District Council	Board Room, Delaware.
"	1	Narberth—Fencing off Reservoir	Rural District Council	J. M. Thomas, Rock House, Narberth.
"	1	Widnes—Promenade Extension		J. S. Sinclair, Town Hall, Widnes.
"	1	Pembroke Dock—Waterworks	Town Council	Corporation Offices, Bush-street, Pembroke Dock.
"	3	Northam—Waterworks	Urban District Council	B. Latham, 15, Victoria-street, Westminster, S.W.
"	4	Clacton-on-Sea—Main	Urban District Council	J. Taylor and Sons, 27, Great George-street, Westminster.
"	5	York—Extension of Skatths	North-Eastern Railway Co.	C. A. Harrison, Central Station, Newcastle-on-Tyne.
"	6	Hull—Cooking Appliances	Guardians	T. B. Atkinson, 13, Trinity House-lane, Hull.
"	7	Hull—Overhead Traveller	Corporation	A. E. White, Town Hall, Hull.
"	7	Hastings—Trench	Corporation	P. H. Palmer, Town Hall, Hastings.
"	11	Toledo—Waterworks		R. Fitzgerald, Tralee.
"	11	Southampton—Boilers, &c.		W. J. Taylor, The Castle, Winchester.
"	17	Edinburgh—Gasholder Tank, &c.	Gas Commissioners	Gas Engineer, New-street, Edinburgh.
Nov.	1	Cairo—Bridge		Inspector of Irrigation, 2n1 Circle, Cairo.
"	10	Belem (Para Brazil)—Water Supply	Government	Brazilian Consulate, England.
No date.		Silloth—Well		Mr. Forster, Cocoa House, Silloth.
"		Valencia Island—Waterworks		Messrs. C. Driscoll, Valencia Island, Ireland.
IRON AND STEEL—				
Sept.	30	Ramsgate—Gas Pipes	Corporation	W. A. Valon, Borough Engineer, Ramsgate.
Oct.	1	Leeds—Wrought Iron Roof	Gas Committee	R. H. Townsley, Municipal Buildings, Leeds.
"	3	Fairfield—Cast Iron Pipes	Urban District Council	C. Slater, Clerk, Fairfield.
"	5	Sheffield—Ironmongery	School Board	School Board Offices, Sheffield.
"	5	Leicester—Fencing	Recreation Grounds Committee	Borough Surveyor, Leicester.
ROADS—				
Sept.	30	London, N.—Road Works	Urban District Council	C. J. Gaugon, Town Hall, Wood Green.
Oct.	1	Wolverhampton—Street-making	Corporation	J. W. Bailey, Town Hall, Wolverhampton.
"	3	Burton-on-Trent—Street Works	Corporation	T. Lynum, Town Hall, Burton-on-Trent.
"	3	Hanwell—Supply Granite	Urban District Council	Council's Offices, Hanwell.
"	3	Wembley—Materials	Urban District Council	J. Smith, Public Offices, Wembley.
"	4	Croydon—Road Repairs	Town Council	Borough Road Surveyor, Croydon.
"	4	Croydon—Kerb and Channel	Corporation	Borough Road Surveyor, Town Hall, Croydon.
"	4	Watford—Street-making	Urban District Council	Engineer, 14, High-street, Watford.
"	4	Whickham—Materials	Urban District Council	T. Lambert, Town Hall, Gatshead.
"	4	Bracknell—Street Works	Rural District Council	C. J. Cave, Bracknell, Berks.
"	5	London, S.W.—Granite Spalls	Guardians	A. M. Henderson, Union Offices, St. John's Hill, Wandsworth.
"	5	Littlehampton—Road Works	Urban District Council	H. Howard, Town Offices, Littlehampton.
"	6	Cradley Heath—Granite	Urban District Council	A. Hamfray, Clerk, Cradley Heath.
"	6	Dartford—Road Works	Urban District Council	W. Harston, High-street, Dartford.
"	8	Bishop Stortford—Supply Granite, &c.	Urban District Council	W. Gee, Council Offices, North-street, Bishop Stortford.
"	15	Tunbridge Wells—Roads	Corporation	Town Clerk, Tunbridge Wells.
No date.		Colchester—Road Works		T. H. Baker, Surveyor, Colchester.
SANITARY—				
Oct.	1	Birmingham—Sewers	Public Works Committee	J. Price, Council House, Birmingham.
"	1	Epping—Sewerage Works	Urban District Council	N. Smith, 41, Parliament-street, Westminster, S.W.
"	3	London, N.—Drainage Work, &c.	Finchley Urban District Council	Superintendent, Sewage Farm, Summers-lane, N. Finchley.
"	8	Preston—Sewerage Works	Rural District Council	J. Clark, Union Offices, Preston.
PAINTING AND PLUMBING—				
Oct.	3	Kilough—Painting		G. M. Swail, Killough.
"	3	Castleford—Painting School	School Board	A. Wilson, Welbeck-street School, Castleford.
"	3	Dublin—Plumbing, &c.		G. C. Ashlin, 1, Dawson-street, Dublin.
"	4	London—Re-painting Work	London County Council	Engineer's Department, County Hall, Spring Gardens, S.W.
No date.		Peterborough—Painting Bridge	County Council	L. J. Dawson, Cross-street, Peterborough.
"		South Eton—Painting Chapel		E. Bachum, William street, Eton.

COMPETITIONS.

DATE DESIGNS TO BE SENT IN.	DESIGNS REQUIRED.	AMOUNT OF PREMIUM.	BY WHOM ADVERTISED.
Oct. 3	Liverpool—New Buildings for Royal Institution	£32 10s., £21	Harold Waterhouse, Hon. Sec., 3, Cook-street, Liverpool.
„ 3	Rotherham—Extension Baptist Schoolroom (£600 limit)		A. Crowcroft, Clifton-crescent, South Rotherham.
„ 6	Reigate—Municipal Buildings		Reigate Town Council.
„ 15	Androssan—Hospital		Committee of Saltcoats and Androssan Joint Hospital.
„ 28	Chertsey—Sewerage Schemes	£50, £30, £20	Chertsey Urban District Council.
Dec. 1	Aberavon—Extension of Market	£21	Aberavon Corporation.

Property and Land Sales.

HAMPTON AND SONS, ESTATE AGENTS, AUCTIONEERS, AND VALUERS.

1898.

HAMPTON AND SONS beg to announce that their AUCTIONS of LANDED ESTATES, Town and Country RESIDENCES, INVESTMENTS, BUSINESS PREMISES, and other PROPERTIES are held MONTHLY at the Mart, Tokenhouse-yard, E.C. Auctions can also be held on other days in Town or Country by arrangement; also Sales and Valuations of Furniture, Pictures, Farming Stock, Timber, &c. List of Estates, Town and Country Residences, Hunting Boxes, and Sporting Properties can be had gratis on application to HAMPTON AND SONS (Ltd.), 1, Jockspur street, S.W.; or by post, three stamps. Auction and Estate Offices, 1, Cockspur-street, Pall-mall, S.W.

HAREFIELD GROVE ESTATE, near Rickmansworth. MIDDLESEX and WEST HERTS. 7 miles from London and two miles from two railway stations.

To be Sold by Auction, on Tuesday, October 18th, 1898, by **MESSRS. MILLAR, SON, and Co.**, are instructed to SELL this beautiful FREEHOLD RESIDENTIAL, Sporting, and Agricultural ESTATE, in one or more lots, as under:—

Lot 1.—The unique Residential Estate, Harefield Grove, comprising a well-built, comfortable mansion, approached by a carriage drive, with lodge, occupying a fine position amidst most perfect surroundings of undulating lawns, luxurious shrubberies, lakes, ponds of aquatic plants, tennis lawns and courts, and containing five handsome reception rooms, conservatory, about 20 bedrooms, complete domestic offices; modern stabling, with clock tower, kitchen gardens, vineries, and other glasshouses; electric light plant; gardener's cottage, orchards, farm buildings, &c., the whole comprising 146a. 1r. 10p. of finely-timbered park, rich meadow, and woodlands.

Lot 2.—A beautiful Small Freehold Estate, containing nearly 20 acres of well-timbered park land, and having extensive frontages to main roads, and commanding over views; picturesque lodge, with carriage drive, and gates—a unique position for a good residence.

Lot 3.—A Building Estate of 7 acres, with a frontage of 485ft. to main road.

Lot 4.—A Building Estate of 7 acres, frontage of 520ft.

Lot 5.—A Building Estate of nearly 4 acres, frontage of 420ft.

Lot 6.—A Building Estate of 18½ acres, with extensive frontages to two roads, extending to 2100ft.

Lot 7.—A Building Estate of 11½ acres, with a frontage of 555ft.

Lot 8.—A similar Estate of 11½ acres, with a frontage of 680ft.

Lot 9.—Valuable Building Estate, comprising 21 acres, commanding nice views, with orchard and cottages, frontage of 1100ft.

All these Building Estates have excellent sites for large or small residences (for which there is great demand).

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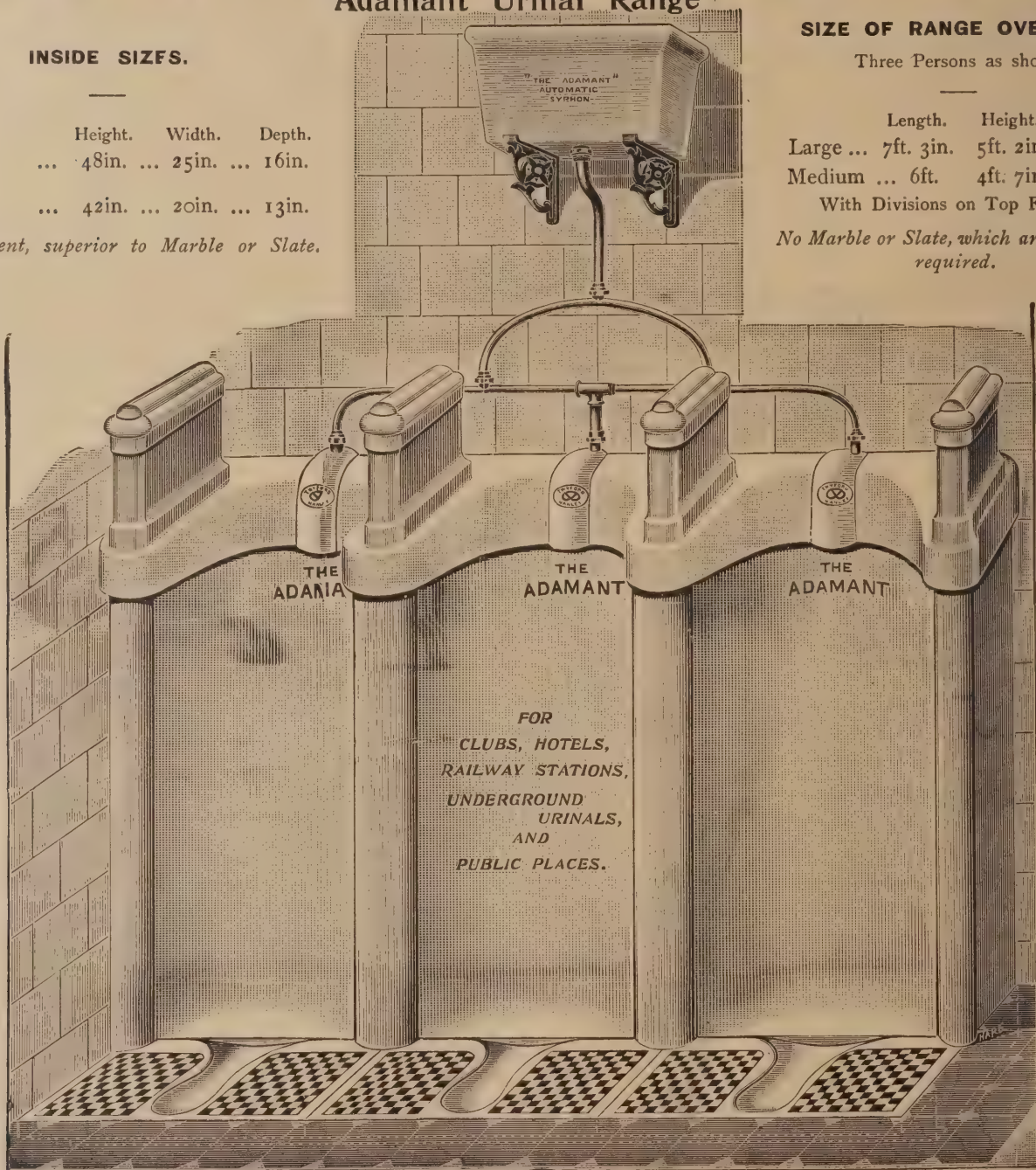
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An Architectural Causerie.

WE must confess, to begin with, that the sound of the "model village" is an alluring one. You picture, in the model village of romance, the aged villagers seated round some ancient tree in the midst of a verdant village green, and gossiping, while the younger generation disports itself in rustic games, and while thirsty souls sit on benches outside a picturesque village ale-house in the background and carouse. You picture all these things in your mind's eye because this is the sort of scene which the scene-painter and the stage-manager arrange for the stage in romantic drama. It is a pleasing picture, and you readily conceive that the "model village" on some reforming nobleman's estate, of which you read in the papers, is on these lines. It was, for instance, but the other day that we read an account of the so-called "model village" of Canford Magna, near Wimborne, the creation of the present Lord Wimborne; and so laudatory of the place was that account that, when in that district, we made a point of seeing it. The disappointment was great. Trim lawns and well-kept flower-beds were much in evidence, it is true, at the sides of the roadway; and the cottage gardens were gorgeous with a late summer display of sun-flowers and asters. Some of the cottages, too, were actually thatched. But the majority of the dwellings here were built in a peculiarly hideous kind of brick, which was neither white, brown, grey, nor yellow, but a pallid combination of all four; a complexion suggesting a tardy recovery from a severe illness. Also all the cottages bore an unmistakable likeness to one another and were numbered as scrupulously as a London street. The village ale-house was missing, and a temperance tavern was in its place, which may or may not be an admirable innovation—just as your prejudices suggest. Village green there was not, but there was over all the place that sense of proprietorship which probably no self-respecting villager could live under for long, and yet keep his self-respect, even though his weekly rent be insignificant. When the present Royal Exchange was built and the inscription cut on its forefront, "The earth is the Lord's and the fulness thereof," the Radicals humourously shifted the apostrophe in the political skits of that time, rendering the meaning to be that the earth and its products were the property of the House of Peers; and it is just this assumption of omnipotence which is conveyed at the village of Canford Magna by Lord Wimborne's "model" settlement. The moral of it all is that you can no more make a beautiful and picturesque village to order than you can rear handsome and model inhabitants to people it. The ultimate test of that much misunderstood quality—picturesqueness—lies with the artist. Would he select such places as subjects for pictures? The answer must sorrowfully be made that he would not. The model village is no new thing, although examples are now becoming more frequent. As far back as 1786 the village of Milton Abbas, in Dorsetshire, was built by Joseph Damer, first Earl of Dorchester. He demolished the old cottages

and rebuilt the whole of the village street. That street has one of the loveliest woodland views in this country. The road goes sloping down steeply towards the heavily wooded expanse of Milton Park, with swelling uplands on either side, and beneath them those eighteenth-century ideal cottages, each one with a steep thatched roof exactly similar to its neighbour, and with a most depressing regularity of plan and elevation. This was the ideal of a century ago; to-day it seems but a blot upon the landscape, singular, and in some respects interesting, but not beautiful by any means. Will future generations be able to say anything better for the model villages built in our own times?

C. G. H.

labours is a wealth of information on everything connected with the construction of the stage, which cannot but be highly appreciated by all those interested in the matter. The book is divided into three sections, dealing with wood stages, wood and iron stages, and iron stages respectively, in which the methods of each are explained, and the various advantages and disadvantages are discussed. The author, however, does not formulate any model stage of his own; he presents examples and different types, and prefers that his work should be considered as a study, which he hopes will be of practical value to all those in any way concerned with stage construction or management. There is no doubt that such will be the case.



The Chapel,
Hospital of the
Holy Trinity,

THE CHAPEL, WHITGIFT'S HOSPITAL, CROYDON.

Stage Construction.*

CONSIDERING the recent activity in theatre building, both in the suburbs and in the provinces, one can quite understand the demand for reliable information as to the latest and most approved principles of stage construction which has prompted Mr. Sachs to take the unusual course of issuing this supplement to "Modern Opera Houses and Theatres" before the appearance of the third volume. Mr. Sachs has had the privilege of visiting most of the principal playhouses of Europe, and had opportunities afforded him for thoroughly studying his subject—even to the account books—for details of cost of maintenance. He has discussed his subject both with those who design, and those who manage the respective stages, and is able to give the opinions of many leading authorities in all countries. The outcome of his

Incidentally, we are able to see now backward we are in this country compared with the Continent, and how much room there is for the application of modern scientific methods and appliances to our stage construction. The volume is profusely illustrated by six plates and 170 illustrations in the text, giving plans, sections, photographic views, and elaborate details of most of the examples discussed. It is a pleasure to be able to congratulate Mr. Sachs on the appearance of this addition to our technical knowledge, and we are impressed by his energy and enthusiasm. The book deserves every success, and we hope it will obtain it. There can be but few men who have had Mr. Sachs' opportunities for comparison or for the acquisition of knowledge of this subject. When he has had more time to think it over, and thoroughly digest his information, perhaps he may be tempted to give us his view of the ideal stage, which could not fail to be interesting and instructive.

A. R. J.

* "Stage Construction." A Supplement to "Modern Opera Houses and Theatres." By Edwin O. Sachs.

OLD ENGLISH FURNITURE.

ALTHOUGH the taste for Chippendale and old English carved furniture generally is of by no means recent date, the season of ales just closed must always rank very high, says *The Times*, so far as regards prices. It is a surprisingly curious fact that very few Chippendale articles have occurred in the great collections of antique furniture which have come under the hammer during the past half a century—the Hamilton Palace sale only included a mahogany table which fetched 58 guineas—so that the collector's main chance of meeting with first-rate articles of this description is very largely confined to miscellaneous sales both in town and country. During the last few years the demand for the genuine work of the earlier English designers has enormously increased, and prices have gone up in a proportionate ratio till they have long since passed beyond the reach of the man of small means. During the summer months the London dealers, directly or indirectly, scour the entire country, paying ready money for anything at all likely to bring them in a profit. Some wonderful stories are told of the discoveries which have in this way been made. The vendor, who is more often than not ignorant of the real commercial value of his property, does not often have the best of the bargain. During the season the dealers' agents are everywhere, and practically no sale advertised in London is left unscanned. It was at one of these country sales that the record prices for

CHIPPENDALE CHAIRS

were obtained. This sale, it is true, was conducted by a London firm of auctioneers (Robinson and Fisher), and it was held in July last at Bradfield Hall, near Reading, the property of the Connop family. There were two remarkably fine old Chippendale elbow state chairs, with openwork backs, with exquisitely carved bold lion's head handles to the elbows, the cabriole legs with lion's head masks, and covered in fine old English silk needlework. These two chairs were bought for 780 guineas by a dealer, who is said to have sold them shortly afterwards for 1000 guineas—a very good day's work indeed. The same sale included a large Chippendale state easy chair of fine design and cleverly carved, having the arms of the Barrington family, the seat, back, and elbows covered in beautiful old tapestry; this realised 205 guineas, and a similar chair, but gilt, upholstered in red velvet, went for 105 guineas. A set of six Chippendale chairs, with mahogany frames, and with very finely carved openwork backs in scrolls and leaves, realised 93 guineas, or at the rate of 15½ guineas per chair. Earlier in the season the same firm sold at their London house another set of six carved mahogany Chippendale chairs, with finely decorated and pierced backs of beautiful design, on carved cabriole legs, for £108, or at the rate of £18 per chair; this set is said to have cost the late owner about £6. Some very interesting and genuine old Chippendale furniture occurred in the sale of the contents of Longstowe Hall, Cambridge (Grain, Moyes, and Wisbey, of Cambridge), several arm chairs realising, even at so remote a place, from £10 to ten guineas a-piece, and a mahogany bookcase, 5ft. 9in., with projecting centre, brought £30. At the Egmont sale in London of the furniture removed from the mansion-house of Cowdray, Midhurst, Sussex (Messrs. Trollope), one set of three Chippendale chairs, covered with damask, sold for 23 guineas, and another set of six chairs, the seats covered with figured leather, and two elbow-chairs *en suite* together showed a total of just over £53. Two unusually

FINE CHIPPENDALE MAHOGANY CABINETS, with carved borders and legs and open gallery above, each with three glazed doors 7ft. high and 4ft. wide, at Christie's on May 20th, together brought 230 guineas; at the same time a dozen very ordinary Chippendale chairs brought 63 guineas. On June 3rd, at the

same place, a pair of Chippendale torchères of mahogany and satinwood, formed as tripod altars, carved with festoons and drapery, acanthus foliage, &c., 55in. high, brought 44 guineas. Finally, the sale in August of the late Mr. John Hargreaves, of Maiden Erlegh, near Reading (held by Walton and Lee, of London), comprised a number of choice Chippendale articles—a 6ft. beautifully carved mahogany table with marble top (the latter faulty) brought the excellent price of £28; a mahogany cabinet, glazed front and sides, with a quaintly-designed open top for china, 4ft. wide, brought £124; one of the cheapest bargains of the year was obtained at this sale when a beautifully-carved Chippendale suite from the ball-room, upholstered in Persian pattern tapestry, comprising six chairs, a pair of elbow chairs, and a 5½ft. settee, was knocked down for £50. At this sale also four ordinary carved mahogany chairs brought £7 each. Of course, it is almost unnecessary to say that all, or nearly all, these articles were bought by dealers as a speculation, and that the prices here quoted are much below those at which they will be acquired by private purchasers. There is never any difficulty experienced in disposing of first-rate articles of decorative or antique furniture. Next to Chippendale, the Sheraton style of English furniture is most in demand with collectors and connoisseurs. It is not necessary in this place to discuss the relative merits of the two styles, but owing to the more widespread popularity of Chippendale the prices are considerably higher than those realised by Sheraton articles. Nevertheless, some good prices have been realised during the past season for Sheraton furniture—prices which at one time would have been regarded as impossible ones. On June 3rd a writing-table, 33in. wide, inlaid with vases of flowers, rosettes, flutings, and a figure emblematic of Faith, in coloured woods, was sold at Christie's for 70 guineas; on April 1st, at the same place, a small Sheraton upright secretary of inlaid mahogany and satinwood, 25in. wide, inlaid with arabesques of baskets of fruits in coloured woods, brought £14 10s.; on January 28th, also at Christie's, a circular table of inlaid mahogany and satinwood, 42in. in diameter, on pillar and claw-feet, realised 20 guineas. Although they have very

LITTLE TO DO WITH SHERATON,

we may include here two other articles of furniture, namely, an Adams upright secretary of mahogany and satinwood inlaid with vases, rams' heads, and laurel festoons, with tall cabinet above, 105in. high and 53in. wide, which brought £30 at Christie's on April 1st; and a Carlton House writing table of satinwood with inlaid rosewood borders, painted with festoons and wreaths of flowers and foliage, &c., 48in. wide, which at the same place on May 17th realised 66 guineas. There are many articles of English furniture, dating long before the times of either Chippendale or Sheraton, which brought noteworthy prices during the past season. We can only refer to a few of the more striking articles. At the Longstowe Hall sale, a very fine Elizabethan cabinet, 5½ft., with sunk inlaid panels with scenes, and profusely inlaid pilasters, the bottom with richly and boldly carved trussel supports, brought £40; at the same sale a very fine old English marqueterie cabinet, 3ft. 8in., the interior and exterior profusely

INLaid WITH VASES OF FLOWERS AND BIRDS, the cornice and mouldings with ivory and ebony, sold for £53. A set of six finely carved Elizabethan ebony chairs, with decorations of the highest quality, square backs, and upholstered in crimson Utrecht velvet, brought 126 guineas at the Bradfield Hall sale. At the Addison sale at Christie's, June 24th (the articles were removed from Bilton Hall, Rugby, formerly the residence of the great essayist, and are said to have been removed there from Holland House), there were two articles of old English furniture of note—a walnutwood arm-chair, with arms carved with scroll foliage, and with spirally fluted stretchers for the legs—this brought 21 guineas; and an old English bench, with open back and ends, boldly carved with scroll foliage, coronet, and

shields, 26 guineas. The Egmont sale comprised several interesting articles of carved oak furniture of the Jacobean period—two cabinets, 4ft. 3in. wide, brought 40 guineas and two other tall cabinets, one 4ft. 4in. wide, and one not so wide by 12in., together realised 61 guineas. At Robinson and Fisher's, on February 17th, a pair of old high-back carved Jacobean chairs, on cabriole legs, fetched 22 guineas; the Bradfield Hall sale also included some

ARTICLES OF THE JACOBÆAN PERIOD

in mahogany—e.g., a 7ft. 8in. side table, with finely carved border and decorations, and the companion table realised £90. At Christie's on June 3rd a pair of Charles II. large oak arm-chairs, carved with scroll foliage, the arms carved with lions couchant, brought the very high price of 75 guineas. The Bradfield Hall sale included many very choice articles of the Queen Anne period, notably a set of six Spanish mahogany dining room chairs, with scroll and decorated backs, on massive and finely-carved cabriole legs, brought a total of £180, or £30 per chair, probably a record price for chairs of this period. The same sale included a set of six richly-carved Queen Anne state chairs, the backs with shell and scroll decorations, and two settees *en suite*, the eight articles realising a total of 142 guineas. Compared with the enormous prices paid for articles of decorative French furniture at the Hamilton Palace and other sales, the foregoing amounts will appear indeed insignificant, but compared with the prices paid a few years ago for articles as nearly as possible similar, it will be at once admitted that the past season has been one of the highest importance in the annals of furniture sales. The finer articles of old English workmanship are becoming increasingly difficult to obtain, while the taste for them seems to increase as the supply diminishes.

"SOME LATTER-DAY PROCLIVITIES."

To the Editor of THE BUILDERS' JOURNAL.

SIR,—May I refer you to the review of my article embodied in the letter published in your current issue. I have an admission to make. No longer will I conceal the fact from my Editor. It is true, as "F. B." has said: I am *not* omniscient. I have been found out at last, and "F. B." is the man who has done it.

It is only to be regretted that he did not understand the article in question, or his revelation would have been more complete. His letter, as you will have noticed, is somewhat of a silliness, but rather well put, though wordy. I did not, of course, use the term "Latter-day" synonymously with "Modern," but obviously gave it a particular meaning indicating typical present-day ideals. For the rest, I only go armed *cap-à-pie* to fight, not to joust or play on the green. On these occasions I flog with my bladderful of peas the donkey whose progress I am interested to hasten, and no other. We can't all play the part of heavy father to the Arts, and always—everywhere. Paradox and hyperbole have a legitimate use and value, although an ear trained to specification clauses may not perceive it.

I hope "F. B." won't understand this letter either. But pray, Sir, don't explain it to him. We must all work out our own salvation. Finally, on a charge of having said something I did not say, "F. B." calls me a "child," Sir, and also states that I am a stranger to my own imperfections. This is personal, and a little rude, and therefore does not call for remark. At the same time, one is always glad to hear any reflections one's readers may have to cast. They help to keep one merry.—I am, yours obediently, B. C.
September 29th, 1898.

A FIRE broke out on Saturday morning at Bisham Abbey, an historic building on the bank of the Thames between Marlow and Henley. The flames originated in the roof, part of which, together with several old oak beams, were destroyed. The damage was not extensive.

AN OLD ALMSHOUSE.

BY CHARLES G. HARPER.

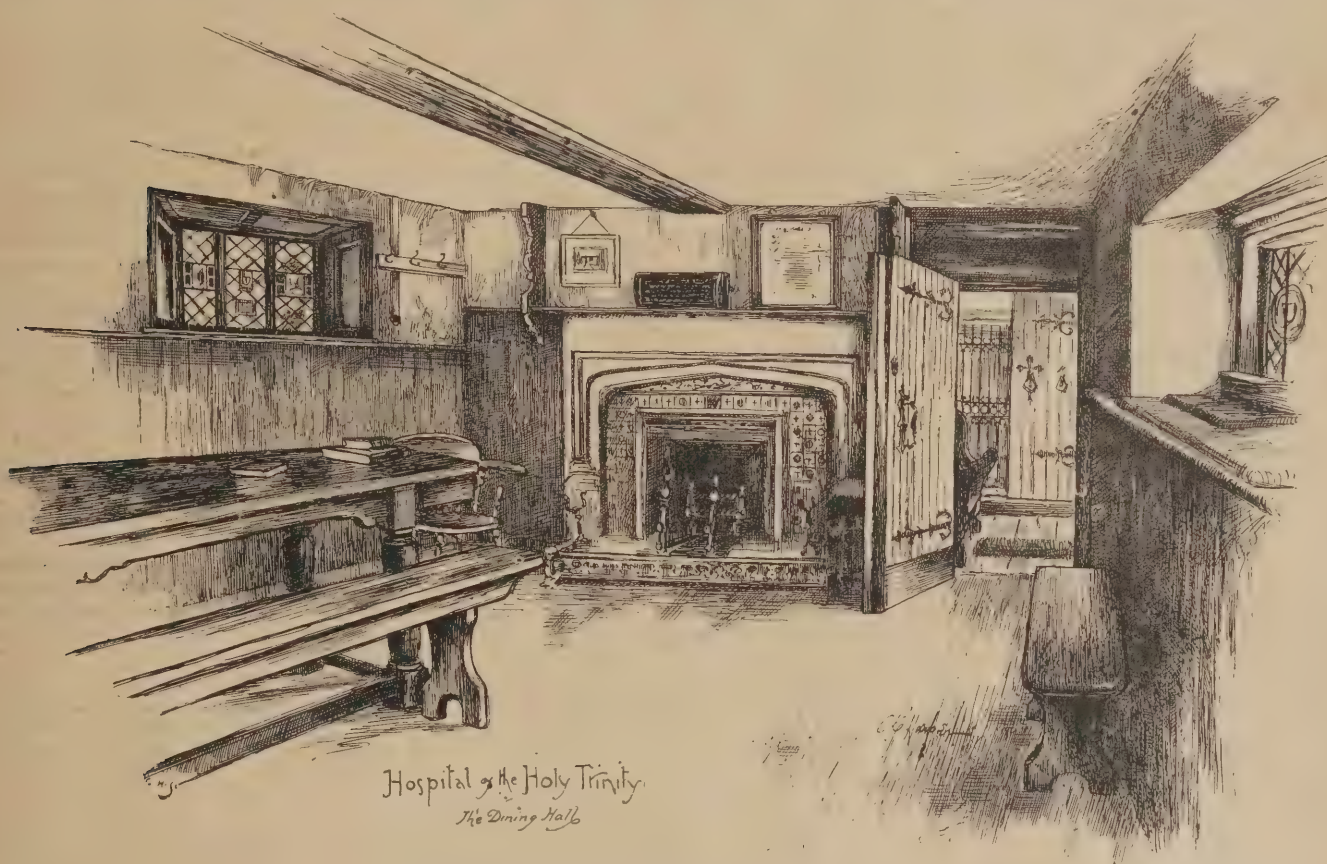
THAT great modern borough of Croydon, which sprawls ungainly over the southern fringe of London, has eaten up with its continual growth many fair nooks and old-world corners. Meadows and woodlands and quaint villages have been swallowed up and incorporated within that town, and the town itself has within the last decade been practically rebuilt. All these changes may be looked upon with mingled feelings of congratulation and regret: congratulation because the squalid slums that festered at the very centre of the borough have been swept away; regrets because much that was picturesque disappeared at the same time. The modern

almshouse. It is this monument of old-time piety and benevolence that is now threatened by local widening schemes, for it is proposed to demolish the buildings and to erect business premises on what remains of the site when the street frontage has been set back. A potent argument in favour of these proposals is that with the sale of this now valuable site the Hospital can be rebuilt on a much larger scale on the outskirts of the town.

A solitude amidst the throng, it now stands in North End, remarkable in the simplicity of its screening walls of dark red brick, elbowed by all the impertinence of modern plate glass. Once within the outer portal of the Hospital, ornamented overhead with the arms of the See of Canterbury impaled with those of Whitgift, and eloquent with the motto "*Qui dat pauperi non indigebit*," we are in another world than the striving business world outside. The building is, as old Aubrey quaintly puts it, "a handsome edifice, erected in the manner of

These are ideal rooms: rooms that delight one with their unspoilt air of the sixteenth century. The sun streams through the western windows over their deep embrasures, lighting up finely the darksome woodwork with patches of brilliance, and brightening every cranny of the cavernous old place, designed as much for strength as for comfort; for the door is of solid-hewn heart of oak, studded with nails and furnished with a hatch for parleying with visitors standing on the stairs without.

Then there is the chapel in a corner of the quadrangle. No pomp of carving or vanity of blazoning ash to be seen here, for the good Archbishop, mindful of economy, would have none of these. The seats and benches are contemporary with the building, and are rough-hewn. On the western wall hangs the portrait of the founder, black-framed and mellowed, rescued from the boys of the Whitgift schools ere quite destroyed; and on the other walls are the portrait of a lady, supposed to repre-



Hospital of the Holy Trinity.
The Dining Hall

THE DINING HALL, WHITGIFT'S HOSPITAL, CROYDON.

Architecture that has replaced the mean buildings of eighty years or so back in the chief business streets of Croydon is some of the finest to be seen in any provincial town, and certain examples might be instanced which would do credit to London itself; while the Municipal Buildings that have replaced that miracle of commonplace design, the old Town Hall, form a monument to the local patriotism of Croydon's burgesses and a model for other places to copy.

But with all this admirable enthusiasm for true improvement, and with the material prosperity which has attended Croydon of late years, has come a passion for widening the principal thoroughfares which, in itself beyond criticism, is about to perpetrate an act of extremely shocking vandalism. Those who know their Croydon well will remember the ancient Hospital of the Holy Trinity, better known as "Whitgift's Hospital," standing with its long frontage to North End, where that thoroughfare and the High Street join. Time was (and that not so long since) when this part of Croydon was singularly old-world in appearance, but now whatever of antiquity and picturesqueness the spot possessed has all gone in the building of shops that would not disgrace Bond Street itself—save only this old

a college, by the Right Reverend Father in God, John Whitgift, late Archbishop of Canterbury." The dainty quadrangle, set about with grass lawns and bright flowers, is formed on three sides by tiny houses of two floors, where dwell the poor brothers and sisters of this old foundation—twenty brothers and sixteen sisters—who, besides lodging, receive each £40 and £30 per annum respectively. The fourth side, the farthest from the street, is occupied by the hall, the warden's rooms, and the chapel, all in very much the same condition as they were at their building. The old oak table in the hall is dated 1614, and much of the stained glass is of sixteenth century date.

But it is in the Warden's rooms above that the eye is feasted with old woodwork, ancient panelling black with the lapse of time, quaint muniment chests, and curious records. These were the rooms especially reserved for his use during his lifetime by the pious founder, Archbishop Whitgift. Here is a case exhibiting the original titles to the lands on which the Hospital is built, and of the others with which it is endowed; formidable sheets of parchments, bearing many seals, and, in one instance, what does duty for a seal—a gold "angel" of the reign of Edward VI.

sent the Archbishop's niece, and a ghastly painting of Death as a skeleton digging a grave. But all these things are seen but dimly, for the light within the chapel is very feeble.

The formal opening of the reading and band room for Blackpool, at 66, York Street, took place a few days ago.

The foundation stones have been laid at New Benwell, Newcastle, of the Bond Memorial Wesleyan chapel, which is being erected at a cost of £4000.

A LARGE block of offices, Nos. 28, 29, and 30, the Minories, has been burnt out. Twenty-nine offices were completely destroyed, and other portions of the block suffered severely.

The Bishop of Truro has opened new church premises at Perranarworthal. The premises consist of a commodious Sunday school and class-rooms, built on a part of the glebe, close to the church.

PRESIDENT M'KINLEY has written a letter approving the proposed erection of a monument to Lafayette in Paris, the cost of which would be defrayed by subscriptions from the students and school children of the United States.

Ancient Irish Ecclesiastical Plate.

THE Rev. J. F. M. Ffrench, whose name is well known in the field of Irish Antiquarian research, has recently communicated an interesting paper to the "Journal of the Royal Society of Antiquaries of Ireland" upon the subject of some Irish Church chalices. "The history, the form, the material, and the workmanship displayed on the vessels used in the services of the Christian Churches, must," Mr. Ffrench observes, "always interest a large number of people, and serve to illustrate the education, the culture, and the

ART-WORKMANSHIP OF THE PERIOD

during which they were constructed." The chalices in use in the primitive Church and in early times in this country, were, we are told, frequently made of rude material and inferior metals. Wood, earthenware, stone, glass, copper, brass, bronze, and pewter were all used in these days, when, we are reminded, the Church in "her infancy, her weakness, her poverty, and her persecution, had to be satisfied with objects made of such poor material, and of such rude art workmanship as the exigencies of her position enabled her to provide." Not only of course was this the case in Ireland, but throughout Christendom. Although the "principal knowledge we have of the former existence of chalices made of these rude materials is derived from the ordinances of ecclesiastical councils," a few specimens are still extant. The

EARTHENWARE CHALICE OF ST. JEROME,

still preserved in the Church of St. Anastasia at Rome, is one, while the stone chalice preserved in the collection of the Royal Irish Academy is another. In his labour of research Mr. Ffrench has not been able to discover any wooden chalice in Ireland that can be "really identified as a church cup;" yet he tells us that such vessels must have remained long in use, for the simple reason that they were prohibited as late as the year 787. Mr. Ffrench believes glass to have been the earliest material used in the construction of Irish chalices, and quotes from the Tri-partite Life of St. Patrick to show that in the days of Ireland's great apostle glass chalices were certainly in use. One of these rare and curious chalices was, moreover, actually discovered in our own times by some workmen who were pulling down portion of the walls of the old Church of Tallaght. It is interesting also to note that the famous cup of the Musgraves of Eden Hall, familiarly known as the "Luck of Eden Hall," is, indeed, a specimen of one of these

RARE AND ANCIENT GLASS CHALICES.

Coming to the employment of metals in chalice workmanship, we find that brass, bronze, and copper have been especially identified with the use of the early Celtic Church, while, adds Mr. Ffrench, "I think we can fairly infer that they were introduced into Ireland by St. Patrick himself in order to supersede the easily-broken glass vessels. Ireland being a centre of bronze workmanship, would be a place where we might expect to find chalices of that substance." Thus, in the "Tri-partite Life," the following occurs: "The holy Bishop Assicus was Patrick's coppersmith, and he made altars and quadrangular patens and quadrangular book-covers in honour of Patrick." "Now, what could be more natural," remarks Mr. Ffrench, commenting upon the foregoing passage, "than that the artificer who constructed one of the sacramental vessels of copper and bronze should construct the other of a like material?" While Mr. Ffrench further recalls the interesting fact that the celebrated Celtic St. Gall, founder of the Abbey of St. Gall, in Switzerland, when offered a silver chalice declined to accept it, saying that his master, Columbanus, was wont to offer the Sacrifice of Salvation in brazen vessels, because our Saviour is said to have been affixed to the cross with nails of brass. Neither pure copper nor bronze chalices seem to be extant among Irish collections of the present day; though, on the other hand, a copper paten was found

in the grave of St. Tigernan at Erren, a promontory of Lough Con, which has been dated as far back as the close of the fifth century. But, as the writer well puts it, "although we have not a chalice made wholly of either copper, brass, or bronze, we have a cup in which all these materials occupy a prominent place"—namely, in that

"NOBLE SPECIMEN OF EARLY CELTIC ART,"

the far-famed Ardagh Castle. In this, bronze, brass, copper, lead, gold, and silver are used, while the decoration of the cup includes no less than three kinds of enamel, besides crystals and amber. Miss Margaret Stokes has declared, as Mr. Ffrench reminds us, that nothing so lovely as the Ardagh Chalice has been found in Celtic, or perhaps in any Continental art, at so early a period. Moreover, from this beautiful cup, which is two-handled, we are enabled to fix the shape and dimensions of the finer chalices during the Celtic period. Of two-handled chalices there are now many specimens still in existence on the Continent, of which the most important are Tassilo Chalice, preserved near Wels, in Lower Austria—a cup specially interesting to us because it betrays in its workmanship the decided influence which Irish ecclesiastical art exercised on the Continent of Europe in the reign of Charlemagne. It is made of

RED COPPER OVERLAID WITH SILVER WORK,

and it is ornamented with representations of the four Evangelists in the style of Irish illuminated books of the seventh century. Visitors to Venice will also find among the ancient chalices preserved in the Tesoro di San Marco several which bear strong resemblance to the Ardagh Cup. Pewter chalices were also used in Ireland, being expressly permitted by the Canons passed at the Provincial Synod held in Christ Church Cathedral, Dublin, in 1186, and continued in use to our own day. Interesting specimens of these from the old Celtic shape to the more modern forms may be seen in the Museum of the Royal Irish Academy. A chalice of ivory was exhibited not very long ago at a meeting of the Royal Society of Antiquaries. But, of course, we scarcely need to be told that even from very early times gold and silver, the precious metals, supplied the favourite materials for Church plate. The Annals of the Four Masters tell us of the chalice of gold presented by Princess Dearvorigil, wife of O'Ruairé at the consecration of Mellifont Abbey. But it is sad to be reminded that not a single chalice of gold or silver has come down to us

FROM PRE-NORMAN TIMES.

To the barbaric devastations of the Norse invaders we doubtless owe the loss. The warfare of the Dane in Ireland was, as Mr. Ffrench reminds us, quite as much a crusade of fanatical paganism as an expedition of invasion and conquest. In their hands the sacred vessels of the Christian Church would be little likely to meet with reverence or even preservation. No doubt they stole them for the sake of the precious metals contained in their material. Yet, almost beggared as Ireland has been in this respect, enough still remains to prove that this country contained at that time a school of workers in the precious metals, who produced objects which, for "gracefulness of outline, refinement of feeling, and artistic skill displayed in their construction have never been surpassed, and of which we are justly proud." It is sad to be told that "after the coming of the Normans Irish Art began to pine and die. The hard-headed, heavy-handed soldiers who acquired dominion over the country had little time to devote to the fine arts, and the sacred vessels used in their services would naturally bear the impress of the Norman and not of the Celt. Irish Art lingered in the places where the Celt still held dominion, but it was no longer a bright light—it was only the shadow of its former self a flickering in the socket." Mention is made of the 17th century revival of Irish Art in ecclesiastical vessels, of which revival many excellent specimens are still preserved. The illustrations given of the Kilmore, Adare, Mayler, Cloonclare, and Kilkenny chalices show that Irish 17th century art was deserving of considerable respect,

The Decoration of Modern Churches.

WE noticed last week one of the most interesting of the subsidiary institutions connected with the Church Congress at Bradford—the Ecclesiastical Art Exhibition. In addition to this exhibition, the Clergy and Artists' Association has organised a similar show, embracing historical and decorative Art. The exhibition is not a large one; one end of the Corporation Art Gallery suffices for the display; but the works shown are so full of interest, and are so suggestive to the art student and art lover that they well merit a careful inspection. The association, whose object is clearly stated in its title, has been in existence for some three years, its first exhibition having been opened at the Shrewsbury Church Congress, when Mr. W. Holman Hunt, who has displayed much interest in the organisation, read a paper on the subject with which the association is concerned. Last year's exhibition at Nottingham received a good deal of attention, and it is hoped that in time the Association may do something to improve taste in many directions. Four or five hundred years ago

THE BEST THAT ARTISTS COULD DO

went into the churches, and there is no reason, say the members of the Association, why the decoration of modern churches should be confined to journeymen painters' stencil patterns, to framed oleographs and machine-made carving. Mr. G. F. Watts, R.A., contributes to the present exhibition three pictures, "The Creation of Eve," "The Curse of Cain," and "Time, Death, and Judgment," the last named a varied replica of the great picture which the artist has contributed to the decoration of St. Paul's Cathedral. All three works are full of the vigour and vitality and the exquisite colour and drawing which mark the master. He also lends a very delicate and characteristic drawing by the late Sir Edward Burne-Jones in illustration of the "Song of Solomon"—one of a series done for the Kelmscott Press. Sir W. B. Richmond, R.A., sends some sketches, working drawings, and mosaic studies for the noble series of decorations in mosaic which he is executing in St. Paul's Cathedral. Mr. W. Holman Hunt lends two small water-colours,

"JERUSALEM FROM THE WEST,"

showing the Fortress and the Tower of David," and the other of "Bethlehem." Both are, no doubt, topographical studies of some of the artist's pictures, and both are marked by minute, almost photographic, fidelity of detail, as well as by good colour. There is a large picture by Mr. Byam Shaw of "The Comforter." What a different place the chapel of a cemetery would be with a few such works as this! The decoration would be appropriate, for the picture is not one merely to admire, but has deep spiritual purpose and power. These are practically the whole of the pictorial works, and the greater part of the wall space is occupied by decorative designs. There are a number of interesting pieces of

WORK IN RELIEF,

including a finely-modelled design of the Annunciation by Miss Hermione Unwin. Mr. Conrad Dressler and Miss E. M. Rope contribute works executed in high relief in glazed earthenware. These are animated by a very high feeling, are really a revival, though not in any sense a copy, of the work of Della Robbia. Like the work of the Della Robbias, they are intended mainly for poor churches, though they would do the wealthiest no discredit. Another departure which promises a future of usefulness is seen in a number of small memorial tablets in bronze for graves. These are executed with taste and feeling, yet can be sold at prices to compete with the execrable enamelled iron wreaths which seem to be the only graveyard memorials within the reach of the pockets of the poor. The exhibition includes a large number of examples of architectural decoration and a few examples of brass work, among which must demand special mention some fine brass work by Mr. Bainbridge Reynolds,

YE POOR OLDE ENGLAND.

AN ARCHITECTURAL JOKE AT
EARL'S COURT.

BY BULKELEY CRESWELL.

"We will now pass into PICTURESQUE ENGLAND, in discussing which admirers of old-fashioned Architecture invariably expend many adjectives."

IT is with these words that a writer in the "Guide to the Earl's Court Exhibition" introduces his readers to a description of the "old English town" which now, for a second year, forms one of the advertised attractions of the place. One has no reason to doubt the accuracy of this writer's observation, nor the exactness of the terms in which he has reported it, and consequently, can only say that one is shocked and grieved to know that what he says can be true. Although, under certain circumstances, it may be palliated, and to a certain extent excused, nevertheless, the habit of bad language is most reprehensible, and cannot be defended, and the above explicit statement of a personal observer as to its widespread frequency, is humiliating and painful to read. At the same time one is glad to know that one's own lapses from strict decorum of expression on visiting "Picturesque England" were not due to any inherent personal depravity, but rather to the common frailty of humanity; for one is, above all things, an admirer of old-fashioned Architecture, and it will be noticed that, in the above quotation it is precisely stated that in discussing the spot, admirers of old-fashioned Architecture invariably use these violent expressions. Indeed, "Picturesque England" is calculated to make intelligent humanity exacerbate, as naturally as pepper may be expected to make it sneeze. For these reasons one is consoled by the belief that the impolite, discourteous adjectives into which one was betrayed at the first brunt of "Picturesque England" are in the main excusable.

At the outset the whole crowd of these incongruities, anomalies, and anachronisms, bunched together and tied about into a wisp of sentimental inanity, (for this is a fair description of "Picturesque England" and its kind) is wholly repugnant to anyone who has any reverence for, or appreciation of, the traditions and arts of the past. In its beginnings the thing held some claims upon

sanity and intellectual decency, when the literal reproduction of some historic spot was attempted. Specialists were employed, care was not grudged to insure that the reproduction should be exact in its particulars, and the persuasiveness of the whole spectacle was sought to be advanced by attention to minute details of costume and furnishing. Now, however, there is no better contriving than may be effected by the employment of some uneducated person, or persons, who succeed only in raising a tawdry, staggering old monument to the proverb, "A little knowledge is a dangerous thing." Among the absurdities which this form of entertainment has fostered is a ridiculous jargon. It consists chiefly in putting the signs "Ye Olde" before the nouns in a sentence; in a frequent interjection of the cypher "ye" or "Ye," and of doubling the last consonant of a noun and adding "e" wherever possible. Thus "Ye olde Shoppe." This does not mean at all that the "shoppe" is necessarily "olde," nor, so far as one has been able to learn, anything else, except that where the hieroglyphics appear a man may reasonably expect to be able to buy a sixpenny thing he does not want for a shilling.

One refers to this jargon because the diction it seeks to reproduce belongs only to a date long previous, for instance, to the Elizabethan epoch, so that it is a complete anachronism, and its use provokes scepticism on at least three points of tradition which are involved in it. First, granting that this fantastical language is a graceful or a beautiful thing, which one emphatically declines to do, can we believe that a similar inanity of speech existed in the seventeenth or eighteenth century (the conjectural date of some of the Architecture of Picturesque England), when we know that there were no "exhibitions" to cherish and foster it? Second, is there any reason to suppose that our forefathers had the intuition to know that everything about them was in reality old; and did the young journeyman, when he took him a wife and set up in business, really grasp the fact that he was merely an ancient tradition of the nineteenth century, and accordingly so soon as his shop was built, call it "Ye Olde Shoppe," as the popular exhibitions would have us to believe?



FIG. 4. YE OLDE PENNYWISE PORTICO.

Third, is there evidence to show that our forefathers never built in new material, but selected always decayed and lichen-covered stones, mildewed plaster, and warped and worm-eaten beams, such as would justify the directors of architectural reproductions in consistently showing us ancient buildings mouldering in rot and semi-ruin at what is avowedly the heyday of their prime? One would unhesitatingly answer all these questions with an unqualified "No!"

It was upon this affectation of language one expended one's first adjective on entering the domain of "Picturesque England." There is a machine called a Mutoscope, which is the newest and latest development of the ingenious mechanical contrivances that give us the moving photographic pictures. On entering under the portals of "Picturesque England," which are constructed in a wonderful segmental arch of hewn rocks such as no man born ever built, one was greeted with the legend—YE MUTOSCOPE. From that point onward the violent expressions referred to in the above extract from the Guide to the Exhibition were called forth in an unconscious ever-flowing stream of vituperative criticism, punctuated with an expletive or so, by the long expanding vista of bland errors and complacent smiling absurdities offered to the visitor in the name of old Architecture. Some of the most accessible instances are slightly sketched in these pages to illustrate and establish the fact of what is here described; but the true banality of the designs is lost in a drawing, and the spot is so rich in materials that a whole issue of this Journal would scarcely avail of them to the full.

In justice to the "inventor" (shall one say) of "Picturesque England," however, one will take his old Architecture in the spirit in which it has been presented; and regard it, not as a folly, but as a serious archaeological effort worthy of serious criticism. One confesses to a certain apprehension at the task: one steps forth out of the realms of all known rules of construction and tradition, and one's confidence grows weak at the knees. It is true that most of the designs may be vaguely allocated to some general epoch with a show of plausibility, although they belong to no style of Architecture yet evolved; but how is one to describe a portico such as No. 4, which is like nothing but a conjectural restoration of members dug up during excavation on the site of the ruins of Pimlico, in the year 3000 A.D. The text books give no information upon the subject of the architectural styles represented in "Picturesque England," nor do they afford any clue to their origin or meaning, and accordingly one has sought to make good this hiatus and supply an additional chapter in the history of Architecture.

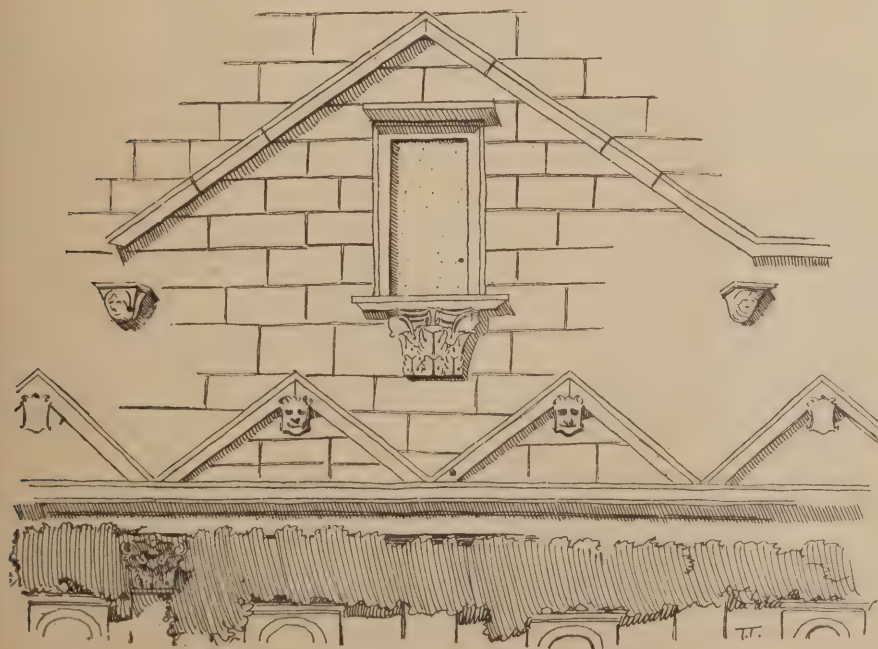


FIG. 1. YE OLDE SPATTERDASH STYLE.

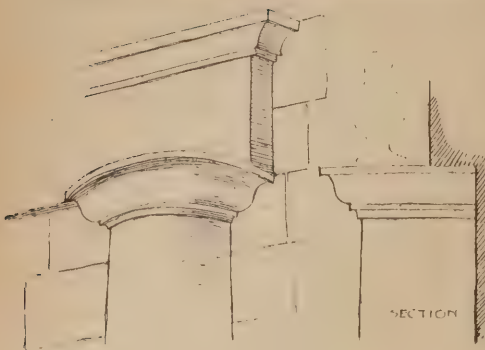


FIG. 7. YE OLDE SHELF CAPITAL.

On entering upon the Old English Town from the central gardens the visitor is first struck by the open colonades that go rambling away on all sides, round corners, and at many changing angles, in a praiseworthy attempt to be picturesque. The most notorious curiosity contained in these colonades is the spacing of their columns. The various classic rules of intercolumniation had each an appropriate name; the more lax methods of the Renaissance builders called for no such distinctions; but when we come to light columns some 8ft. high, spaced 12ft. or 14ft. apart, and spanned by a stone lintel, whose section measures only about 9in. by 4in., such as we find here, one feels that the system not only deserves a name, but such a name as language can scarce compass. Here then is an opportunity such as shall put the philologists on their mettle. Another thing that will early arrest the visitor's attention is the frequency of a certain style of design wherein, it would seem, the walls are run up plain, and the various window heads, strings, cornices, pediments, brackets, and other members and ornaments being arranged ready at hand, are stuck on very skilfully and quickly while the building is hot. This style, after mature deliberations, one has christened "Ye Olde English Spatterdash Style." The illustration numbered 1 is a fine example of this rare old style. The maker evidently had a quantity of old adhesive string-courses and brackets left on hand, and he has availed himself of them, with great variety and precision by arranging a running scheme of pediments, with a bracket firmly fixed at the apex of each, and by putting a much bigger pediment of the same string-course material over the centre. As this is more than twice the size of any one of the pediments below, the artist has, with discernment, allotted not one but two brackets to it; but instead of putting these side by side under the apex of the great pediment, as we should expect, he has, with a nice skill and discretion, separated them and stuck them to the wall, one on each side of the fireplace, in



FIG. 2. YE OLDE SPATTERDASH STYLE.

the true classic feeling. His use of the pilaster cap, too, is masterly; having only one of them the difficulty of using it without disturbing the balance of the elevation must have been almost insuperable. Everyone will agree that the cap would not have looked so right at the side as it does underneath the hearthstone, as shown. The second sketch gives also a valuable example of "Ye Olde Spatterdash Style." The reader will ask: What is the triangular decoration above the window? But one really does not know. It is a form of ornament which must be considered to belong exclusively to this fine old style. The two fancy escutcheons, which are here so aptly placed one on each side of the window, are also of interest. They occur throughout "Picturesque England" of this one exact pattern, and have been attached with equal success to stonework and plaster without reference to style or date.

The reader will note ye olde English door as shown here and elsewhere. Through all ages, whether in conjunction with half-timbered or stone buildings or brick ones, or in Gothic, Renaissance, or Classic styles, these fine old doors always consist of square-framed panels with a triangular, elliptic, or lozenge-shaped slice of wood, glued strongly into the middle of each. Sometimes these decorative additions are enriched and carved after the model of a shortbread cake.

Closely akin to "Ye Olde Spatterdash" style must be considered that which one has named "Ye Olde Pennywise Style." Its vital characteristic consists of leaving out what have hitherto been considered the essential members of a design. In the examples here illustrated we have a portico with no caps, and a pediment with no cornice, and the colonades above described also belong to this style.

Among the most interesting specimens of Architecture is a hitherto unknown Order, which evidently owns to an origin in the last century, when gentlemen wore decorative waistcoats and aspired to account for two bottles of port wine every day after dinner without winking, and thereby win the distinction of being called "Two-bottle men." Accordingly one has christened this hitherto unrecorded architectural Order "Ye Olde Two-bottle Order," from its obvious sympathetic relation to this epoch of diners. The reader will observe the base of this interesting specimen, which is here detailed. It is simplicity itself. The cap eulogising, on each side, the rich curls of the bag wig, the huge gaping mouth and row of heavy teeth, and the extremely short neck of the diner, is very fine and suggestive. Another feature of this style is the "pseudo-balustrade," a balustrade, that is, which has half melted and run into the wall. The last sketch shows a very ingenious arrangement of a column and lintel of a portico. Instead of the column coming under the lintel it is set in front of it, thereby offering the great convenience of a roomy shelf, whereon the housewife may stand things out to cool, or, if she prefers, set a pot of geraniums.

The premises of the St. George Liberal Club, Bristol, have been entirely renovated.

A DRINKING-FOUNTAIN at King's Norton has just been unveiled. It has been erected by Messrs. Roddis and Nourse, sculptors, Aston Road, North Birmingham, from the plans of Mr. W. De Lacey Aherne, architect.

The very interesting and valuable collection of Oriental objects of Art formed by the Marquis of Dalhousie, when Governor-General of India between 1848 and 1855, will be offered for sale in December next by Mr. Dowell, of George Street, Edinburgh. The collection comprises Oriental arms, armour, and jewels, such as gold inlaid and jewelled shields, jewelled scimitars, swords, &c.

An Ancient Perthshire Church.

THE ancient church or chapel of Innerpeffray, situated in an elevated position near the river Earn and fully three miles east of Crieff, has recently been restored. The old collegiate church had, during a long course of years, been allowed to fall into a state of general disrepair. The roof was not only getting into a dilapidated condition, but the walls and general interior of the building—in which so many of the ancient and noble dead of the district repose—had also been

MUCH NEGLECTED.

The right of burial in the church is retained, says the Scotsman, by three of the landed families in the district—namely, the Earl of Ancaster, the present head of the House of Drummond, Drummond Castle; Viscount Strathallan, the representative of the Drummonds of Strathallan; and the present proprietor of the estate of Innerpeffray—the Hon. Captain Hay Drummond, a brother of the late Earl of Kinnoull. Some time ago these three custodiers resolved to have the old church put into a proper state of repair, and this has now been very satisfactorily accomplished. It is said that the date of the first building of the chapel is not known, but it must have been at a very early period, as there is a record of certain deeds having been signed in it in the year 1283. In all probability there was some

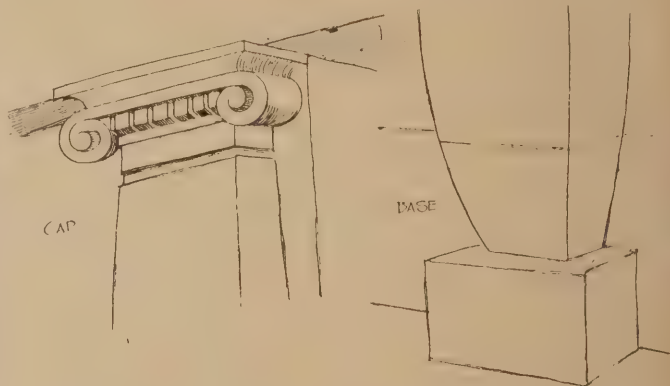


FIG. 6. DETAIL OF YE OLDE ENGLISH TWO-BOTTLE ORDER.

official connection between the Church of Innerpeffray and

THE ABBEY OF INCHAFFRAY,

founded in 1198, and which is situated a few miles further east. At any rate, there is authentic record of Innerpeffray Chapel in 1342, and it was made into a collegiate church in 1508 by the first Lord Drummond, who is described as the first Provost of Innerpeffray. Authentic information in this respect is supplied by the Rev. John Fairbairn, minister of the adjoining parish of Madderty (1620-1657), who was a relative by marriage of the Drummonds, and who in an account of the House of Drummond, says:—"John, Lord Drummond, having re-edified the Chapel of Innerpeffray from the ground, and erected it into a college for some few prebendaries to pray for requiems for him and his house, ordained it to be their burying place for all time coming, and being nearly eighty years of age, he framed one of the most material and peryfte testaments that ever I saw, and syne closed his eyes and time togidder, and was most honourably interred in Innerpeffray Chapel in year 1519. On June 4th, 1507, the King confirmed in mortmain the charter of John, Lord Drummond, by which, for the souls of the King and Queen, for his own soul, and that of Elizabeth Lindsay, his wife, and the umquhile Margaret Drummond, his daughter, &c., he granted as a pure free alms-gift to four chaplains to celebrate the Divine offices for ever at

THE FOUR ALTARS IN THE CHURCH, dedicated in honour of the Blessed Virgin, of Innerpeffray, an annual income of forty



FIG. 5. YE OLDE FESTIVE OR TWO-BOTTLE ORDER.

merks from his land of Innerpeffray and Dunfallys, with houses, residences, and gardens, to be marked off and built for each, with the right to each of them of obtaining necessary fuel in the common mure of Innerpeffray, with four-sums for grasses and for one horse." The chapel now stands as "re-edified" by John, Lord Drummond. According, however, to archaeologists, the western portion of the edifice was not rebuilt by Lord Drummond, as that part shows evident marks of greater antiquity. The chapel is a long, low, narrow building, measuring about 80ft. in length and 22ft. wide, and is still entire, with the exception of the sacristy near the north-east end, which had communicated with the chapel by an arched doorway, still remaining, although now built up. One peculiarity in the church is the round chancel archway, placed about 8ft. from the west end, which appears to have formed a vestibule, having evidently been filled in by some sort of a wooden screen, judging from the holes cut in the stone arch and pillars. In the wall of the arch there is an oblique opening, known as a "squint." It is rarely, if ever, seen in ecclesiastical buildings, and was, it is said, used by those who were late in attendance to hear mass, without attracting the attention of the priest. A narrow circular stone stair in the north-west angle leads from the vestibule to a room immediately above, which was a small window and fireplace, and a bevelled opening in the wall over the arch looking into the church, and is said to have been used by David Drummond, third Lord Madertie, during public worship. (This Lord Madertie was the founder of the ancient library that is stored in the house closely adjoining the church, he having, by his will, dated 1691, bequeathed the half of 6000 merks for the maintenance of the library and schoolhouse which he had erected at Innerpeffray.) It is also stated that the small room referred to was used by Lord Madertie for holding his books, and where, after the death of his second wife, Lady Beatrix Graham (sister of the great Marquis of Montrose, whose Bible, with autograph inscribed, is still in the library), he spent a large portion of his time. The ceiling of this western portion of the chapel bears traces of having been all

PAINTED IN BRIGHT COLOURS,

and has a representation of the sun, with clouds around, and until lately had the figure of an angel appearing out of the clouds blowing a trumpet held in the hand, but that portion has been destroyed. There now only remains a small part of the ceiling, and steps

have been taken to preserve it. The church originally had three doorways, secured by wooden drawbars on the inside. The jambs and lintels have been elaborately moulded, and the windows are double-splayed, and filled in with strong iron interlacing bars. The south doorway is arched and moulded in the inside, with moulded corbels. The door in the west end is supposed to have been one of the entrances to the original chapel, and was allowed to remain. Two small doors in the north side of the building are built up, one of which had apparently served as an entrance to the chancel. On the south side one of the original doors has been made into a window, and one of the windows now forms the door on that side. What is called the "stoup" is placed on the right-hand side of the south doorway, and is of plain design, with projecting bracket.

A STONE ALTAR

is still intact, and stands against the east wall. A number of consecrated crosses are to be seen on the walls of the interior; and one evidence that the west end of the chapel is of much earlier date than the eastern portion is shown by the finding on the west wall of two crosses of dedication and consecration—one on either side of the door. In ancient chapels the usual number of such crosses was seven, and six have now been discovered in this church. Traces of painting are also still visible in some portions of the plaster work. Externally, the gables have crow-steps, and in the east one there is a niche with a bracket, in which evidently there was a statue of some saint—probably the

Virgin Mary, to whom the chapel was dedicated. Two shields, bearing the three bars wavy, gules—the coat of arms of the Drummond family—are also to be seen on the outside walls. It may further be mentioned that at each of the four corners of the old graveyard beside the church there stood what was called a "roundle," or small tower, and one of these remained up till about the beginning of the present century. The "roundle" was stated as consisting of a ground floor, and a room, with fireplace, on the next floor. It will thus be seen that this ancient ecclesiastical edifice is one of much historical and antiquarian note; and it, along with

THE OLD LIBRARY

adjoining and its unique collection of books, as well as the old Castle of Innerpeffray, also near by, are of great interest, and are resorted to by many of the visitors from all parts of the kingdom who annually sojourn in Strathearn. The roof of the chapel has been thoroughly overhauled and repaired with stone slates in keeping with the old roof. A great improvement has also been made by the removal of the soil all round the church, and exposing a fine dressed double base course, which was perfectly hid before. Handsome home oak doors have been put on, studded with iron bolts, and all the windows have been opened up. The floor of the chapel has been levelled, and for the most part gravelled, and turf laid over the graves. Altogether the repairs and improvements carried out in and around the chapel are such that will preserve intact this ancient landmark—now over five centuries old—for many years to come; and Lord Ancaster and other proprietors merit warmest thanks and commendation for their generous conduct in the work of renovation. The various improvements were carried out under the personal supervision of Mr. G. T. Ewing, architect, Crieff.

The Mayor of Gloucester has laid the foundation stone of a free library.

ALTERATIONS are being made to the Congregational Chapel, Yeovil, under the direction of the architect, Mr. J. N. Johnston. Special consideration has been given to the ventilation, which will be carried out on the Boyle system.



FIG. 3. YE OLDE PENNIWISE PEDIMENT.

THE ORIGIN OF DENE HOLES.

AN ARCHEOLOGICAL PROBLEM ANSWERED.

THREE years ago, under the title of "An Unsolved Mystery," the Daily Graphic published an account of the "Dene Holes" which are to be found excavated in the chalk in various parts of Essex and Kent, more especially in Hangman's Wood, near Grays, in Essex, and in two woods—Stankey Wood and Cavey Spring—near Bexley. Precisely described, a dene hole consists of a vertical well-like shaft, fifty, eighty, or even one hundred feet in depth, and three or four feet in diameter—passing down through the overlying sands and gravels into the chalk beneath—in which are excavated several large and lofty chambers, arranged more or less symmetrically around the bottom of the shaft. In Hangman's Wood, which is a small copse some four acres in extent on a chalk slope overlooking the Thames Valley, there are no fewer than seventy-two dene holes, clustered as closely together as was possible, their entrance shafts being on an average not more than 20yds. distant from one another. The

SIMILARITY IN THE GENERAL PLAN

of all the pits in Hangman's Wood is so close that a description of one will serve practically for all. The entrance shafts of all the pits run vertically downwards, through the material known to geologists as the "Thanet sand," for about 56ft., when the chalk is reached. This in its turn has been penetrated for about 25ft. before the level floor of the pits—about 80ft. below the surface of the ground—has been formed. At the bottom of the shaft is an open space or "vestibule," round which are ranged six crypt-like chambers, nearly always of the same shape and arranged on the same symmetrical plan. Exactly opposite to one another at either end of the vestibule are two main or primary chambers, while on either side of the entrance to these are somewhat similar "lateral" chambers, making six in all for each pit. In nearly all cases the ground plan is practically the same, the chambers being arranged in a double-trefoil pattern. The average length of a chamber is about 30ft. (reckoning from the entrance and not including the vestibule), the height about 18ft., and the width 11ft. or 12ft. What gives to the Dene Holes at Hangman's Wood

THEIR MOST CURIOUS ASPECT

at the present day is that many of these underground chambers have been put into communication one with another by the excavating industry of investigators, so that by descending into one chamber it is possible to find access to sixty-five others. In other respects the Dene Holes are blank of any remains which would testify to their origin, and the only interest attaching to them was the interest born of speculation as to what their uses could have been. Little is known of their history during the Middle Ages, though it is said that in the days of Henry IV. the Dene Holes near Grays were regarded as the deserted gold mines of King Cunobeline, and that the working of them was actually begun again with the object of extracting gold. It is certain that among the many wild-cat schemes sprung upon the investor at the time of the South Sea Bubble one for working these ancient "gold mines" was floated and collapsed. In the last hundred years they have been examined by archaeologists several times, but until very recently no one could agree upon their use or origin. The theory most generally held was that they were

MERELY OLD CHALK PITS,

but most of their friends and patrons refused to entertain this view. Why, they asked, should any country wanting chalk have dug through 60ft. of superimposed strata to get at chalk which outcrops on the surface a mile away? And why was such care exercised that none of these chambers should communicate—though, as shown by the excavations of enquirers during the last ten years, a very

short tunnel would connect one chamber with another? The theory of chalk workings was, therefore, abandoned in favour of several others more picturesque. Some suggested prisons, others that the dene holes served some devotional purpose. "Burial places" was an ingenious suggestion; "habitations" was disposed of by the fact that any race so using them would be quickly exterminated by rheumatism; and they were certainly too capacious to be used as storage places for grain, which some inquirers thought a likely thing. Several correspondents have pointed out their great usefulness as places of refuge and concealment in time of invasion, though a dene hole is almost the last place in which a man would care to be found by his enemy. One correspondent sent three theories. The first was that they were places of punishment, and that the word "denn" among the early Saxons signified a cave or a place of doom. The usefulness of this theory is discounted by the fact that dene holes were excavated some centuries before the Saxons reached the country; and this objection applies to a second suggestion that "dene" may be a corruption of "Dane," and that seventy-two—the number of dene holes in Hangman's Wood—was also the number of divisions of the Wissenges or Belgæ. Nor could we accept a fourth theory that tribal societies may have had their secret meetings there. Strange as it may appear, the most commonplace of all the theories is the correct one. They were, the Daily Graphic has discovered, merely chalk-pits. The best possible proof of it is that in another part of England quarrying for chalk had been carried on up to the middle of the present century by means similar to those which were responsible for the form and

CONSTRUCTION OF THE DENE HOLES.

In a paper recently written by Mr. Charles Dawson, F.S.A., F.G.S., he describes some chalk workings in the centre of East Sussex, in a neighbourhood many miles away from any railway station, where is exposed a series of rocks known as the "Purbeck Beds." The whole of this area is covered with countless thousands of pits resembling the dene holes of Essex and Kent. They represent, in fact, the result of the usual method of procuring the limestone wherever the stone is quarried from a depth below the surface of the ground. The workmen, who with their forefathers have been accustomed to this industry all their lives, perform the work with wonderful celerity. The stratum of stone having been ascertained to exist near the surface, a well about 3ft. to 4ft. in diameter is commenced in certain blue and brown shales, and usually reaches the limestone within 40ft. (sometimes 50ft. or 55ft.) from the surface. The cavity above the stone is then belled out on all sides to a diameter varying with the stability of the strata. Sometimes the cavity is 15ft. or 16ft. in diameter, sometimes considerably more. The stone is then removed, and four small arched lateral chambers are dug at four equidistant points in the side of the bell-shaped cavity, so as to extract as much stone as the pitman dares without endangering his life. While the last pieces of stone are being removed from the pit one of the men begins another shaft about 6yds. away, so that it may be well forward by the time the other work is completed. Sufficient room is scrupulously left to prevent one chamber encroaching too near to the other, and it is therefore necessary to adopt some

REGULARITY IN THEIR DESIGN.

And so the operation is repeated over and over again without any variation of importance. There are three questions which occur to those who do not approve the chalk-pit theory:—1. Why are they frequently clustered together; and although they are dug so close to one another, yet are they never intentionally connected? 2. Why are they all constructed on the same general design and seemingly elaborate ground plan? 3. And why were they dug for chalk when chalk itself occurs on the surface less than a mile away? To the first and second of these the chalk workers them-

selves reply that the way they work the chalk occupies less time, is least expensive, and that they work always on the same general design, because they know by experience that it is a safe one. Indeed the whole operation of digging a well and getting out the stone is only a matter of a few days, and they then fill one pit with the debris of another. The limestone has, however a bad trick of thinning out very rapidly within a short distance, and partly for this reason and partly for the economy of surface space

THE PITS USUALLY OCCUR IN CLUSTERS.

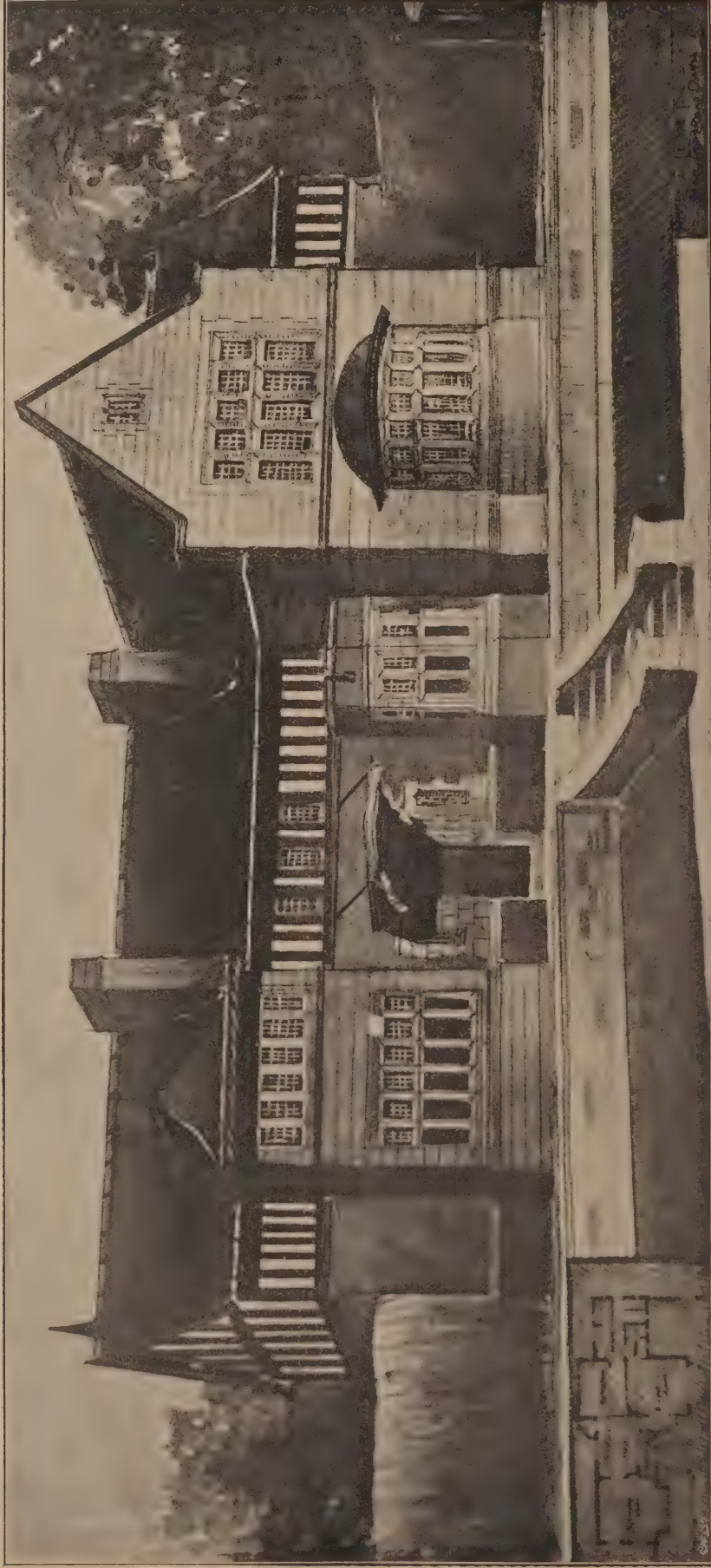
With regard to the third point, the chalk is usually used as a "chalk dressing" for agricultural purposes. The chalk obtained from a depth is much better suited to this purpose than that obtained from the surface, which, so the older agricultural writers maintained, was "very indifferent, and only fit for lime to be laid on the roads, gateways, &c." Nor was the method of digging for chalk thought to be at all expensive compared with that of bringing it from a distance in carts. In fact, Mr. John Bannister, writing in 1799 of the practice of "chalking," observes that the plan of sinking a pit in a field where chalk is intended to be laid as manure "is far preferable to that of drawing it in carts." Altogether Mr. Charles Dawson's contention that dene holes are chalk-pits pure and simple seems to be established and incontestable.

THE IMPORTANCE OF CISTERNS.

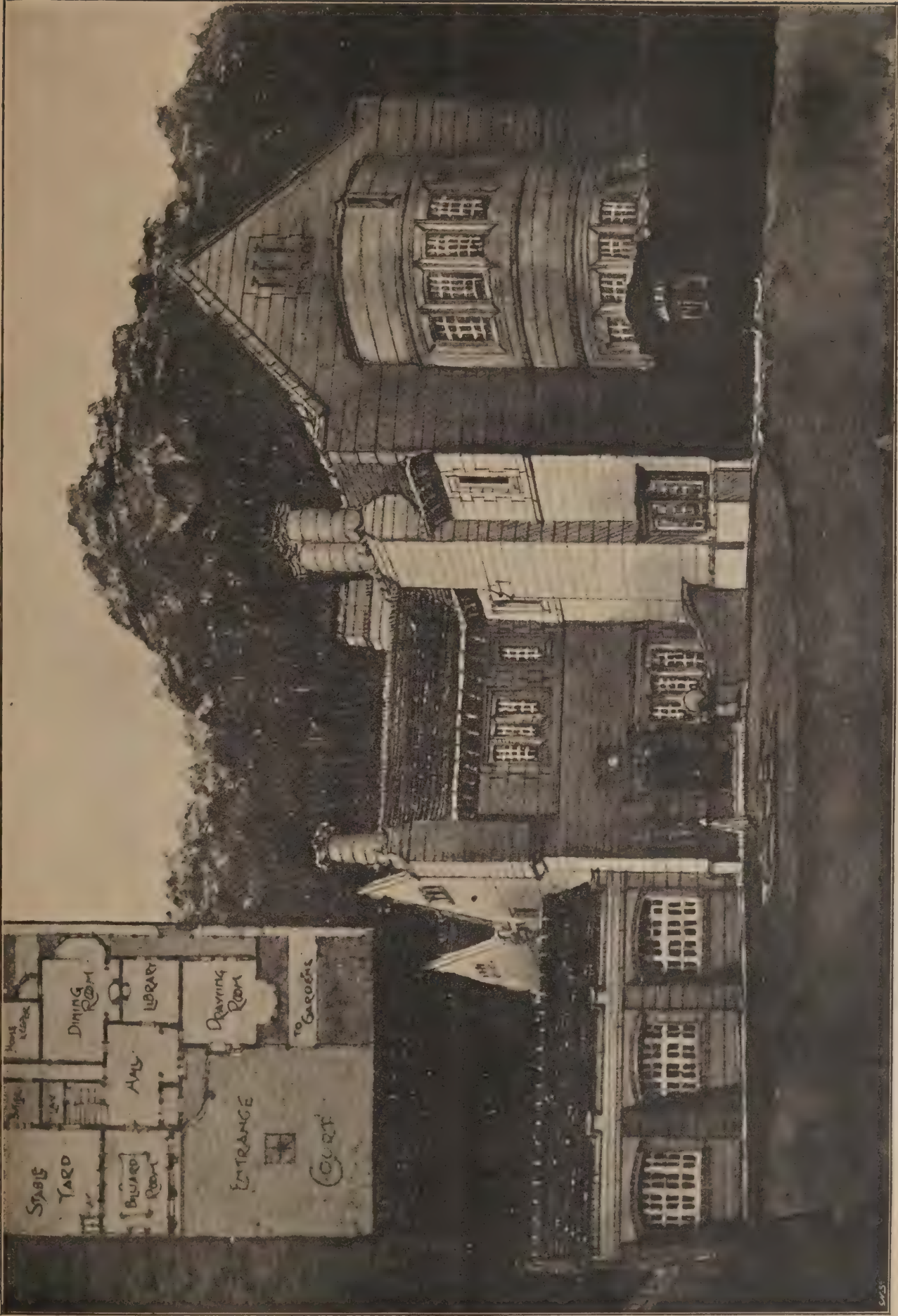
DR. SEDGWICK SAUNDERS, Medical Officer of Health for the City of London, reporting to the Sanitary Committee of the Corporation, states that the difficulties which had arisen in consequence of the enforced suspension of the "constant" service of the East London Waterworks Company had not depended exclusively on a diminished supply, but rather on the absence of the means of proper storage of water for domestic and sanitary purposes. The abolition of cisterns in houses of any class was bad enough, but in those divided into tenements for the occupation of the poor, the want of such receptacles involved an amount of suffering wholly inconceivable to persons possessed of such conveniences. It was a well-known fact that whereas in the area supplied by other companies the existence of cisterns in houses was practically obligatory, the system was objected to by the East London Company. To what extent the abolition of such receptacles for storing water was responsible for the misery inflicted upon the poorer customers of the Company need not here be discussed. Suffice it to say that, when the day of reckoning came, the Company would have to show better reasons than had hitherto obtained for their action in that respect. The area supplied by the East London Company in the City affected 133 houses, with a population (day and night) of 1709. Of these houses 77 were without cisterns and 33 had constant service, 43 were tenements, and 12 empty premises. The water was turned on three times a day—viz., 6 a.m., 12 noon, and 6 p.m., for two hours each time; and, when it was remembered that a very few years ago the New River Company's general supply to the City was only turned on for one hour a day, and often less, it seemed an absurdity to apply the term "water famine" to the East of London, more especially as the Company's representatives averred that the present supply equalled 24 gallons per head—an amount much in excess of that furnished to some of the most important provincial towns. The 77 houses without cisterns had no means of flushing the drains and water-closets when the water was turned off, and some of the latter were in an unspeakable condition. In advocating the use of cisterns, it must not be inferred that a direct supply from the main for drinking and cooking purposes could be dispensed with.

THE Town Council of Southampton has just adopted a new code of by-laws with respect to new streets and buildings.

106487
of the
University of Illinois



HOUSE AT LEEDS. MESSRS. HALL, COOPER AND DAVIS, ARCHITECTS.



CLIFF HOUSE, FLAMBORO', YORKS. MESSRS. HALL, COOPER AND DAVIS, ARCHITECTS.

PROPERTY
OF THE
UNIVERSITY OF ALABAMA

Bricks and Mortar.

EFFINGHAM HOUSE, ARUNDEL STREET,
October 5th, 1898.

"I know what it is to live in a cottage with a deal floor and roof, and a hearth of mica slats; and I know it to be in many respects healthier and happier than living between a Turkey carpet and a gilded ceiling, beside a steel grate and a polished fender. I do not say that such things have not their place and propriety; but I say this, emphatically, that the tenth part of the expense which is sacrificed in domestic vanities, if not absolutely and meaninglessly lost in domestic discomforts and incumbrances, would, if collectively offered and wisely employed, build a marble church for every town in England; such a church as it should be a joy and a blessing ever to pass near in our daily ways and walks, as it would bring the light into the eyes to see from afar, lifting its fair height above the purple crowd of humble roofs."—JOHN RUSKIN.

THE only structures in Japan which seem to be earthquake proof are the pagodas which are erected before the temples. There are many which are seven or eight hundred years old, and as solid as when first built. There is a reason for this, and it lies in their construction. A pagoda is practically a framework of heavy timbers which starts from a wide base, and is in itself a substantial structure, but is rendered still more stable by a peculiar device. Inside the framework, and suspended from the apex, is a long, heavy beam of timber 2ft. thick or more. This hangs from one end, and to the other end are bolted, at each of the four sides, four more heavy timbers, and if the pagoda be very lofty, still more timbers are added to these. The whole forms an enormous pendulum, which reaches within 6in. of the ground. When the shock of an earthquake rocks the pagoda, the pendulum swings in unison, and keeps the centre of gravity always at the base of the framework.

So much antiquarian and architectural interest attaches to the cloisters and crypt of the Chapel of St. Stephen's—the only portions of the old Palace of Westminster which escaped destruction by fire in 1834—that the news of a somewhat awkward subsidence in the foundations of the former will be much regretted. Fortunately the authorities have discovered the weakness before any serious damage has been done, and labourers are now at work laying a bed of concrete preparatory to inserting iron girders at the point where collapse seemed most to threaten. Pending the completion of the operations now in progress, which have necessitated deep excavations on both sides of the cloister wall, the superstructure is shored up by huge baulks of timber. The attention of the authorities was first drawn to the subsidence by a couple of ugly cracks in the masonry near the cloak-room entrance, but a more minute examination revealed the fact that close by a section of the beautiful groined roof had begun to give way. As soon as the immediate defects have been remedied the foundations of the other parts of the cloisters will be carefully overhauled with a view to safeguarding the building against the possibility of further mishap.

It is not often that a whole town is razed to the ground to make room for new fortifications. This, however, is exactly what is happening at the present time in British Columbia. Esquimalt, B.C., has for some years now been a thriving little town on Vancouver Island, having a population of about 1500. It is built

on a jutting peninsular, and commands a magnificent strategic position. The War Department decided that this position would be the very place for an impregnable fortress; so a notice is being served on all Esquimalt landholders informing them (says the Daily Mail) that the Government desires to pay them fairly for their land and house property, but that, in any case, the greater part of the town has to come down, in order to make room for the arsenals, docks, and fortifications that the Government proposes erecting.

Two or three weeks ago a couple of men of the Engineers walked through the town, and wherever directed by an officer accompanying them, drove deep into the ground a little iron post. Their stroll took the trio along the Victoria-Esquimalt Road from the canteen field, past the picturesque parish church of St. Paul, and down "the one street of the little town" to its termination at Esquimalt wharf. The posts are still in position, with the letters "W.D." (the sign of the War Department), and the significant broad arrow beneath, to tell the residents of the place that the time is approaching when the town is to be officially effaced. For many months past hundreds of men have been employed in the fortifications at Esquimalt. A store, repair, and supply station are to be built, and the fort will be so manned as to make them capable, if possible, of defending the place against any foreign force whatever its strength. The Government's plan also embraces the providing of every necessary building appertaining to a naval station. The history of Esquimalt has been from first to last one of steady expansion and development, and the station owes its existence to-day chiefly to geographical conditions. The town was originally founded by the Hudson's Bay Company, which used it as one of their outposts. Esquimalt of the future has already been dubbed in engineering circles "The New Gibraltar of the Pacific."

AN interesting exhibition is now on view at St. Martin's School of Art, Castle Street, W.C., consisting of work done by the students in the past year. As in former cases, designing in every form is the great feature of the teaching given, and valuable rewards and prizes have been gained by the students in this branch of Art. Although much attention is given to designing, other subjects are not neglected. There is a good life class, under a qualified master, both for figure and costume. There is also a special class for carriage building in connection with the City and Guilds of London Institute. In the examinations of the Science and Art Department the students have gained thirty-nine advanced certificates and 108 elementary certificates.

THE new part of Mr. Percy Thomas's noble serial devoted to the Temple and its principal architectural antiquities and associations comprises excellent etchings of the interior of the famous round church and of that quaint survival, the Temple Cloisters, which, though they date, as a familiar inscription in Latin testifies, no further back than 1681, when this part of the Temple was rebuilt after a fire, preserve the tradition of the site of the ancient cloisters of the days when the Temple was still a monastic or semi-monastic establishment. Twelve etchings from Mr. Percy Thomas's needle will complete the work, which is sumptuously printed on thick paper of large folio form and accompanied by descriptive letterpress contributed by Canon Ainger, Master of the Temple.

DUBLIN has got a new explanatory title. It has become "the electric trammiest capital in Europe." The peculiarities of the city have marked it out for this destiny. Its wide stately streets, more like boulevards or the "avenues" that radiate from the Arc de l'Etoile, permit of the double rows of poles necessary for the electric installation, and the sparseness of the traffic prevents the cars being a trouble or an obstruction. The whole city

is now reticulated by these wires, and there is connection from each part with every other, and from all with the suburbs. Foreign cities like Havre and Rouen have the same system, but to no such completeness. The gain is great in comfort, speed, and economy.

FOR some time the spire of St. Ann's Church, Newcastle, has been in a threatening condition, owing to the effect of severe high winds during the last two years. The Corporation authorities have formally drawn the attention of the vicar and churchwardens to its state as a public danger, and strongly urged the great necessity of undertaking the immediate restoration of the spire. Some of the external stonework is decayed by the action of the weather, and must be renewed; and there are numerous openings between the courses of the masonry, from which the lime has completely disappeared. The spire itself has a most ominous and apparent list to the south-east. Though at present there is no immediate peril, still there is considerable risk from the winter storms, owing to the slender proportions and the great elevation of the tower, and it is felt that it would not be safe to leave it in its present state during another winter. The vicar and churchwardens have sought the advice of Mr. W. S. Hicks (of the firm of Messrs. Hicks and Charlewood), and he strongly presses the importance of having the spire taken down and rebuilt in a thoroughly substantial manner. The estimated cost of doing this is about £250, and may possibly exceed this. In order to execute this work the church authorities are appealing for funds. St. Ann's Church was built in 1768 to replace one of very ancient foundation, the date of whose erection is lost in the mists of time. The Corporation of that day rendered valuable assistance by giving for its construction part of the stone which was removed from the city wall that then ran along the Quayside.

GLOVER'S ISLAND, opposite Petersham meadows, failed to find a purchaser when it was put up to auction at Tokenhouse Yard the other day. As an inevitable preliminary to the sale came the speech of the auctioneer, who combines in his person the mayoralty of Richmond and the headship of an important firm dealing in landed estate. Mr. Chancellor at once proceeded to outline the attractions of Glover's Island, remarking that from the attention the property had received from the newspapers, it must possess extraordinary interest. Unquestionably, the island was situated in a classic locality, which had gained the attention of British painters and British poets long before public appreciation of the beautiful had attained to its present high pitch. Mr. Glover, the owner, had it was explained, purchased the property, which bears his name, some twenty-six or twenty-seven years ago, and had expended a considerable sum in restoring the island to its original limits, and in "camp-shedding" it, under the sanction of the Thames Conservancy. Various erections had also been put up for the purposes of boat-building and boat storage.

THE Glasgow Architectural Association held its opening meeting of the winter session on Tuesday week. Mr. Geo. S. Hill, President, delivered his inaugural address on "Architectural Tradition and Precedent." The distinction implied between the terms was gone into closely and clearly, noting that the acquaintance of history of any particular branch of work was invaluable for many reasons, but at all times the element important to us, which is entirely absent from the past, was the present and all that it implies. Every young designer was advised to obtain a clear and articulate idea of the position held by these great factors, as by their aid the superficial attractions of quaintness and eccentricity can be evaded when his hand can be laid upon what he knows infallibly to be good. It requires but a lively, if not over-refined, fancy to impart to present conditions a clothing never before represented. This is all what much of the modern work has to depend upon; in it oftentimes lies something analogous to the abnormal, the freak in nature, which is

never pleasing. The rationale of such Architecture is in the designers themselves, and they themselves are the only Court of Appeal by which it might be judged, taking refuge from outside criticism behind the assertion "But you do not understand." Mr Hill pointed out that the great epoch-making features and characteristic forms were not the outcome of any feverish desire for something new, but came by the pressure of their own manifest advantages, and concluded his address with the truism, "That to advance wisely we must refresh ourselves liberally from the past."

THERE has been recently unveiled a monument to the memory of the Russian Marshal Suvarof at a spot in the gap of Uri Mar where he defeated the French under Jourdan, in 1799. The total cost of the monument has been nearly £30,000, all of which has been defrayed by Prince Galitzin, Governor of Moscow. The monument has been placed in a niche about 90ft. above the famous Devil's Bridge over the Reuss. It consists of a Greek cross 40ft. high placed on a pedestal 26ft. in height cut out of the solid rock. On the latter is this inscription in Russian:—"To the valiant companions in arms of General Field-Marshal Prince Suvarof Rimnitski, Count Italiski."

A DECIDEDLY original treatment of a plaster-cast of a familiar classical group, the Laocoon, is to be seen in a villa front garden in the Forest Gate district. The father has been tinted a bright blue, the two sons are green, while both serpents are scarlet, with here and there a mottling of black. The other evening a practical joker got over the railing and placed a battered hat on the head of each of the figures. Forest Gate is nothing if not classical.

BUSINESS at Tokenhouse Yard during the past few days has worn a much brighter aspect, and there is every promise that the well-known centre will soon resume its usual activity. Although nothing of a high-class character was offered, there was a keen demand for small investments. Ten leasehold residences off the main Highgate Road, sold by direction of the trustees of the late Mr. Goodall, the well-known playing-card manufacturer, realised extraordinary prices. A freehold in Cowcross Street, E.C., producing an income of £188, was sold for £3000. The week's total, amounting to £37,100, may be regarded as very satisfactory, and it compares well with that for the corresponding week in last year, £25,170. The important riverside property known as the Bolney estate, of over 1700 acres, with a frontage to the Thames extending from Henley to Shiplake, has been sold privately for £50,000.

VAUXHALL BRIDGE is at length disappearing after an existence of a little over eighty years. Messrs. Pethwick Brothers, of Plymouth, have contracted for its removal, and they have been engaged upon it now for about three weeks. The footways are all torn up, and already so much of the roadway has been removed as to show great gaps through to the river below. The whole bridge is now one dreary Sahara of draught and dust, and something like three or four thousand cartloads of material have to be carted off wherever it is possible to dispose of it. It is expected that the whole structure will have disappeared in about nine months from the present time.

LITTLE more than £1000 is still required by the Golder's Hall Acquisition Committee to complete the purchase of the estate, so as to enable it to be handed over to the London County Council. Some £40,000 has already been subscribed or promised, and the Committee hope that the small sum now required will be raised without any further appeal to the public. The Hampstead Vestry has instructed its Tree and Open Spaces Committee to consider what suggestions should be made to the County Council as to the use to be made of the house, in accordance with the Council's resolution not to do anything with it unless by the sanction of the Vestry.

A LARGE gathering of that section of the Art world whose interests are concerned with the teaching of various branches of design assembled on Thursday afternoon in the hall of the Bermondsey Settlement in Farncombe Street, S.E., to view an exhibition which is of importance in its way. It consists of work done in the London Board Schools of the Southwark division, a locality wherein a faculty for artistic invention and an intelligent handicraft seem particularly rife in spite of somewhat depressing surroundings. The free use of the brush, both for primitive and more advanced efforts, has been encouraged with astonishing results in combinations of line and colour, and even very small pupils are almost bound to bring out any inventive instinct that is in them. The rapidity of the method is an attraction to the juvenile mind, though of course it may have its dangers for those who wish to obtain all knowledge and manipulative skill by the shortest road. It is satisfactory, however, to note that the higher grade students who are able to study closely from natural objects—flowers, leaves, &c.—produce some thoroughly artistic work fit to hold its own in any decorative display. A large number of specimens, not only of drawing and painting, but of modelling, wood carving, and metal design, have been selected to be shown at the Paris Exhibition.

A "LONDONER," writing under date of a week ago, observes:—"The ways of those who have to deal with our streets are certainly past finding out. Having had the Strand 'up' for three weeks, necessitating the disorganisation of the traffic between Charing Cross and Norfolk Street, the average mortal would suppose that between those two points at least there would be no necessity within a couple of weeks to interfere with the roadway. Therein, as usual, the average mortal would be wrong. For the past two or three days the traffic of the Strand has been congested, the roadway having been taken 'up' in the lower part of Wellington Street, on the south of the Strand just above Lancaster Place; while a little farther east, by Catherine Street, the road has also been 'up,' and is indeed at the present time, while probably because it is only a small piece, and therefore could be finished rapidly by working at night, this course has not been deemed necessary."

THROUGH the generosity of Colonel R. F. Waldo-Sibthorp the South Kensington Museum has recently become possessed of a large collection of silversmiths' work, chiefly German, ranging in date from the sixteenth century to the present time. These specimens are very varied in form, and include tankards, flagons, beakers, and salvers, decorated in *repoussé* and by engraving with flowers, scroll-work, and figure subjects; there is also a considerable collection of spoons. Among the pieces of historical interest is a standing cup and cover, surmounted by a bust of Gustavus Adolphus, King of Sweden, and with an inscription in his honour. There are a number of specimens of the work of English silversmiths, the most important being two Communion cups of Queen Elizabeth's reign, one of which retains its paten-cover. The series of English spoons covers a considerable period of time; they are interesting on account of the hall-marks, the decoration of the handles, and the shapes of the bowls. The handles of some terminate in figures of Apostles, others are seal-topped, whilst others are of the plain "sleppe endyd" form. A set of teaspoons in the form of shells, with dolphin handles, formerly belonged to Lord Nelson. Colonel Waldo-Sibthorp has included in his gift a small collection of snuff-boxes of the last century, two of which are specially deserving of notice—the first is of tinted gold set with diamonds and other jewels; the second is of enamel, and has inside the lid a portrait of Peter the Great painted by Crodowiczky.

OWING to recent changes, Holy Trinity, Minorities, has ceased to be a parish, and will be united to St. Botolph's. It may be well to remember that the church, which will thus undergo transformation into a mere parish

room, has a long and distinguished history. Originally the chapel of the Abbey of St. Clare, which was founded in 1293 by Blanche d'Artois, Queen of Navarre, the church was known by its present name as far back as 1563, some twenty-five years after Lady Elizabeth Savage had surrendered the abbey to Henry VIII. Among its plate are a pair of flagons presented by "Honest Will Legge," the cavalier who was given the Abbey Buildings for his loyalty, and lies buried in the church.

THE "authorities" have been playing a new game on the approaches to Waterloo Bridge. At the north end a kind of obstacle race and driving competition has been arranged for omnibus drivers by prolonging a tongue of "up" road into the middle of the thoroughfare. The game consists in compelling drivers going east and west to see how near they can go to each other without carrying off the buttons of the policeman who regulates the traffic. At the south end of the bridge half the roadway is "up," and the authorities are building a commodious wooden house upon it. Popular belief inclines to the theory that they propose to let it by the year as a "house on the river" pending repairs of the road.

AFTER being closed for a period of over two years, the Church of St. Mildred, Bread Street, is now within measurable distance of being reopened. The interior of the structure, which was completed by Wren in 1683, now presents a pleasing appearance. Unlike most London churches, it is capped with a large and enriched dome, the ornamental plaster-work being of the most tasteful design. To Grinling Gibbons, one of Wren's pupils, is attributed the beautiful carving of the pulpit, which is in a splendid state of preservation. Conspicuous in the centre of the nave is the Lord Mayor's pew, with its civic emblems, while overhead are suspended the massive chandeliers now fitted with electric light. The aisles have been laid in marble, and air pipes have been fitted in the centre of the herring-bone flooring of the pews. The cost of the alterations has been estimated at £1000, the work having been carried out by Messrs. Dove Brothers, of Studd Street, Islington.

MR. J. H. BALDOCK writes to the Times:—"Being at Darenth on Saturday last for the purpose of obtaining some photographs of the old Roman villa, I was informed that the remains of the villa would be shortly covered up again, and that corn probably would again grow on the site. I should like to suggest, therefore, that those among your readers who are interested in the matter should lose no time in seeing this important archaeological discovery ere it is too late. Farningham Road, on the London, Chatham, and Dover Railway, is the station to go to."

THE ancient and lovely Weald Common at Harrow is about to be protected from the assaults of unscrupulous vandals. In framing a scheme to carry out this object no small difficulty was encountered. The common was under the control of so many authorities, all apparently in conflict with each other, that for a long time it seemed as if their passive indifference would resolve itself into absolute neglect. Harrow Weald Common was given to the people of the parishes of Harrow, Wealdstone, Wembley, Harrow Weald, and Pinner in order that they might provide themselves with gravel, which was to be found there in abundance. Further, of course, the parishioners were given the right to enjoy for ever the manifold natural beauties of the common. Of late years the common, which covers a very large area and is 500ft. above the sea level, has fallen on evil times. At last, however, there is a probability that the common will shortly be placed under one responsible controlling authority. Several residents in the vicinity of the common have subscribed sufficient money for the purpose of enabling a body of conservators to be appointed with the object of preserving the common and improving its natural beauties. A scheme has been drafted, and it is hoped it will be confirmed by Act of Parliament.

A CERTAIN degree of indiscretion attaches to Sir John Donnelly's attempt to defend himself, and the Science and Art Department that he represents, by writing explanations to *The Times*. So says the *Globe*. He only, in our contemporary's opinion, revives unpleasant scandals, and affords to the many opponents of his administration useful opportunities of making more emphatic the indictment of the Department. Mr. Spielmann, for instance, writes a rejoinder to Sir John that is definite enough, and disposes satisfactorily of the official platitudes. Most people would be better pleased to see the chiefs of the Department prepared to accept and carry out loyally the recommendations of the Select Committee. After all, the South Kensington Museum has been created and maintained at great expense for educational purposes, and everything that increases its efficiency in this direction is worthy of support. Continued opposition on the part of the officials to reasonable reform is extremely foolish, and must have, ultimately, results most unpleasant to them.

THE Poet Laureate has unveiled at Whitby a cross which has been erected to the memory of Caedmon, the first English poet. Twelve hundred years ago, Caedmon, a simple cowherd attached to the Abbey of Whitby, composed the Hymn of the Creation, the first great song of an English poet. An Anglican cross, designed after the great contemporary crosses of Bewcastle, Ruthwell, Rothbury, and Hexham, on the Abbey Cliff, has been chosen as the most appropriate memorial. The cross is of fine-grained hard sandstone, and is 20ft. in height, standing on a solid base of stone. On the front of the cross are four panels representing Christ in the act of blessing, David playing a harp, the Abbess Hild, and Caedmon in a stable composing his great song. The three other sides of the cross are decorated with figures and designs. The first nine lines of the Hymn of the Creation have been carefully translated by Anglo-Saxon Professors at Oxford and Cambridge. These lines, in English and Runic characters, are carved upon the back and sides of the cross.

THE Wesley Museum, of which so much was heard in the early part of the year, is to be opened on Thursday, November 10th. Wesley's old house, which, as every Londoner knows, or should know, adjoins the handsome chapel in the City Road. The house, which possesses no architectural features of distinction, but is an ordinary and very severely-built red brick building, is of some age, and was for many years the residence of Wesley. A sum of over £1000 has been spent on its restoration, and of this amount close upon £500 has had to be laid out in strengthening the foundations, which were in an advanced state of decay, the house having been originally erected on a swamp. The three rooms on the first floor have been set apart for the purposes of the museum, and have been entirely renovated.

THE Leadenhall Press has just issued a facsimile of a work published in 1615, one of whose copies is now worth its weight in gold. The title of the book runs as follows:—"A Rooke of Sundry Draughtes, principally serving for glasier, and not impertinent for plasterers and gardeners, besides sundry other professions." It was printed "by Walter Dight in Shoolane, at the signe of the Faulcon." Even the British Museum is without an original copy of this work, which has become the text-book on the subject of decorated drawings for leaded glass. The volume from which the Leadenhall Press has made the facsimile came from the celebrated library of the Earl of Ashburnham, recently dispersed at Messrs. Sotheby's sale rooms. Quaint features of the book are the old parchment binding and leather thongs, also facsimiled from the original volume. The price is 6s.

THERE has been unveiled and dedicated at Broadhempston Church a new east window. The subject of the window, which is a three-light one, is the Resurrection; and in the centre light is the figure of our Lord rising

from the tomb holding the rod of triumphant victory. At His feet are roses and the crown of thorns, and on the right hand, seen in the distance, are the three Marys approaching the sepulchre, bringing the spices, &c. Below there is a sleeping guard, with a marvellously-brilliant maroon cloak lined with rich gold, helmet, and armour, sitting on the grass; and at the left, opposite to the slumbering soldier, are two others with similar accoutrements, one with startled expression, evidently wondering at the sight he beholds. Above him is a beautiful angel, with his hand upon the up-lifted stone, watching the rising Saviour. The adoring angels were depicted in the tracery at the top, and in the apex was the sacred monogram. The window is a most magnificent one, and is a splendid acquisition to the recently-restored grand old building.

THE first theatre in London to adopt electrical power to assist in the construction of elaborate scenes in the manner advocated by Mr. Edwin O. Sachs is the Theatre Royal, Drury Lane. Mr. Sachs, who holds the commission, has, to begin with, been entrusted with the arrangement for moving some large sections of the stage floor—each measuring 10ft. by 7ft.—to any level above or below the footlights, every movement to be easily controllable from an ordinary switchboard. This improvement will be completed for the impending pantomime. The contractors are the Thames Ironworks, whose civil engineering and electrical department are excelling themselves in the rapidity of execution under the most difficult circumstances, as will be seen from the fact that the whole of the heavy constructional work had to be carried out whilst such an elaborate play as the "Great Ruby" was in rehearsal, the rehearsing being done on temporary stage flooring, and shifts of men working turn by turn day and night. As regards the system of construction adopted, those of the suspended electrical lift have been applied, but in such a manner that the appliances will be a great improvement on what has been so far done on the Continent. The material is steel throughout, except for the stage floor proper. It is a matter of particular congratulation that the so-called National Theatre should have led the way in the matter, and all credit is due to Mr. Arthur Collins and his co-directors for having met the conservatism and prejudice so common to the stage with improvements more in keeping with this modern age of invention.

AFTER being closed for nearly three weeks, St. Nicholas Cathedral, Newcastle, has been reopened. The whole church has been thoroughly cleaned from roof to floor, the dust and dirt which had accumulated upon the beautiful reredos, the carved oak work, and the many handsome monuments has been removed, the arches in the choir, which were blackened by the gas, have been cleaned, and a complete installation of the electric light is being put in by Messrs. Barnett, electrical engineers, Newcastle, which promises to show off the fine proportions of the grand old building to great advantage, as well as giving much less heat, and tending to greater cleanliness.

THE collection of pictures forming the eleventh exhibition of oil paintings and watercolours promoted by the Dudley Art Gallery Committee, must, from a purely artistic point of view, be regarded as the best that has ever been seen within the borough. The collection consists of 130 oil paintings and about fifty watercolours, &c., nearly all of which are by living artists. The place of honour is accorded a large painting by John R. Reid, entitled "A-hunting We Will Go," which, in vivid colours, characteristic of the artist, represents a bright November morning, and a typical country family hastening with all speed from an old-fashioned cottage to catch a glimpse of the huntsmen and hounds as they career across the fields in the distance. Near to this admirable study is a clever work, "An Interior at Murano," by W. Logsdail, which is a triumph of the painter's art, in the equalities of artistic design and exquisite colouration. In a metal manufacturing dis-

trict like this the subject and the peculiar shades of W. H. Y. Titcomb's picture, "Making of Steel by the Bessemer Process," will appeal strongly to the imagination of visitors. "The Evening of Life," by Flora M. Reid, representing a peaceful country village scene, with an old lady being led by a young one for its central figures, is a work of much technical excellency, refinement, and pathos. The picture which will probably attract the most attention is S. Melton Fisher's "Vanity Fair," in which the play of colour is infinitely varied, rich, and fine; whilst the contours of figures of the handsome and fashionable ladies, and the animation on their countenances as they inspect the beautiful materials offered for their personal adornment, are introduced with rare skill.

THE well-known Academy picture, "My Crown and Sceptre," by T. C. Gotch, which has also been exhibited on the Continent, cannot fail to impress visitors with its wonderful technique. Mr. E. Hayes sends a fine picture, and one which the committee would like to acquire, representing French fishing boats leaving Boulogne Harbour. "Eve," a study in the nude, by Mary R. Raphael, which has been exhibited at the Academy and recently at the Paris Salon, is a clever and interesting work. Other pictures worthy of special mention are: "Jeanie, Jeanie, save me," taken from the trial scene of the "Heart of Midlothian," by Florence Small; "The Placid Stream," by Ernest Parton; "Portrait of a Lady in White," by Mary F. Raphael; "Tired Out," by T. Hartland Fisher; "A Hollow in the Downs," by J. Aumonier; "A Scribe in the Door of the Mosque, Tangier," by A. Mann; "Autumn," by D. Farquaharson; "Tending Turkeys," by Arthur Meade; "Birds of a Feather," by W. H. Longmaid; "A Circus Starting to Parade the Town," by C. J. Adams; "Satan Finds some Mischief still for Idle Hands to Do," by J. C. Dolman.

PETRARCH and Laura de Noves have rendered famous for ever the fountain of Vaucluse, which, with the swift Sorgues, has also been immortalised in verse by a modern English poet. Lovers of the picturesque past of the place will be sorry to hear that the utilitarian engineers of the French Government are about to tamper with the fountain by order of the Minister of Agriculture. The officials of the hydraulic service of the department of Vaucluse, or some of them, are under the impression that the fountain can give out a fuller supply of water than that now available. According to M. Dyrion, chief engineer of the district, the fountain, which is in a chalky bed, is surrounded by internal caverns of vast dimensions, where water accumulates during the rainy season, and which thus act as reservoirs. Another authority, however, M. Pochet, believes that the calcareous mass is like a wet sponge, which empties water through fissures during the summer. Experiments are now to be made for the purpose of ascertaining, if possible, the exact condition and capabilities of the interior of the fountain, or rather of the rocks from which its waters spring and form that tributary of the Rhône known as the Sorgues. This being the case, it is certain that for some time to come at least the fountain which is associated with so many historical and literary recollections will be disfigured. The works to be undertaken at the bidding of the Minister of Agriculture are, however, necessary in the interest of the inhabitants of the district. The fountain has given out a limited quantity of water during the recent summer, which was, of course, fiercely hot in the south at times, and occasioned serious droughts.

MR. WILLIAM WILSON, M.I.C.E., the famous railway engineer, has just died at his residence in Kensington, in his seventy-seventh year. In early life the deceased gentleman was associated with George Stevenson. He first suggested the advisability and practicability of bringing the Southern Railway lines across the Thames, resulting in the construction of the now world-famous Victoria Station, as well as the Victoria Railway Bridge over the river,

which, in conjunction with Mr. (now Sir) John Fowler, he built in 1859-60, the station being erected on the site of the old Grosvenor Basin. He it was, too, who named the station, and, consequently, the street and district; for, at a meeting at the house of the Marquis of Westminster to determine on a name for the station, Mr. Cubitt wanted it to be called "Pimlico," while the Marquis wished it to be called "Grosvenor," but Mr. Wilson said, "Why not call it Victoria, after the Queen?" and that name was adopted. Other works for which Mr. Wilson was responsible were the first Metropolitan Railway, of which he did the pioneer work, and prepared the estimates; the Millwall Docks, of which he was the originator, although his original plan was not carried out in its entirety; the Hammersmith and City Railway, the West London Extension, the Aylesbury and Buckingham Railway, the Banbury and Cheltenham Direct Railway, Neath Harbour Works and Docks, and Jenez and Algericos Railway. He was also connected with the erection of Euston Station, and with many important railway and other engineering enterprises in all parts of the world.

THERE appear to be many difficulties in the path of the committee of the Monmouthshire County Council, who were appointed to inquire into the proposed acquisition of Tintern Abbey and Raglan Castle, on the Marquis of Worcester's estate. The council has no power to buy unless it be conferred upon them by Act of Parliament, and then, probably, it would only be obtained after some public-spirited person had first of all effected the purchase. There is, however, the difficulty of arriving at an estimate as to the true value of the places, which have a commercial and an historical value. As regards the commercial estimate, it is stated that Tintern, as a sight-seeing resort, has produced an average of about £700 or £800 a year, and Raglan about £500. The historical value, however, would vary with different persons. It has been suggested that private persons of means, or the National Society for the Preservation of Ancient Monuments, should come to terms with the vendor, and vest the buildings in the council or local trustees. There is, however, no fear whatever that the Marquis of Worcester will accept the offer of any one in the way of an enterprising showman.

THAT dingy corner of central London known as Southampton Buildings is at present undergoing extensive alterations, and the Patent Office—that repository of many lost hopes and unfulfilled schemes—is closed for much-needed extensions. The inventor is a sanguine person, as any one of the many patent agents who abound in the neighbourhood of Chancery Lane can bear witness, and here have been accumulating for years past hundreds of thousands of specifications of patented inventions that, in the belief of their authors, were to revolutionise the industries of the world. The percentage of patented devices that have brought fortunes to their originators must, however, be a very small one, and between the capitalist on the one hand, who generally exploits the usually impecunious inventor, and the commercially unsuccessful patents themselves, the inventive genius generally finds in the long run that the comparatively stupid person who pursues fortune on the old lines has the best of it. How difficult it would be to rub these facts in may be judged from the facts that inventors have been numerous enough and sanguine enough to fill seven miles of shelves with their specifications, and that more room is urgently needed for the stream of new ones, which shows no sign of decreasing. These documents are temporarily housed in Chichester Rents, on the other side of Chancery Lane, adjoining tenements made famous by Dickens in "Bleak House."

Good progress is being made with the mural decorations which are converting the ambulatory portion of the Royal Exchange into a beautiful picture gallery. There are twenty-four niches in all to be filled with paintings, and of these five have been already filled, two

are being prepared for the artists, and eight have been bespoken, leaving nine places to be yet taken up by citizens of companies of public spirit. Four of the five paintings executed are the gift of a private gentleman, the fifth is the gift of the Corporation, and one of the promised paintings will be given by the Sun Fire Insurance Company. Two of the five completed pictures have scarcely received their finishing touches, and are not yet unveiled.

FOR some little time past the Greek Archaeological Society has been excavating in the neighbourhood of Thermon, the place of assembly for the ancient Ætolians. Professor Sotiarides, a distinguished scholar who is in charge of the operations, informs the Standard's correspondent that the Temple of Apollo, which has recently been discovered, dates apparently from the seventh century B.C. It is built on a cemetery, where may still be seen the bones and ashes of the dead, preserved in large vases of earthenware. Five iron and copper swords and two buckles were also found in the large field which contains the cemetery and temple. The foundations of the temple indicate, the Professor says, that it pointed due north and south, like the ancient temples of the Etruscans in Italy. The sacred enclosure was divided into two galleries by six wooden columns, of which the bases are still preserved. The temple was 38 metres in length and 12 metres in breadth. Of the twenty marble columns which went round it, the bases and various parts are preserved. Several heads, beautifully modelled in clay, and coloured, stood on the cornice of the temple. Inscriptions, some giving the decrees of the Ætolian Assembly, have also been found, and are of exceptional interest.

THE Art Museum at South Kensington has recently acquired several designs by the late Sir Edward Burne-Jones. Among the more important are "The Tree of Life," for a mosaic in the American Episcopal Church of St. Paul in Rome; "The Nativity" and "The Crucifixion," for stained-glass windows in St. Philip's Church, Birmingham; and "The Four Evangelists," for a stained-glass window of Castle Howard. Besides these drawings of Burne-Jones, the Department have obtained two tapestries woven at Messrs. Morris and Co.'s works at Merton Abbey—"Angeli Laudantes," designed by the same master, and "The Orchard," designed by the late William Morris; also a cartoon for tapestry, "The Goose Girl," by Walter Crane.

THE Photographic Salon, which exists especially to show the latest developments in what may be called fanciful photography, opened at the Dudley Gallery last week its sixth annual exhibition; and at the beginning of this week another of the autumn shows, that at the New Gallery, was opened. This consists of works of Art by living French artists, and of a collection of pictures and artistic objects lent by Signor Bordini, of Florence.

THE Cherche Midi Prison, in which Colonel Picquart is now so closely confined that even his counsel is not allowed to visit him, has many historical associations. It was built in the eighteenth century by the architect Victor Dailly for the Countess de Verue, whose salon was famous in the days of Louis XIV. At a later period it was the residence of Madame Récamier, when it became the rendezvous of the most famous French men and women—Lucien Bonaparte, Bernadotte, afterwards King of Sweden, Madame de Staël, the Queen of Naples, the Duchess D'Abrantes, and a host of others. Now-a-days the building is much changed internally. It is a military prison fitted up with cells, from a refractory cell of bare plaster without furniture to the officers' cells, such as that at present occupied by Colonel Picquart, which is provided only with a rush-bottomed chair, a deal table, and a little narrow iron bedstead with bedding. The famous pictures collected by the original owner were long ago dispersed, and the walls are bare of anything like ornaments, save official regulations and notices.

ARCHÆOLOGISTS AFIELD.

VI.—IN THE ISLE OF MAN.

THE Isle of Man Natural History and Antiquarian Society during a recent tour in the island came upon much of archaeological interest—Rushen Abbey in particular. On the way to the abbey the leader pointed to a small house at the corner formed by the two roads leading to the entrance gates to the hotel. An arch could be traced in the gable, the date of which he put at 1300-1400 A.D.; the building was used as the Abbey Court-house. Permission having been courteously granted by the manageress to go over the grounds, the party proceeded to inspect the tower behind the hotel. This appeared to have been placed at the south end of the Cistercian Church, which ran north and south, having an aisle on its western side, divided from the nave by an arcade of four or more arches. From inside the tower one could see a perfect arch remaining, formed of twenty-six blocks of a yellowish sandstone having a plain chamfer. It measured 8ft. 6in. across, and 4ft. high in the centre. A wall, possibly of older date, runs from the S.E. corner of the tower due E. In this was a rectangular window, recently reopened, the lintel formed of two blocks of stone, roughly fitted near the centre. It measured 3ft. 10½in. high, and 1ft. 7in. wide at the sill, tapering by 2in. to the top. The splay was on the south side. The leader pointed out the tower at the old road as the ancient and only entrance to the abbey, which on the east would be well defended by the river, doubtless in those days much deeper and at a lower level than now. An indication of its level appeared in the Refectory, which was next visited. Here the tops of the window could be seen almost on the level of the present floor. Proceeding to Castletown, the Grammar School—formerly the Church of St. Mary—was visited. Here the leader pointed out three arches which appeared to be in every respect similar to those at the Abbey. The measurements were the same; the material was identical; and they bore the same simple chamfer. He argued that, after the dissolution, these arches had been removed and utilised in the building of the present structure. It was suggested that these arches did not necessarily imply an aisle here, as they might possibly have been brought and built into the walls in order to preserve them from desecration. The three arches as now standing measured 31ft.; if this were added to the remaining one, and the portion of one still in the tower at the Abbey, it would give a length for the Cistercian Church of at least 40ft. It was stated that graves were said to have been found around the Grammar School, but it was pointed out that it stood upon solid rock.

LORNE HOUSE.

The grounds of Lorne House were visited. On the edge of an abrupt bank close to the old road which separated the Abbey Lands from the Lord's Lands, slight traces as of a moat could be distinguished. This, on the Ordnance Map, is marked "Site of chapel and burial ground;" and the caretaker said he had heard of skulls and other bones being found in the enclosure when the surface was levelled in 1825, and had always heard it spoken of as a chapel and graveyard—the stones being supposed to have been built into the present barn. The leader pointed out how admirably it was situated for a defensive position, for which purpose it might possibly have once been utilised.

CASTLE RUSHEN.

Proceeding to Castle Rushen, some time was spent in examining the underground vaults, which, it was suggested, were probably on the site of the oldest castle or fortified post erected here. One looked almost as if it had been a water gate to the present castle. It would have been easy, before the moat had been filled up, to have entered from the river right into the surrounding moat. The keep was thought to be more likely late than early—perhaps fifteenth century.

HOLLOW WALL CONSTRUCTION.

WE give, on this page, sketches illustrative of this subject and supplementary to those which appeared in our issue of a fortnight ago. The sketches fairly explain themselves, but in forwarding them Mr. G. A. Kenney writes:—

"I may say that for good bond in brickwork I consider that in every case the work should be set out so that the cross joints of each course of brickwork should be straight through the thickness of the walls, wherever possible, as shown in the accompanying sketches of plans. In every case of hollow walls, the cavity should be well and properly ventilated by 9in. x 3in. close mesh air bricks, just above the ground level and under the eaves, as shown in Figs. 1 and 6; and the under part of the ground floor should also be well ventilated by a number of 9in. x 3in. flues or openings in the inner 9in. wall, below the bold level, through to the cavity in wall, but not opposite to the air brick in the outside wall (see Fig. 7)."

"The window sills should be the required width so as to have a bearing of not less than 1½in. on the inner 9in. wall (see Fig. 2). The wood lintels to all door and window heads should be the width required so as to come up to back of external arch (see Fig. 3) and the cavity between the inner 9in. wall and arch filled up with cement and sand, half of each, and the top hollowed out or channelled to form gutter, and fall to each end of wood lintel from centre, as shown by dotted lines in Fig. 4, and the crosses in same indicate the position of the wall ties, as also in Fig. 9. The reveals and jambs of all doors and windows should be built solid in cement and sand, one to two, as both adds to the strength of the wall where most required. Particularly door jambs and the cross joints, filled full, prevent the damp getting through by reason of the work being solid. Also there should be extra ties to all openings (see Fig. 4)."

"Fig. 12 is plan of 4-flued chimney, 14in. by

9in. each, and Fig. 13 is plan of course above and below Fig. 12, which show the chimney well bonded together in every way with the cross joints, straight through each way also."

KEYSTONES.

HER Royal Highness Princess Christian of Schleswig-Holstein has consented to open the Artists' Guild Tenth Amateur Art Exhibition, at the Imperial Institute, on November 7th.

THE collection in the Louvre has been lately enriched by the addition of an important canvas, a "Virgin and Child," by Piero della Francesca. The figures are life-size, and are set against a landscape background. The picture was formerly in the Tremoille collection, and has been acquired by the authorities of the Louvre at the cost of £5200.

ABERGELDIE CASTLE, which is the principal Royal residence on Deeside after Balmoral, is a fine old mansion in the Scottish baronial style, between Balmoral and Ballater. The whole estate of Abergeldie (which includes the celebrated deer forest of Whitemouth) has been leased for many years by the Queen from Mr. Gordon.

TRAVELLERS on the railway line from London to Brighton and Redhill cannot fail to have noticed the handsome red-brick building half hidden by trees, on the summit of a hill on the right hand, shortly after leaving Croydon. This is the Russell Hill, or, to be more precise, the Warehousemen, Clerks' and Drapers' Schools. A new wing has been added. The new building, which is connected with the main structure by a range of cloisters, has eight class-rooms. The architects are Messrs. Kingwell Cole and Kenneth Wood. The style of the building is late Scholastic Gothic. The woodwork of the roof is of sequoia, and all the floors are fireproof. Ventilation and heating apparatus are by Messrs. Rosser and Russell. It is estimated that the total cost amounts to something like £9000.

BRIDGE BUILDING.

THE INTRODUCTION OF IRON.

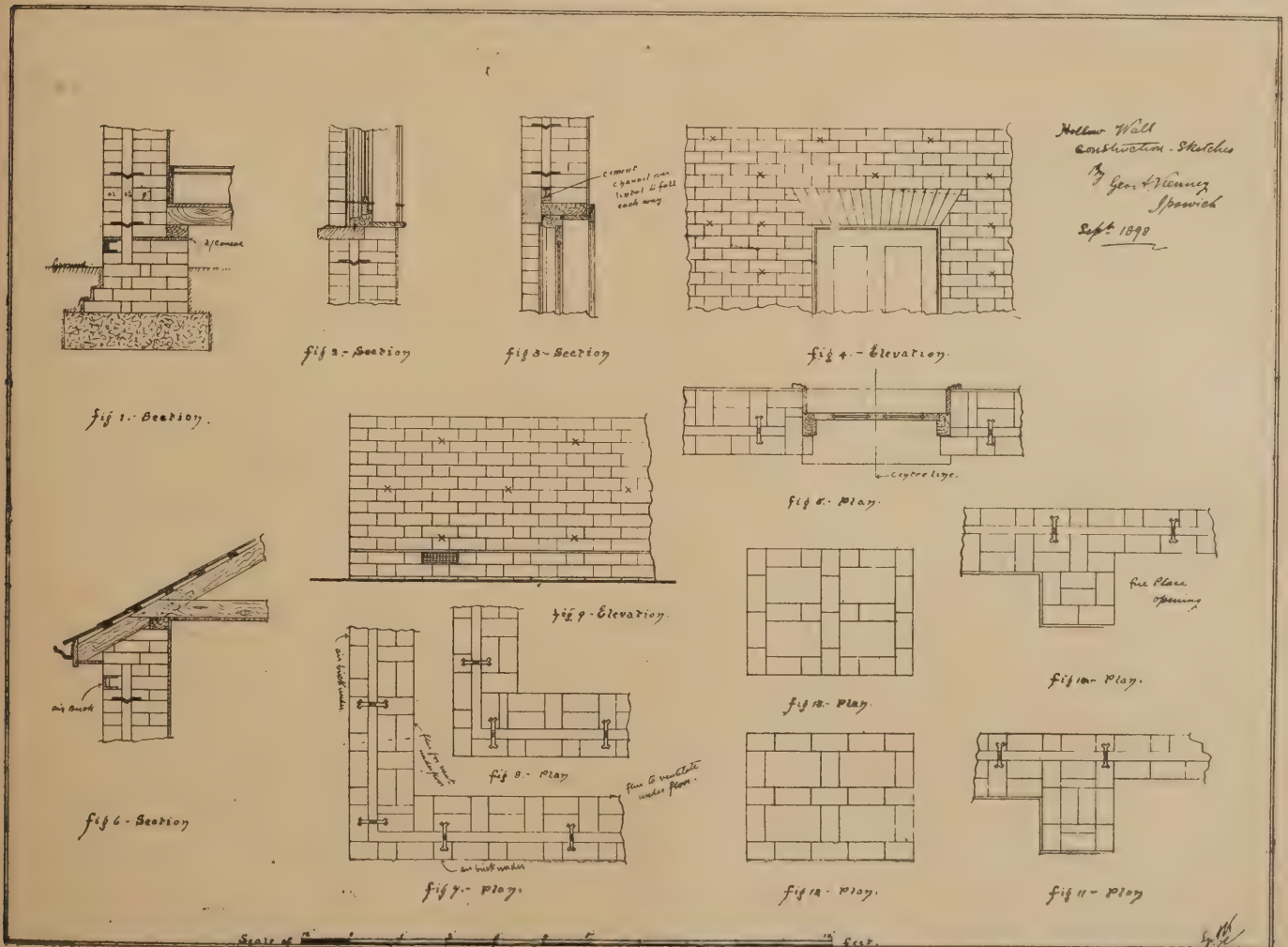
IT was Locke who said that "he who first made known the use of iron may be styled the father of arts and the author of plenty." Prior to the close of the eighteenth century, bridge building, where any engineering skill might be required, was in its infancy; rickety wooden structures affected by wind and rain, or

CLUMSY STONE STRUCTURES

impeding the flow of the water, being the order of the day. It was John Wilkinson, the famous Shropshire ironmaster, who first conceived that his favourite metal might be employed for the purpose; but the idea was pronounced to be ridiculous, and Wilkinson himself termed "iron mad." Perhaps the latter accusation is hardly to be wondered at, when we read that this eccentric manufacturer built iron pulpits, and kept iron coffins of various sizes scattered about his garden, from which his friends were encouraged to take their pick gratis! It is only fair to state, however, that though Wilkinson's idea was a novel one in this country, both French and Italian engineers had already made attempts in the same direction, but had failed, owing to their inability to cast large masses of metal. The

FIRST ATTEMPT AT AN IRON BRIDGE

had been carried out about 1757 at Lyons, and one of the arches was put together; but the project was then abandoned as too costly, timber being substituted in its stead. How the scheme was carried to a successful issue over here, and how the art of bridge building became in consequence revolutionised, may be told as follows:—In 1775 the Coalbrookdale ironmasters, with Wilkinson at their head, says the Engineer, formed the project of making a bridge of cast-iron, to supersede a boat ferry across the Severn, near the village of Broseley, the expense to be defrayed by a joint stock company. The plan the architect



HOLLOW WALL CONSTRUCTION,

suggested was to use part stone and part iron, iron only being brought in to form a crown to the arch. But Wilkinson insisted upon a fabric composed of iron throughout, and, as he was the largest shareholder, his influence gained the day. In 1777 the stone abutments were laid whilst the castings were being prepared at the neighbouring works; and on the ironwork being completed two years later, the erection of the bridge itself only occupied three months.

THE EARLY IRONMASTERS

and architects deserve the greatest credit for introducing this hitherto untried material for bridging, and for the manner in which they erected the great ribs, each of which consists of two pieces only, weighing nearly six tons each. The span of the semicircular arch is 100ft. 6in., and the height from the base line to the centre is 40ft. The weight of iron in the whole is 378 tons. On the largest or exterior rib is inscribed in capitals, "This bridge was cast at Coalbrookdale, and erected in the year 1779." Its convenience and importance to the district may be imagined from the fact that the town of Ironbridge was called into existence and known by that name by its erection. The projectors had been unable to disengage totally their ideas from the usual masonry arch, the form of which in iron is not graceful, nor does it offer sufficient resistance against the pressure of earth behind the abutments, which has pushed them forward, and thus raised the iron arch to a curious peak in the centre. But when first opened the bridge was found to be such an enormous improvement upon the heavy, clumsy-looking structures of stone that choked up the stream by their huge abutments, that no one was inclined to be too critical. Again, authorities like Telford and Stephenson have spoken highly of it, the latter saying: "If we consider that the manipulation of cast-iron was then completely in its infancy, a bridge of such dimensions was doubtless a bold as well as an original undertaking, and the efficiency of the details is worthy of the boldness of the conception." Somewhat late in the day, in 1792, a now very rare copper halfpenny token was issued in its honour. The medal, which has a representation of the bridge, together with the date of its erection, bears on the reverse the inclined canal plane at Ketley, a village near. This apparatus for raising barges from one reach to another, also the first of its type, had been erected in 1789. But although the first iron bridge to be constructed had been immediately hailed as an unequivocal success, nearly twenty years elapsed before the experiment was repeated. This took place in the same locality. The new bridge spanned the same river, and was cast at the same works. The old Norman bridge at Buildwas, situated two miles higher up the stream, had been swept away by an uncommonly high flood in 1795, and to Telford, the engineer of the hour, was entrusted the

DESIGNING OF A NEW BRIDGE

to be built at the expense of the country. "This," says Telford, in his autobiography, "led me to consider a new mode of bridge building, which had been introduced about twenty years before that time; but in forming the design for Buildwas Bridge, the next bridge of cast-iron, I made the arch 130ft. span; the roadway to rest on a very flat arch—the segment of a very large circle—calculated to resist the abutments if disposed to slide inwards as at Coalbrookdale, while the flat arch was itself sustained and strengthened by an outer arched rib on each side of the bridge." This bridge was cast in an admirable manner by the Coalbrookdale ironmasters, and opened for traffic in 1796. The elegant form of its structure—after the elimination of the few faults the bridge had been found to possess—was followed in the construction of the handsome iron bridge, erected in 1817, crossing the Severn at Coalport, four miles below Coalbrookdale.

The peal of four bells in Barnack Church has been rehung, after having been recast by Messrs. John Taylor and Co., of Loughborough.

A DERBYSHIRE CHURCH RESTORED.

THE OLD EDIFICE AT BOLSOVER.

THE ancient little Derbyshire town of Bolsover has just restored its parish church. The beautiful old parish church was destroyed by fire something less than two years ago. As a landmark the church has vied with the fortress-castle since Saxon times, and many vicissitudes have they passed through during that lengthy period. Bolsover was a much more important market town, comparatively, 500 years ago, when it was noted for its manufacture of steel buckles, amongst other things, than it is to-day, but centuries before that a complete stone church had supplanted a primitive erection in which the inhabitants used to worship.

THE HISTORY OF THE OLD CHURCH

is therefore full of interest, and many and strange have been the changes during the years the church has stood on the ridge of the valley it overlooks. Some parts of the early building constructed by the Saxons have been incorporated in the new building. The church building impulse, which culminated in the massive grandeur of the style known as the Anglo-Norman-Romanesque, was felt in the Derbyshire town, and the result was seen in a complete stone edifice being erected in the year 1020. This building was demolished 180 years later, and another in the style known as the Early English built in its place. This building stood for 600 years. In the year 1878 it was thoroughly restored at a cost of nearly £6000. The old 1200 chancel arch was to a large extent buried in the north wall. This, however, was restored to its proper place, and with other stones formed the beautiful chancel arch of the 1878 restoration. All that remained of the building after the fire two years ago was THE THIRTEENTH CENTURY TOWER AND SPIRE,

portions of the outside walls of the fourteenth century chancel, the Cavendish chapel erected A.D. 1618, and the north porch and parts of the outside walls of the north aisle and transept (the latter used as a vestry) which were built some twenty years ago. A movement was at once set on foot to gather funds to defray the cost of replacing the charred ruins with a new church. The Duke of Portland contributed handsomely to the fund, and so readily did the response follow the appeal that the contractor's men were soon in the churchyard preparing to carry out the work of rebuilding. Mr. Louis Ambler, London, was appointed architect, and to his designs the work was carried out. The former church provided seats for about 500 worshippers, and it was desired to increase the accommodation as much as possible, retaining the portions of the old building which were not destroyed by fire, and without adding to the length of the church. This has been accomplished by extending the south aisle laterally, about 100 additional seats being thus obtained. The north and south aisles are now of almost equal width, instead of the latter being about half the width of the aisle on the opposite side, as it was before the fire. The nave has been made 3ft. 6in. wider than the one destroyed, thus being restored to the central axis between the western tower and the chancel, as the original thirteenth century nave evidently was. A triple arrangement of roofs over the nave and aisles has been adopted, the nave arcades being carried on octagonal pillars with capitals as before. Most of the remaining portions of the building having been of the fourteenth century period, it has been considered best to build the new portions in the same style, in order to produce as far as possible a harmonious whole. The external walls are of Bolsover Moor stone, with Weldon stone for the window tracery, &c. Throughout the interior Ancaster stone has been used, the walls, which formerly were plastered, being now lined with stone; those of the tower having been repaired and pointed only. The

WOODWORK OF THE ROOFS

is chiefly pitch pine, the whole being stained palm-leaf green. The new roof of the beautiful

Cavendish Chapel is of oak, with carved beams and pendants and enriched plaster panels in the Jacobean style, and is covered with lead. While the passages are paved with "terrazze" and cube marble mosaic, under the seats wooden blocks are used. The chancel floor is of marble mosaic, with Devonshire marble steps. It may be interesting to mention that the slab stones found in various parts of the church have been relaid in the floors of the transept (vestry) and under the tower; and several ancient stone coffin lids, with incised crosses, which have been discovered, have been fixed round the base of the tower walls inside. An old piece of carving representing the Nativity (probably part of the fourteenth century altar piece) has also been preserved, and fixed to the wall inside the porch. The new carving has been modelled on that in the Chapter House at Southwell Minster. The font, which was formerly in the parish church at Chesterfield, has been presented by the vicar of that place, and

THE HANDSOME STONE PULPIT,

designed by the architect, is the gift of Major Hallows. The doors, seats, and choir stalls are of oak. The total cost of the rebuilding and restoration, with such fittings and furniture as are at present provided, is about £9000. The following are the names of the firms who have been entrusted with the work:—Contractors, Messrs. Bowman and Sons, Stamford; clerk of the works, Mr. J. C. Walker; and the organ builder, Mr. C. Lowe, Sheffield; Messrs. Bowman and Sons being responsible for the case, which was designed by the architect. The heating has been carried out by Mr. James Gray, Chelsea (hot water on the low pressure system); the recasting and rehanging of the bells by Messrs. John Taylor and Co., Loughborough; the mosaic floors have been executed by Messrs. Mainzer and Co., London; the wood block floors by Messrs. Charteris and Longley, London; the wrought iron and brass gas fittings by Mr. Geo. Wragge, Salford, Manchester; the fireproof door to the Cavendish Chapel has been supplied by Messrs. Chubb and Sons, London; the ornamental wrought iron door hinges and furniture by Messrs. Jones and Willis, London; the new clock by Messrs. Smith and Co., Derby; and the stone carving has been executed by Messrs. Tuttell and Son, of Lincoln.

A CARVED-OAK lectern, the gift of the Duke of Richmond and Gordon, has been placed in the chapel of the West Sussex Asylum.

The members of the Cardiff Corporation recently paid a visit of inspection to Cathays Park for the purpose of finally determining the sites of the new Town Hall and Law Courts. Mr. Harpur, the borough engineer, accompanied the members, explaining the sites as marked out by lines of flags, while the architect (Mr. Lanchester) also attended with the necessary sketches. As the result of the inspection the buildings will occupy the sites as shown on the plans, with the modification that they will both be placed nearer the avenue of trees. This will have the effect of removing the Law Courts a little farther away from the noise of the traffic on the North Road, and on the other side will leave a space between the site of the municipal buildings and Park Place of about 100yds., allowing room for a good 50ft. roadway and the erection of another building, probably a museum. The architects were also directed to proceed with the preparation of the working drawings, the council thus finally approving of the additions and modifications previously suggested by Mr. Lanchester, increasing the original estimated cost from approximately £198,000 to £233,000. The increase will be chiefly absorbed in the cost of giving the buildings a higher elevation, the remainder being for a few additional offices. Both the Town Hall and Law Courts will be facing Queen Street, their frontages being roughly in a line with the canal lock, separated from one another by the existing avenues of trees, and having in front an open space, bounded on the Queen Street end by the broad roadway of 60ft. or more in width, crossing from North Road to Park Place.

Professional Items.

ABERAYRON.—The formal opening of the Aberayron County School buildings has just taken place. The school is situated within its own grounds on a prominent site just above the Feathers Hotel. It is an open situation, but has a southern aspect and is sheltered from easterly winds. The architect is Mr. L. L. Banks Price, B.A., of Doldremont, Lampeter, and the contractor Mr. E. Evans, Llanybyther. The buildings consist of a fine and spacious centre hall, two class-rooms, master and mistress's room, workshop, laboratory, music room, kitchen, etc.

BIRMINGHAM.—A useful addition to the Birmingham Homœopathic Hospital buildings, in Easy Row, has just been opened. It is the first instalment of a series of extensions and improvements, for which a building fund of £4300 has been raised. It is proposed to extend the hospital itself, replacing the remainder of the old frontage in Easy Row with an elevation similar to that of the new part. The old part, which was originally a factory, will be taken down and rebuilt, with a view to completing the hospital as a thoroughly efficient institution on modern lines. For the completion and furnishing of the new buildings another £1000 will have to be raised. The portion opened is an extension of the small block at the rear. This building was originally intended for an isolation hospital, but, as the municipal authorities now deal with infectious cases, it has been utilised for a nurses' home. The extension, the building and furnishing of which have cost £700, provides five additional bedrooms and a nurses' parlour.

CARDIFF.—A new steam laundry just off Marlborough Road, on the outskirts of Roath, Cardiff, has just been opened. The laundry premises occupy rather over an acre of ground, and the whole is surrounded by a brick wall with white coping stones, surmounted by a wrought-iron railing, with substantial pillars at frequent intervals. The building has been in course of construction for some twelve months, under the supervision of Messrs. Habershon and Fawcner, who are the architects. Messrs. W. Thomas and Co., of Cardiff, secured the contract for the building. The entire cost of the buildings is estimated at £8000.

DUBLIN.—The foundation stone was recently laid of the Howth Presbyterian Church, Dublin. The new building will be spacious, and on handsome architectural lines. Its position on the Howth Road is nearly midway between Sutton and Howth. The design is Gothic, and the length of the body of the church is 25yds. and the width 8yds. A stately and imposing tower is included in the specifications, and everything will be carried out with perfect regard to the purposes of the building. The architect selected to design the church is Mr. Arthur Young, and the builder Mr. Small.

EARLSTON (Scotland).—The Parish Church of Legerwood, in the Presbytery of Earlston, after being closed for eight months, has just been reopened. The alterations on the church at first contemplated were confined to interior improvements, and the restoration of the chancel, to the extent of opening up the arch, giving it a roof and floor, and other details. Afterwards the Building Committee thought it advisable to extend their operations, and make the church exterior in keeping with its Norman chancel, and this accordingly has been done. The pointed Gothic porches and windows have disappeared; windows have been reconstructed, and new Norman windows made, including a circular one in the dead wall of the west gable, 7ft. in diameter, with ten lights. A Norman porch has been built for the south entrance. The chancel has been from the first shut off from the church as useless for the reformed service; the arch was

built up, and has remained so ever since. The building was partially dismantled and unroofed to make a private burial ground, and this has fortunately preserved it from destructive alterations. The only material alteration seems to have been the removal of the gable and making a wide entrance door to the burial ground. Apparently the building has suffered more from the damp and vitiated air of the church than from any mutilating alterations. The details which remain, however, amply justify the restoration as an interesting example of the early Norman of the twelfth century. The archway has been opened up, the gable restored with a circular light, 3ft. in diameter, a corbel eaves course laid for north and south walls. The old windows, which are only 3ft. by 8in., have been opened out, and another made to match them where the door to the burial ground had been broken through. The roof is of the best British oak, with ceiling of the same material formed within intersecting timbers of the roof, which are moulded and have short hammer beams, resting on two massive beams, carried on four large pillars, which had been built with the walls at the corners. The glass of the chancel windows is from designs by Messrs. Ballantine and Gardner, and these are executed in pure mosaic of the richest coloured pot metal glass. The works have been carried out from plans by Messrs. Hardy and Wight, architects, Edinburgh.

GLASGOW.—New premises have just been erected in Renfield Street, to be used as tea rooms. The following are the contractors:—John Dick and Son, masons; James Tait and Co., wrights; Hugh Twaddle and Son, plumbers; Alexander Brown, plasterer; P. and W. Maclellan, iron and steel work; Kean and Wardrop, tile work; James Coombe and Son, heating engineers; James Brown, ventilating; Blackman Ventilating Company, Limited, ventilating fans; William Ramay and Co., gasfitters; Alexander Burns, painter; Claud Hamilton, Limited, electricians; Crossley Brothers, Limited, gas engine; Thomas Aimer and Sons, "cyclone" fan makers; Thomas Hill and Co., engineers; Archibald Stewart and Co., furnishing.

LANCASTER.—The Earl of Derby on Wednesday laid the foundation-stone of an extension of the Royal Albert Asylum, Lancaster. The extension of the asylum will consist of a new wing to be built at the south-east angle of the Brooke wing. It will be about 150ft. long and two stories high. The ground floor will accommodate fifty cripples, and the first floor, which will be level with the ground floor of the main building, will afford room for fifty epileptic patients. The plan is on the "pavilion" principle. The cost of the extension, without furniture, is estimated at about £15,000. The building occupies an elevated position, and has been designed in "a simple, domestic style of Architecture."

LONDON, E.C.—After being closed for a short period, in order to make the necessary preparations for the installation of the electric light, the Church of St. Edmund the King and Martyr in the City has now been reopened. The new system of lighting is certainly a great improvement, and, beautiful as is the interior appearance of the sacred edifice by day, the effect is much more striking when the church is lighted at night. The handsome roof and carving can then be seen to greater advantage than is possible through the gloom which, owing to the lofty nature of the surrounding buildings, usually overhangs the church. A cluster bracket with three lights has been placed on both sides of the Communion table, and besides being fitted with electric light, the wall brackets have all been re-decorated. The work has been carried out by Messrs. Wentworth and Co., of 102, Newgate Street.

MANSFIELD.—The Victoria Hospital at the Mansfield Union Workhouse has just been formally opened. The new structure has been erected at a total cost of some £13,500. The build-

ing is a two story erection, to accommodate 68 patients. The buildings are of brick. The wards are filled in with specially designed hospital windows, having in the lower part double-hung sashes, and in the upper part a sash opening inwards, and are heated by stoves fixed in the centre of the wards which have descending flues carried underneath the floors and up to the external walls. Special attention has been paid to prevent the possibility of the accumulation of dust by avoiding all right angles and undercut mouldings. The whole of the works have been carried out by Mr. John Greenwood, of Mansfield; the boiler and hot water supply by Messrs. C. and F. Sanderson, of Mansfield. The architect was Mr. R. F. Vallance, of the firm of Messrs. Vallance and Westwick.

MORPETH.—The memorial stones of a new Congregational chapel and schools in Dacre Street, Morpeth, have just been laid. Dacre Street, in which the new chapel will stand, is an open and pleasant part of the town, and also possesses the advantage of a fairly central situation. The building, which includes chapel, school, infant class room, ladies' parlour, and rooms for a caretaker, are being erected from designs by Mr. J. W. Taylor, architect, Newcastle. The cost of the whole, land included, may be put down roughly at £2700.

OCKBROOK.—The ancient parish church at Ockbrook, Derbyshire, was re-opened on Sunday week by the Bishop of Southwell, after repairs. The fabric has not been touched, but in the interior there has been a renovation, including reflooring with concrete over the vaults, a new pulpit, and the whole of the chancel has been refurnished, new candelabra have been provided, and there is a general renewal.

Correspondence.

MASONRY.

To the Editor of THE BUILDERS' JOURNAL.

DEAR SIR,—Being interested in masonry, I think a little criticism upon the above article in your issue of the 21st ult. would do good.

The writer begins by saying "Before a mason can hope to grapple successfully with the work entailed in setting out tracery windows he should be familiar with plane geometry." That remark applies to others besides masons, and, as the writer says in his last sentence, "a little examination of the window used as an example will make this clear." "The example chosen to illustrate this article is a simple one." The simpler the better, say I, but let it be fairly workable.

If we are to take these articles as instructions, they ought to deal with the subject in a practical way, as many young men are glad to try and work out such things as they are shown. The practical hand takes them for what they are worth. For instance, what mason would think of putting a label mould directly on a splay or chamfer? Or, would he be likely to treat the bands or fillets in the manner here indicated?

My idea as to drawings such as these is that they should be shown together with the scale from which they are drawn, and also a section should be given, or the drawing is likely to mislead. Again, to omit some of the principal lines, as is here done, is not right. It is usual to show such windows half outside, and half inside in elevation, with a section. The mason has nothing to do with arranging the points. The architect does this. It is advisable that the mason who has to set out tracery should be familiar with plane geometry; but it is also necessary that he should be familiar with construction.—I am, sir, yours faithfully,

ROBERT RAMM,

3, West Grove Villas, Hersham Road,
Walton-on-Thames.

* See spandrels on right side of drawing.

TENDERS.

Information from accredited sources should be sent to "The Editor." No results of tenders can be accepted unless they contain the name of the Architect or Surveyor for the Work.

ABERDARE.—For the erection of the Ivy Bush Hotel, Cwmaman, Aberdare. Messrs. Morgan and Elford, architects.

Williams and Williams, Cwmaman ... £1,277 10
ASHTON-UNDER-LYNE.—For sewerage Hill-street, &c. Mr. J. T. Earnshaw, C.E., Town Hall, Ashton-under-Lyne.
 R. C. Fish, Aston-under-Lyne ... Underwood ...

J. W. Brierley ... * Accepted as per schedule prices.

BARNESLEY.—Accepted for the construction of sewers, &c., for the Hoyal Urban District Council. Mr. W. Farrington, C.E., Town Hall, Hoyal, near Barnsley.
 Alex. Brunton and Son, Hull ... £1,292 19 11
 Engineer's estimate, £1,397 138 6d.

BASSALLER (Mon.)—For the erection of four pairs of cottages, for Mr. C. D. Phillips, "Gaer Fach," Newport (Mon.).

Baglow ... £2,103 Partridge ... £1,995
 J. Davies ... 2,095 A. S. Morgan and Co. 1,806
 J. T. Morris ... 2,080 C. H. Reed ... 1,801
 J. Moore ... 2,080 J. Charles, Newport* ... 1,744
 E. C. Jordan ... 2,063 * Accepted.

CAMBRIDGE.—For erecting Professors' houses at Westminster College, Cambridge. Mr. Henry T. Hare, architect, 13, Hart-street, Bloomsbury-square, W.C. Quantities by Mr. G. Fleetwood, 3, New-court, Lincoln's Inn, W.C.

S. F. Halliday ... £4,123 W. Bell and Son ... £3,998
 S. F. Halliday ... 4,050 W. Saint (accepted) ... 3,876
CORK.—For alterations to 88, Old George's-street. Mr. D. J. Buckley, architect, 21, Adelaide-street, Cork.
 J. H. O'Connell ... £254 J. Buckley, Lancaster
 L. Dugan ... 230 Quay, Cork

DOVER.—For the erection of "The Corner Cottage," St. Margaret's Bay, near Dover, for Mr. F. W. Speaight. Messrs. Worsfield and Hayward, architects, Dover. Quantities by Mr. C. F. Poland, 6, John-street, Bedford-row, W.C.

R. Webster ... £1,975 T. T. Denne ... £1,796
 Austin and Lewis ... 1,936 G. H. Denne and Son 1,775
 Hayward & Parnor ... 1,839 J. J. Wise, Deal* ... 1,683
 H. Roffey ... 1,798 * Accepted.

DOVER.—For the erection of a workshop, &c., Marton, for the Town Council. Mr. H. E. Stigoe, C.E., Town Hall, Dover. Quantities by the Borough Engineer.
 J. Parsons ... £439 12 2 Austin and Lewis £389 8 0
 Geo. Monro ... 422 17 2 H. B. Ellis, Dover* 381 18 6
 Engineer's estimate £375

EPPING (Essex).—For additions to isolation hospital, Theydon Garmon, for the Rural District Council. Mr. E. Egan, architect, Holmdale, Loughton. Quantities by Mr. J. E. Holden, 39A, Lombard-street, E.C.

Building. Drainage. Total.
 T. W. Foster, Loughton £2,000 0 0 £156 10 0 £2,156 10 0
 E. West, Chelmsford ... 1,820 0 0 168 0 0 1,988 0 0
 W. Radley, Chirwell ... 1,690 10 0 290 0 0 1,980 10 0
 W. Lawrence, Waltham Abbey ... 1,747 0 0 163 10 0 1,910 10 0
 W. J. Cuthbert, Loughton ... 1,759 10 0 148 5 0 1,907 15 0
 T. Keen, Theydon ... 1,660 3 9 145 0 9 1,805 4 6
 J. Davey and Son, South Ockendon ... 1,679 0 0 116 0 0 1,795 0 0
 * Accepted.

GLOUCESTER.—For the erection of horse-sheds, &c., at Cattle Market, for the Corporation. Mr. R. Red, Engineer, Guildhall, Gloucester. Quantities by Engineer.
 J. Gurney & Sons £798 0 0 E. Clutterbuck, Gloucester
 Freeman & Jones 695 16 10 cester, (accepted) ... £778 0 0

GODALMING.—For the erection of cemetery chapels and lodge, Eashing-lane, for the Joint Burial Board. Messrs. Weiman & Street, architects, Church-street, Godalming.
 F. Milton ... Harris & Son ... £2,925
 Mitchell Bros ... 3,079 G. Horn ... 2,819
 I. Lee ... 3,029 Bunning & Son ... 2,997
 Kinglee & Sons ... 2,997 Loughborough Park* 2,599
 * Accepted.

GREENHITHE.—For the erection of forty-eight cottages on the Stone Town Estate, for the Greenhithe Brick and Land Co. Ltd. Messrs. Dear and Winder, architects, 9, Southampton-row, W.C.

E. Jones ... £15,424 Whitelaw & Wright £11,465
 R. Walker ... 13,440 Dowell ... 11,376
 W. E. McGeorge ... 13,318 Try ... 9,650
 H. J. Stephens ... 13,000 Lane and Son ... 8,637

LLANELLY.—For the erection of a house at Crosshams, Llanelly. Messrs. J. Davies and Son, architects, Llanelly. Quantities by architects.

D. Wilkins ... £195 0 0 Evan Jones ... £166 10 0
 Lewis Davies ... 195 0 0 Daniel Jones, Gors-och, Llanddiebi* 160 0 0
 D. D. Mainwaring ... 186 10 0 * Accepted.
 Wm. Jenkins ... 172 0 0

LLANGENNECH (Wales).—For the erection of a villa residence. Messrs. Davies and Son, architects, Llanelly. Quantities by architects.

B. Howel ... £1,426 19 10 Lewis Brothers ... £1,010 0 0
 Son, Ltd. ... 1,336 4 5 W. Thomas, Llangennech* ... 968 4 0
 John Evans ... 1,246 14 0 * Accepted.

LLANGENNECH.—For the erection of a house at Llangennech. Messrs. J. Davies and Son, architects, Llanelly. Quantities by architects.

Lewis Bros ... £461 8 10 John Evans, Erw, Wm. Gregory ... 417 0 0 Llanelly* ... £347 0 0
 Wm. Thomas ... 390 0 0 David Jones ... 324 0 0
 * Accepted.

LONDON.—For rebuilding No. 15, Devonshire-square, E.C., for Messrs. Clapham, Fitch, and Co. Mr. Howard Chaffield Clarke, architect, 63, Bishopsgate-street Within, E.C.

Hall, Beddall and Co. £4,831 Patrick and Son ... £4,648
 Brown, Son & Blomfield 4,783 J. Smith and Sons ... 4,497
 C. P. Roberts ... 4,783 Ashby and Horner ... 4,479
 E. Lawrance and Sons 711 Woodward and Co.* ... 4,400
 * Accepted.

LONDON.—For the erection of warehouse at Gun and Shot Wharf, Tooley-street, for Mr. Graves. Messrs. Waterman and Lewis, architects.

E. A. Roome ... £15,217 Munday and Son ... £13,908
 Outwaite and Son ... 14,712 Ashby and Horner ... 13,871
 Greenwood ... 14,230 Kilby and Gayford ... 13,421
 Howell J. Williams ... 14,206

LONDON.—For pulling down and rebuilding the "Green Dragon" public-house, Berners-street, for Mr. De Groat. Messrs. Elkington & Son, architects.

Batley Son & Holmes £5,007 W. H. Castle ... £4,777
 Smith & Sons ... 4,848 Howell J. William ... 4,700
 F. & H. F. Higgs ... 4,823 Carmichael & Son ... 4,397
LONDON.—For alterations and additions at the "Vine Tavern" public-house, Broad-street, Ratcliff, E., for Messrs. Holt & Co. Mr. Fred. A. Ashton, architect, 177, Romford-road, Stratford, E.

T. & H. Cocks ... £1,089 | A. E. Symes ... £1,040

LONDON.—For the erection and completion of two factories in Ward-road, Stratford, for Messrs. Morris Streimer & Co. Mr. John Pugh, architect.

A. Reed & Son ... £4,522 Sheffield Bros. ... £3,769
 C. P. Roberts ... 4,458 W. Gladding ... 3,695
 Gregar & Son ... 4,168 G. Hockett ... 3,570

LONDON.—For alterations, &c., at Tottenham Court-road Police-station, for the Receiver for the Metropolitan Police District. Mr. J. Dixon Butler, architect. Quantities by Mr. W. H. Thurgate.

Patman & Fotheringham ... £14,910 Higgs and Hill ... £13,784
 Chessum & Sons ... 14,562 Sydney Hart ... 12,937
 Holloway Bros. ... 14,476 Lawrance and Sons ... 12,515
 J. Groves and Sons ... 14,397 T. Parker ... 12,390
 W. H. Lascelles & Co. 14,340 Lathey Bros. ... 12,300
 Scrivener and Co. ... 11,442

MANCHESTER.—For the erection of accident and outpatients' department at the Ancoats Hospital. Mr. W. Cecil Hardisty, architect, Manchester. Quantities by Mr. Charles Jackson.

W. Southern & Sons £6,252 0 R. Neill and Sons ... £5,996 0
 F. and E. Haynes ... 6,166 10 Wilson and Toft* ... 5,990 0
 R. Whittell ... 6,000 0 * Accepted.

MERTHYR TYDFIL.—For rebuilding "Glove and Shears" inn, Merthyr. Mr. C. M. Davies, architect.

E. Linsley ... £943 0 W. Jones ... £247 0
 J. Jenkins, Merthyr ... 840 15 M. Warlow ... 838 10
 Tydfil (accepted) ... 840 15 H. Evans ... 800 0
MOONEYHANY (Ireland).—For new church, for the Rev. P. Grant. Mr. Toye, architect, Strand, Londonderry.

R. Colhoun ... £3,500 0 0 J. McNally, Cooks- town, Co. Tyrone* £3,268 0 0
 J. Deeny ... 3,297 14 4 town, Co. Tyrone* £3,268 0 0
 * Accepted.

PENRHILWCEIR.—For the erection of the Osborn Hotel, Penrhilwceir, for Mr. W. W. Matthews. Messrs. Morgan and Elford, architects.

Watkin Williams, Pontypridd ... £2,660
PONTARDULAI.—Accepted for the erection of a house and shop, Hendy. Messrs. Davies and Sons, architects, Llanelly.

Geo. Hughes, Pontardulais ... £110
RUGBY.—Accepted for additions to schools, Long Lawford, for the Newbold-upon-Avon School Board. Mr. T. W. Willard, architects, Market-place, Rugby.

C. H. Rainbow, Rugby ... £350
SOUTHAMPTON.—For the erection of a pair of houses in Landguard-road, Southampton, for Mr. W. H. Abbott. Messrs. Jurd and Sanders, architects, 23, Portland-street, Southampton.

E. F. Barrow ... £1,498 | A. Warden* ... £1,295
 Hood and Rabbetts ... 1,360
 * Accepted subject to variations.

SLIGO.—Accepted for the erection of a residence at the workhouse hospital, for the Guardians of Sligo Union. Mr. W. F. Gilchrist, architect, Wine-street, Sligo.

George Kerr, William-street, Sligo ... £1,195
TENBURY.—For building a retaining wall, Kyre Brook, for the Rural District Council. Mr. R. W. Jarvis, Surveyor, District Council Offices, Tenbury.

Thos. Vale ... £240 Wm. Howells, Worcester-road, Tenbury* £167
 H. Hewitt and Sons ... 189 cester-road, Tenbury* £167
 * Accepted.

TOTTENHAM.—For pulling down and rebuilding Markfield House, Markfield-road, Tottenham. Messrs. Crawlers, architects, Cheshunt.

Stewart ... £1,126 Walter Lawrence, Waltham Abbey (accepted) £937
 Porter ... 1,000
 Hawley ... 950
TROEDRYHIW (Wales).—For the erection of eight houses, for Mr. E. Stephens. Mr. C. M. Davies, architect, 112, High-street, Merthyr Tydfil.

Wm. Lloyd ... £1,597 12 T. W. Davies ... £1,344 0
 M. Marlow ... 1,520 0 Jones and Jenkins, Abercynon, Pontypridd* ... 1,120 0
 J. Jones ... 1,520 0
 D. L. Jones ... 1,448 0
 J. James ... 1,376 0
 * Accepted.

WAKEFIELD.—Accepted for the erection of Wesleyan Sunday School, &c., South Kirby, for the Congress. Mr. G. F. Pennington, architect, Carlton-street, Castleford.

H. Gundle, South Gate, Pontefract ... £544
WOOLWICH.—For rebuilding Nos. 37, 39, 41, 43, and 45, Powis-street, Woolwich, for Messrs. Carter. Messrs. Church, Quick, and Whincom, architects, William-street, Woolwich.

Brading ... £4,700 Cheshire, Wallington* £4,200
 Holloway ... 4,394 Thomas and Edge ... 4,169
 Goad ... 4,300 Chapman ... 4,159
 * Accepted.

CONTRACTS OPEN.

TO BUILDERS, &c.

The Guardians of St. Marylebone desire to receive TENDERS for the ERECTION of a NEW MORTUARY at their Infirmary, Rackham-street, Notting Hill, W.

Persons desiring to Tender may obtain bills of quantities and a form of Tender, and inspect the specification and drawings any day from OCTOBER 3rd to 6th (both days inclusive) between the hours of TEN a.m. and FOUR p.m. upon application to the Guardians' Architect, Mr. A. SAXON SNELL, F.R.I.B.A., of 22, Southampton-buildings, Chancery-lane, W.C., and depositing with him a £10 Bank of England note, which will be returned to persons sending bona-fide Tenders in the manner and at the time stipulated.

Quantities by Messrs. NORTHCROFT, SON, and NEIGHBOUR.

Tenders must be signed, sealed, and endorsed "Tender for Infirmary Mortuary," and addressed and delivered to me at my Offices not later than TEN a.m. on MONDAY, OCTOBER 10th, 1898.

The Guardians do not bind themselves to accept the lowest or any Tender.

By order,
 HENRY T. DUDMAN,
 September 27th, 1898. Clerk to the Guardians.
 Guardians' Offices,
 Northumberland-street, W.

BOROUGH OF CHELTENHAM.

The Corporation of the Borough of Cheltenham invite TENDERS for the ERECTION of a NEW BOILER HOUSE at their Waterworks at Tewkesbury.

Plans, specifications, and conditions may be seen on application to the Water Engineer at the Municipal Offices.

Tender to be sent in to me, the undersigned, endorsed "Tender for Boiler House," at or before TWELVE o'clock at noon on WEDNESDAY, OCTOBER 12th.

The Corporation do not bind themselves to accept the lowest or any Tender.

E. T. BRYDGES,
 Municipal Offices, Cheltenham, Town Clerk.
 September 21st, 1898.

BOROUGH OF TUNBRIDGE WELLS. WORKMEN'S DWELLINGS.

The Corporation are prepared to receive TENDERS for the ERECTION of FIFTY-THREE four-roomed COTTAGES and FIVE BLOCKS of TENEMENTS.

Plans and specification may be seen at the Borough Surveyor's offices, and quantities and forms of Tender obtained from me on payment of Two Guineas, which will be returned on receipt of a bona-fide Tender.

The Corporation do not bind themselves to accept the lowest or any Tender. By order,

W. C. CRIPPS,
 Town Hall, Tunbridge Wells. Town Clerk.

TO BUILDERS AND CONTRACTORS.

The Committee of the Croydon General Hospital invite TENDERS for the ERECTION of a NEW WING, &c.

The drawings and specifications may be seen at the Office of the Architect, Mr. CHARLES HENMAN, 64, Cannon-street, E.C., on and after THURSDAY, 29th instant, and bills of quantities there obtained on payment of £3, which will be returned to those who send in a bona-fide Tender.

Tenders to be delivered at the Hospital, London-road, West Croydon, before SEVEN p.m. on FRIDAY, OCTOBER 7th, 1898.

The Committee do not pledge themselves to accept the lowest or any Tender.

By order,
 JOHN JONES,
 Croydon, September, 1898. Secretary.

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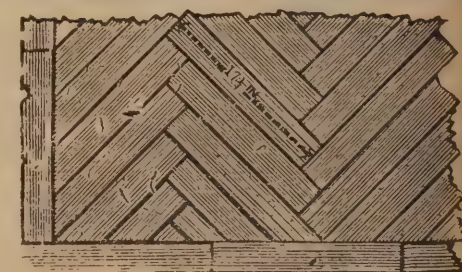
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SANITARY CONGRESS.

THE INSTITUTE'S PURPOSE AND PROGRESS.

PRACTICAL PAPERS.

BIRMINGHAM has been immersed in sanitary science during the past week. The Sanitary Institute—an organisation which aims at the advancement of sanitary science in all or any of its branches and the diffusion of knowledge relating thereto—has been holding its seventeenth congress there. To know and appreciate how much the Institute has done to ensure the enforcement of the laws of health, to diminish the death-rate, and generally to promote the happiness of the people by improving their physical and moral condition, it is necessary to push back the calendar twenty-two years; to look back to the time when the Sanitary Institute first became a practical force in the country. A flood of light is thrown upon the state of things existing in those days, in the description of Sir Henry Burdett, one of the founders of the Sanitary Institute. The public, we are told, were

IGNORANT AND INDIFFERENT

to the importance of sanitation. The bulk of the members of the medical profession were sceptical as to its value, and disinclined to recognise it as a force by the utilisation of which they could materially improve the public health. Very few houses were properly drained; most of the Government houses, and even the Queen's palaces, were very insanitary. There was an absence of provision for the isolation of infectious diseases, and the adequate treatment of infected patients. The water supply nearly everywhere was indifferent or defective, and the systems of drainage, in many places, were bad. The mortality in the best hospitals after serious surgical operations was 37·8 per cent. There was little

LITERATURE ON THE SUBJECT OF SANITATION,

and that which existed was mostly buried in Blue Books not readily accessible. There was no test of competence, and no means of training persons as sanitary officials. Local surveyors, inspectors of nuisances, and even medical officers of health were all without special training or qualification, and did not possess accurate knowledge or information. Little wonder was it that the Government had been appealed to on the subject. The National Association for the Promotion of Social Science and the British Medical Association both made a clear demand for an authorised inquiry into the defects of the sanitary laws. The

PASSING OF THE PUBLIC HEALTH ACT,

which came into operation in 1875, was an important advance in those days of imperfect sanitary conditions. The feeling soon began to spread that the increasing importance attached to sanitary science, and the recognised position it was assuming in the public mind, pointed to the need of a society devoted exclusively to the advancement of all subjects bearing upon public health. "The Sanitary Institute of Great Britain" was the direct outcome of this feeling, an initial meeting, held at St. James's Hall, London, in July, 1876, under the presidency of the Duke of Northumberland, resolving upon the formation of the society "for the purpose of collecting and imparting information upon all matters connected with the subject of public health." The meeting was impressed with the fact that the sanitary condition of the country was still very unsatisfactory, and that further legislation was necessary with a view to its improvement. That the aspirations of the founders have been largely realised in one important respect may be gathered from statistics. The mortality in regard to the more serious surgical operations in hospitals has fallen from 37·8 to something like 2 per cent., whilst the number of these operations has increased a hundredfold. So much for the sanitary conditions in which the early days of the Institute were enveloped. Having been formed in 1876 the good, practical side of the

Institute's being quickly showed signs of development. One of the primary steps was to establish examinations for local surveyors and inspectors of nuisances, and the first examination was held in October, 1877, when eight candidates presented themselves. The fact was at this time pretty plainly revealed that candidates for appointment as sanitary officers had considerable difficulty in obtaining knowledge of the principles of sanitation. To overcome this disadvantage the Council established

SYSTEMATIC COURSES OF INSTRUCTION

suitable for these officers. In 1890 the examinations, until then held in London, were extended to the provinces, and, proceeding in the good work, the following year saw the training lectures for sanitary officers also extended to the provinces, and arranged in conjunction with the County Councils. In the Public Health (London) Act, which was passed in that year, the Institute was able to obtain the insertion of a clause requiring all Sanitary Inspectors in London, appointed after January 1st, 1895, to hold a certificate of qualification. Passing on to 1892, we find a further step in advance. Steps were then taken for adding practical demonstrations to the course of lectures for sanitary officers, and visits for the students were arranged to sewage works, water works, trade premises, and other places that would be instructive from a sanitary point of view. These practical demonstrations were considerably extended, and were elaborately organised in the following year. A suggestion was made by the Royal Meteorological Society, and by it to the Sanitary Institute, that many medical officers of health and others would be glad to gain some information on the important question of weather and climate in relation to health and disease. As the question involved both meteorology and hygiene, it was thought well by the respective Councils that the two should jointly arrange a course of lectures upon the subject. It was known that many persons, having no intention of becoming sanitary officers, yet were wishful to obtain

A CERTIFICATE FROM THE SANITARY INSTITUTE indicating their knowledge of sanitary science, and to meet this class the Council arranged a syllabus which, while not including many technical subjects that an inspector is required to know, is of a higher standard than the inspectors' examination as far as it relates to practical sanitation. The examination is arranged so as to be suitable for foremen of works, builders, and those engaged in allied trades, managers of property, teachers, and lecturers, and others requiring a thorough knowledge of the practical sanitary science. The question of extending the examination scheme to the Colonies is still under the consideration of the Council. A tabulated record shows that since they were established in 1877, there had, up to last year, been 35 examinations for local surveyors; 291 candidates entered, and 142 were certificated; in practical sanitary science there were 15 examinations, 159 candidates entered, and 83 were certificated; and there were 96 examinations for sanitary inspectors, 4333 entered, and 2493 were certificated. Therefore, in the 20 years 146 examinations were held, 4783 candidates entered, and 2718 were certificated. In the same year that the Sanitary Institute was formed the

PARKES MUSEUM OF HYGIENE

was instituted as a permanent memorial of Dr. Edmund Alexander Parkes, the first Professor of Hygiene at Netley. After working together for five years the Sanitary Institute and the Parkes Museum were amalgamated and reincorporated under the title of "The Sanitary Congress," the words "of Great Britain" being deleted. The Museum in Margaret Street is now recognised by the Science and Art Department in connection with their classes, and the class visits paid by students to the Museum may be counted as a class attendance for the purpose of the examination grant. The diffusion of sanitary knowledge is still further aided by meetings which are held for the reading and discussion of papers; by means of a library containing works on hygiene and sanitation, Parliamentary

and other official reports, and transactions of other societies; and through the medium of the "Transactions," which are published in the form of a quarterly journal. Naturally the provincial congresses, such as the one held in Birmingham during the past week, are looked upon as the most important means of spreading the advantages of the Institute throughout the country. Connected therewith is the Health Exhibition, which opened at Bingley Hall, on Tuesday of last week, an institution which has been associated with the meetings of the Institute since the first Congress at Leamington Spa. As we have already noted, it is an exhibition of up-to-date sanitary apparatus and appliances, and medals and certificates are awarded by a special staff of judges, the system adopted being notable for its uniformity. We hope to deal in detail with this exhibition in our next issue.

PRESIDENTIAL ADDRESS.

The inaugural proceedings of the Congress opened on Tuesday of last week. The feature of the first day was the presidential address delivered by Sir Joseph Fayer. Sir Joseph said: We lived in an age of progress and discovery. Intellectual activity had never been greater, scientific research never more profound or far-reaching, whilst the practical applications of the discoveries of science were not less remarkable. Among many subjects of interest which were laid before the Queen on the completion of the sixtieth year of her glorious reign, few, perhaps, afforded better ground for congratulation than the improvement in the vital statistics of her people, as shown by reduced death-rate, enhanced expectation of life, decline in some of the most potential death causes, and the almost total disappearance of others. In effecting this improvement the Institute had taken an important part. The object which it had kept steadily before it from the outset had been the advancement of sanitary science by the promulgation of sound scientific and practical teaching of those principles on which health depended, by which life was prolonged, and the physical, and thereby the moral, welfare of the people promoted. As an illustration of the progress made, it might be stated that when the first Congress took place in 1877, there were 150 members, and the income was £240. In 1896 the members were 2100, and the income £6000. In 1877 five candidates were examined for certificates; in 1896 521 were examined, of whom 300 obtained certificates. The time at his disposal did not permit him to trace in detail the history of

THE GROWTH OF SANITARY SCIENCE

from times of ignorance and superstition to its present well-established foundation on a scientific basis. It was only comparatively recently, however, that preventive, as distinguished from curative, medicine had assumed the position of a science. It was now, from a hygienic point of view, the more important of the two, though the difficulties attending its application were still considerable, and largely such as arose from ignorance and incredulity. Half a century ago the great mass of the population lived and died under conditions which violated all the now well-known principles on which health depended, but measures which were then regarded as mere theories or fads of no practical value, were now accepted as of cardinal importance. Statesmen had learnt to realise that sanitary science came well within the sphere of practical politics, and that it was an important part of the duty of executive governments to protect the people from disease which might be prevented or controlled. Acts of Parliament, officers of health, sanitary engineers, and sanitary inspectors had produced a better state of things, and the poor were no longer left to be a law unto themselves. Public health was cared for in a sense which was utterly unknown in the past; and, were all the existing official provisions enforced, little would remain to be desired on the part of the Executive Government, but as some of the Acts were permissive and not compulsory, and as others were utterly neglected, much of the benefit they might confer was lost. Though education had done much as far as the better classes were concerned,

and though upwards of 200 millions had been spent on sanitary work, with great benefit to the public health, popular teaching and example, and the general diffusion of education, were still necessary in order to convince the proletariat of what so intimately concerned their vital interests. The death-rate was susceptible of further diminution, expectancy of life might still be enhanced, and the general conditions of living and exemption from certain forms of disease were by no means as perfect as they might be, and it would perhaps not be until the more complete organisation of the public health administration, under a minister of public health, was effected that the full benefits of sanitary legislation would be realised, and the people attain to that standard of health and duration of life for which they had a right to hope. Even the great cities, with all their improvements, left much to be desired. Birmingham, according to the journals, notwithstanding the splendid municipal arrangements for which it was remarkable, had still a higher death-rate than some other great cities. Since 1882 up to 1897 it had stood at from 21.6 to 20.2, and the same authority pointed out sanitary defects which one might venture to think could be ameliorated. Nevertheless, when the present state of the country, with its 31 millions of inhabitants, was contrasted with that of

THE ELIZABETHAN ERA WITH ITS FOUR MILLIONS,

there was ample proof of the ignorance of science in those days and of the great improvements which have taken place in these. Many of the diseases of that time had disappeared—never, it was hoped, to return—and others had been mitigated. But could they feel confident that the immunity would continue? He was afraid not. Sudden invasions of cholera and other epidemics, and, as now, of plague in India, were warnings that vigilance must never be relaxed. But the experience of the country under the greatly-improved sanitary administration of the present time had shown how much they might rely on preventive measures wisely enforced, especially when they were based on experience and enlightened observation, and not upon mere theories of causation. A brief inquiry into the statistics of some well-known diseases would show that they had become less severe in their incidence, if not less frequent in their recurrence. The scope and aim of sanitary science in its preventive aspects should not be limited to the consideration of zymotic and other acute diseases, but should extend to the results of abnormal social conditions arising out of the strain and struggle for existence. The influence exerted on vital statistics by sanitary science might be seen by reference to the returns of the Registrar-General. One indication of its effect was observed in the death-rate of the country. In 1841-50 it stood at 22.4 per thousand; in 1891-95 at 18.7 per thousand; but for the four years 1890-1893, it had risen owing to epidemic influenza—the lowest rate, 1884, having been 16.6 per thousand. It was susceptible of

CONSIDERABLE MODIFICATION,

and, as they knew how it might be increased or diminished, it behoved the nation to exert its power and stand credited with the lowest figure. In fact, it was, within certain limits, at their own control, and whether the people should die at the rate of 13 or 23 per thousand depended on how they recognised their responsibility and put in force sanitary regulations. Sanitarians could say how it was to be done, and were perpetually saying it; but more money, more faith, more energy were needed to deal with the question satisfactorily. The death-rate has fallen proportionately more in the towns than among the rural population. Statistics showed that in 1838 to 1854 the mean expectation of life was for males 39.81, for females 41.85 years. From 1871-80 it had increased to 41.35 for males and 44.66 for females. When registration commenced, the mean duration of life in Surrey was 45 years. It was not more than 37 years in the metropolis and 26 years in Liverpool. Now the mean duration of life throughout the whole of England and Wales was higher than

the first-named figures. Eventually, a great future was before preventive medicine, and they might confidently look to the eminent men of science who were now pursuing with such indefatigable zeal their researches into the mysteries of bacteriology for its fulfilment. But those who admired and appreciated their work the most, and looked forward hopefully to its results, were anxious that progress should not be retarded by hasty deduction and premature generalisation, which might only end in disappointment. He ventured to suggest that however great might be the importance of the study of bacteriology, and the various conclusions resulting from it with regard to the origin, diffusion, and prevention of disease, there were other factors of no less importance to be considered, and it could only be by the study of all those that we could hope to arrive at the complete knowledge which would enable them to fulfil the requirements of sanitary science. Whilst on the one hand it was of the utmost significance that they should be able to demonstrate the actual cause, whether a micro-organism or not, on the other hand it was not of less—nay, from a practical sanitary point of view it was of more—importance that they should know all the conditions under which that cause became effective.

MUNICIPAL AND COUNTY ENGINEERS.

Addressing a conference of municipal and county engineers, Mr. T. de Courcy Meade, as president, said the duties of the municipal engineer had been divided into six heads, which embraced no less than ninety-eight distinct subjects. It was, therefore, not surprising that the municipal engineer should always be a student, anxious to learn all that was new, and desirous to benefit by the experience of other engineers. It should not, however, be forgotten that the communities, whose representatives they served, reaped the benefits of the knowledge thus gained. The housing of the working classes, although a well-worn topic, was likely to be of interest. The difficulties of providing sufficient suitable accommodation at a reasonable cost were great, but in Manchester they had been overcome by the erection, on the cleared sites, of blocks of five-storied tenements, approached by common stairs and balconies; blocks of tenements of two and three rooms, with separate entrance and stairs to each set of tenements; terrace cottages of five rooms each, and a model lodging-house. The Manchester Corporation were also erecting cottage dwellings in the outskirts of the city, about two and a half miles from the cleared areas, where land was less costly. These cottages varied somewhat in character, and each contained from five to seven rooms. Much work had also been done in the improvement of existing dwellings and the conversion of "back-to-back" houses into "through" houses. This work, though excellent where it was effected, had a tendency to cause over-crowding elsewhere, as the number of persons that could be accommodated in the converted and improved dwellings was much less than was crowded into the "back-to-back" houses before alteration. The substitution of private water-closets for common pail-closets and privies was gradually proceeding, the water system being provided whenever alterations to property were effected by the Corporation.

NEW STREETS AND BUILDINGS BY-LAWS.

Several sectional meetings were held on Wednesday, the second day of the Congress. Mr. J. S. Pickering (Nuneaton) read a paper on "By-laws Relating to New Streets and Buildings." It was true, he said, that the by-laws made since the passing of the 1875 Act generally adhered closely to the "model" series of 1877, but this was not so much on account of their general suitability to the districts for which they were adopted as to the fact that the Local Government Board would not sanction any important departure from their "model" code. The result was that many authorities possessed no by-laws, others depended upon by-laws of doubtful validity, made under former Sanitary Acts, while the great majority did not enforce the particular by-laws they had been compelled to include in adopting the "model" series. The varying

circumstances of different districts, he contended, made it impossible to frame a series of by-laws applicable to all. By-laws, for instance, affecting new streets and buildings in large towns, would be altogether unsuited to the requirements of the villages of rural districts. But obvious as that was, it was a matter which was overlooked, and accounted for the absence of by-laws in many rural sanitary districts. It appeared to him that many provisions contained in by-laws might with advantage be incorporated in the Sanitary Acts, making them statutory enactments rather than measures to be adopted at the option of local authorities. By-laws should also be made less comprehensive.

SEWER VENTILATION.

Mr. T. J. Moss Flower read a paper on "Precautions to be Observed in the Ventilation of Sewers and Drains." The object aimed at was to prevent the evolution of gases, and to carry harmlessly from the sewers the gases that could not, owing to the physical conditions that existed in sewers, be prevented. With good falls and plenty of flushing all foul matter could be removed before decomposition set in, and unless that could be done a nuisance must arise. Sewers of deposit should be reconstructed, and surface gratings not fixed in narrow streets. Shafts should be fixed to the tallest buildings. High factories and churches might well be used for fixing the shafts to, and the gases so delivered could not do harm. The law should allow of local authorities fixing sewer vents to the houses. In drains the disconnecting trap should be of a self-cleaning nature.

SEWAGE DISPOSAL.

Much interest seemed to be aroused by two papers on sewage disposal. The Rev. Dr. C. Cox read a paper on "Village Sewerage Schemes: Experiments in the Rural District of Brisworth." The moral he drew from these experiences was that rural authorities with small populations should try every other expedient before resorting to water carriage, and that pressure that should be brought to bear upon the Local Government Board to remodel its procedure, and no longer sanction loans for tiny filtration beds with a clay subsoil.—Alderman Compston (Rawtenstall) read a paper entitled "Sewage Disposal and Official Hindrance," in which he said that the natural difficulties were usually augmented by the withholding by the Local Government Board of its sanction from any method, no matter how suitable for efficient local conditions, unless vast areas of land were purchased also. The writer instanced Maidstone, which had an obsolete and most execrable system of sewers, which it was prevented in this way from reconstructing. In the crowded parts of Lancashire this was a very serious question.

PUBLIC SLAUGHTERHOUSES.

Mr. E. Parkes, M.P., read a paper on "Municipal Authorities and Public Slaughterhouses," in the course of which he gave, with the aid of plans, an account of the Birmingham new meat market and slaughterhouses. He urged that the existence of so many private slaughterhouses, often in a very insanitary condition, and placed in the midst of a dense population, was one of the greatest drawbacks they had in England in dealing with the whole subject. Their Parliamentary powers were insufficient to deal with the evil. In the case of new communities and new areas in this country no doubt it could be and was being dealt with, but in the large towns vested interests were so sacred and the number of registered and licensed slaughterhouses was so numerous that they presented an almost impassable barrier to those who desire to see things altered for the better.

(To be continued.)

AN English syndicate has been formed for the purpose of constructing an electric railway to connect Italy and Switzerland. The proposed line would pass over the great Saint Bernard mountain from Aosta to Martigny, and would be about 45 miles long. The cost is estimated at 15,000,000 francs.

PRACTICAL CARPENTRY AND JOINERY.*

By GEORGE ELLIS.

(Continued from page xlv.)

X.—SHUTTERS.

SHUTTERS may, for the purpose of description, be conveniently divided into two kinds, exterior and interior, each kind having special requirements to fulfil; of the latter there are three varieties—viz., boxing, sliding, and rolling; of the former four, hinged or wall shutters, framed or lifting ditto, revolving or spring ditto, and Venetian or louver.

BOXING SHUTTERS, so termed because they fold into a boxing or recess formed between the window frame and the surface of the wall, are composed of a number of narrow leaves, panelled or plain, rebated and hinged to each other, and to the window frame; they must be of such size that when closed they will cover the entire sight line of the window and a margin of at least $\frac{3}{4}$ in. in addition. They must be arranged to swing clear of the edge of the boxing, and so as not to bind upon the window board, or rub the soffit. The first of these clearances is effected by making each leaf of the shutters smaller than the one immediately in front of it; and the latter, by thin guard beads, planted on the faces of window board and soffit, as shown in the sectional elevation (Fig. 161). The leaf that becomes the outer one when the set is inclosed is termed the front shutter, all the others being known as flaps; in some instances the flaps are too narrow to frame, and a plain board is used, but it should always be mitre-cramped to prevent warping. It is not advisable to make the shutters less than $1\frac{1}{4}$ in. thick, and all flaps over 8 in. wide should be framed; when the number of flaps required to cover the window necessitates too deep a boxing to be inserted in a square reveal, the difficulty may be overcome by splaying the jambs, thus obtaining increased width of shutter, and consequently fewer flaps, as shown in Fig. 162, which is an example of a splayed boxing for a 3 ft. 6 in. window in an 18 in. wall; or otherwise, the boxing may be projected into the room and covered with a wide architrave or pilaster, as at B, Fig. 160. The boxings in work of a superior class are covered by a moulded frame termed the cover flap hung to the architrave so that it may swing to permit the passage of the shutters, and to be closed again afterwards, thus restoring the symmetry of the linings. When Venetian or other blinds are used inside, provision for them must be made by affixing a block frame of the required thickness to the sash frame, and hanging the shutters thereto as shown at a plan B, Fig. 160 and also in Fig. 161. This frame should be out of stuff, 3 in. by 2 in., tongued and glued to the sash-frame, and where a cover-flap is used as at B, Fig. 160, the jambs of the blind frame must be worked to a mitre, and a small flap, of sufficient width to carry the remaining flaps to the back of the boxing must be mitred and hung thereto, a $\frac{1}{2}$ in. stop must also be worked or planted on the face of flap for the cover to strike against when the shutters are folded. In the example given, the hanging

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FIG. 161. SECTIONAL ELEVATION OF BOXING SHUTTERS.

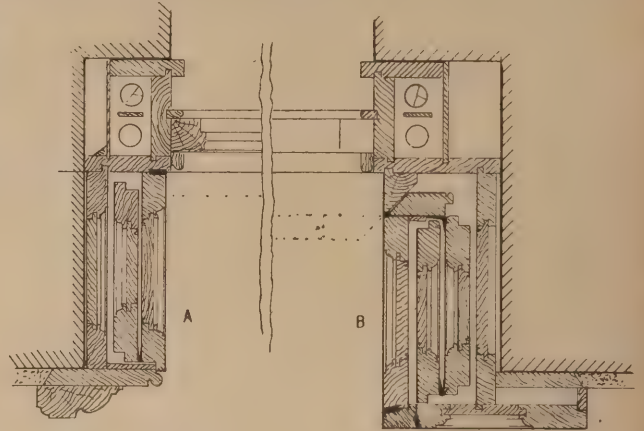


FIG. 160. TWO HALF PLANS OF BOXING SHUTTERS.

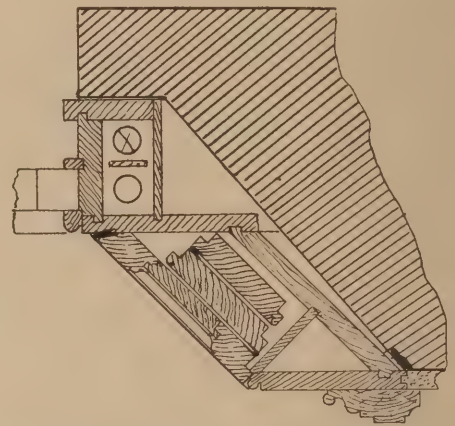


FIG. 162. PLAN OF SPLAYED BOXING.

stile of the framed pilaster is made in two pieces down to the bottom of the boxing, and hinged together, a small bead being stuck on one edge to break the joint; this is for the purpose of obtaining the necessary clearance to close the cover when the shutters are out, and which is then stopped by the rebates of soffit and window board. The back lining of the boxing is fixed to the grounds, and the pilaster grooved and glued to the lining. It will be seen by reference to Fig. 161 that a curtain-box is provided outside the shutters by carrying a cornice with returned ends across the opening, and lining the edge of soffit. Butt hinges are used for hanging the shutters and covers, but wider flanged hinges, called back-flaps, are used for the flaps, and are screwed upon the back face instead of the edges. A flat iron bar hung on a pivot at one end to the first flap, and having a projecting stud at its other end, which is entered into a slotted plate on the opposite flap and kept in position by a kind of button, secures the shutters when closed; when open, it hangs down in a vertical position between the flaps. In arranging these finishings to a window, the stiles of the elbow linings and soffit should be made to range with those of the shutters, and the stiles of the window back to show a similar margin; the stiles of the

window back should be wide enough to run behind the elbows, and the latter be tongued and glued into it.

VERTICAL SLIDING SHUTTERS, Figs. 163 and 164, are used in houses of an inferior class to the above, as being more economical in construction than boxing shutters; they consist of two thin panelled frames the full width, and each half the height of the window, hung on pulleys in a cased frame, in a similar manner to a pair of double-hung sashes. The frame extends from the floor to the soffit, and the window board is hinged to the front panelling; when this is lifted, the shutters can pass down below it, and lie hidden from sight during the day by the window back. Cover flaps hung to the outer linings on each side, close over the face of the pulley stiles, and hide the cords. When it is desired to close the shutters, the cover flaps are opened back flat, the window board lifted, and the shutters run up, a pair of flush rings being fixed in the top rails for this purpose. The window board is next shut down, the inner shutter brought down upon it, the outer one pushed tight up to the head, and the meeting rails which overlap an inch, fastened with a thumbscrew. The bottom rail of the upper shutter is made $\frac{1}{2}$ in. wider than the other rails for the purpose of showing an equal margin when overlapped. Where there is not sufficient depth between the window sill and the floor to receive the shutters, the casing must be carried below the floor, and the joists trimmed or cut back as in Fig. 164—this is a vertical section through the window opening showing the framed window back, with the window board hung to it, and rebated into the bottom rail of a blind frame. The shutters are "down." In the right hand half plan, Fig. 163, the window board and cover flap are closed; in the left half, these are open ready for the lifting of the shutters. Square lead weights are generally used for these frames, as the space is limited, and the shutters heavier than sashes of a corresponding size.

(To be continued.)

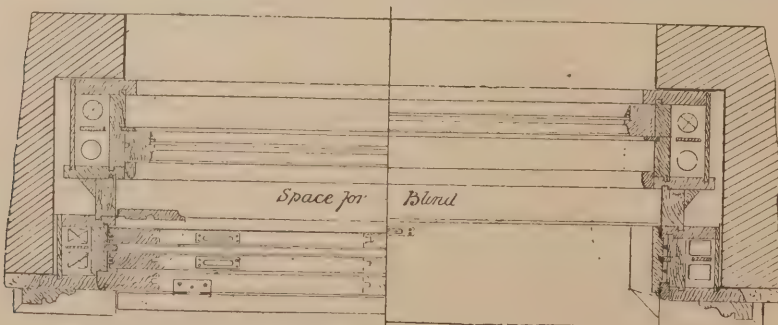


FIG. 163. SECTIONAL PLAN OF SLIDING SHUTTERS.

Surveying and Sanitary Notes.

THE Bristol Sanitary Committee have discussed in private the report of Messrs. Taylor, Sons, and Santo Crimp on the question of the disposal of the city sewage. The scheme for discharging the sewage at Avonmouth and Dunball was most favoured by the committee. The engineers estimated the cost of the undertaking at £379,000, the sum required for repayment of capital and interest being £15,487, and, with an extra cost of £2000 for pumping, the annual expenditure would be about £18,000. It was estimated that after forty-five years the annual cost would be only £2500. The report will be sent on to the Council.

THE Sanitary Department of the City Corporation applied to his Worship for an order to have a house in Bow Street, the property of Rose Cunningham, closed as being dangerous to health. It was shown that the drainage was most defective, and the dwelling house was in need of limewashing. Sir Charles Cameron said the odour in the house was

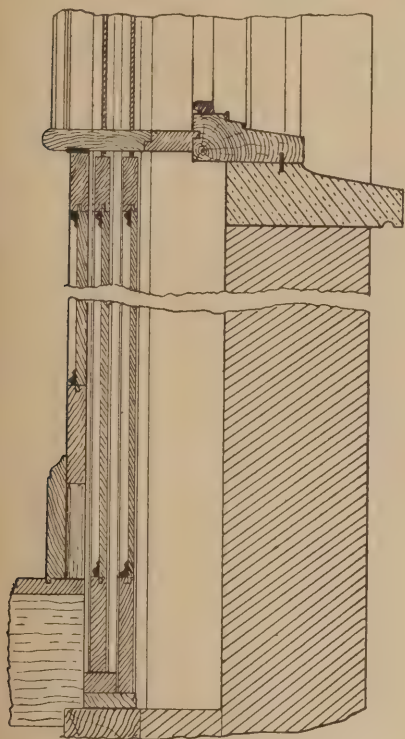


FIG 164. VERTICAL SECTION OF SLIDING SHUTTERS.

terrible, and there was an entire want of cleanliness, which was injurious to health. The order asked for was granted. Prohibitory orders were also made in the case of several other houses in which it was shown the sanitary accommodation was defective.

THE continuance of the long spell of hot and dry weather (says "The Public Health Engineer") is occasioning a considerable amount of concern at Birmingham. Owing to the enormous increase in the population and the extension of the city boundaries, the supply of water under normal conditions does not allow much margin. The Welsh water scheme is being pushed forward as rapidly as possible, but a very long period must elapse before water from this source is available. The danger of a water famine is imminent, unless there is a break in the weather very soon. The streams from which a considerable proportion of the daily supply is obtained are yielding very much diminished quantities, and demands have to be made upon the reservoir storage to an extent which is causing the Water Committee to look to the future with

alarm. Appeals have already been issued to the public to curtail as much as possible the use of water, and the department themselves have restricted the watering of the streets to a narrow area in the centre of the city.

DAILY conferences take place between the city authorities upon the subject, and it is anticipated that an intermittent and restricted supply will have to be resorted to unless there is a fall of rain within the next few days. A considerable amount of inconvenience is being caused at ironworks in the district both by the heat and the drought. Mills and forges are standing, the puddlers being unable to work the day shifts at the fires; but the nights are comparatively cold, and night turns are general. The water supply at many works has been obtained from streams, but these have dried up, and where large quantities are used temporary provision has not been possible, and the works are standing. It is many years since there has been so much interruption to work on account of the weather. Traffic on the Grand Junction Canal between London and Birmingham is seriously impeded. The supply of water is so low that only reduced loads can pass along in the boats. Traffic on the Aylesbury and Wendover branch is entirely stopped. Such shortness of water in the canal has not been known for half a century. Through the drought the supply of canal reservoir water has been exhausted, and the Grand Junction are now pumping back lockage water.

MR. UNDER-SHERIFF BURCHELL and a special jury, at Red Lion Square, Holborn, heard the case of "Hill's Trustees v. the School Board for London." This was a claim for compensation in respect of the freehold interest in premises, Nos. 70, 72, 74, and 74a, Tanner Street, and Nos. 1 to 8, Assembly Place, Bermondsey, the site being required for a Board School. Mr. Littler, Q.C., and Mr. Bartley Dennis appeared for the claimants; Sir William Marriott, Q.C., and Mr. A. J. Ram represented the School Board. Mr. Littler stated that the property had been in the possession of the claimants since 1874, and had steadily increased in value, especially since the opening of the Tower Bridge and the extensive clearance of property in the vicinity. He called Mr. E. H. Eason (Messrs. Reynolds and Eason), who stated that the area of the property in question was 14,730ft., which he valued at 4d. per foot per annum, or £245 10s., and capitalised at 25 years' purchase, £6137. From that he deducted £452 in respect of existing leases, making £5685, to which he added £933 for the buildings and 10 per cent. for compulsory sale, making a total claim of £7280.—Mr. James F. Field (Messrs. Field and Sons), ex-president of the Auctioneers' Institute, and Professor Bannister Fletcher gave confirmatory evidence.—On behalf of the School Board, Sir William Marriott admitted that property in Bermondsey had been increasing in value owing to the erection of the Tower Bridge, but the fact that the property in question had not been included in the betterment area of the Tower Bridge (Approaches) Bill showed that it was not likely to be enhanced in value. He called Mr. Samuel Walker (Messrs. Walker and Sons), who valued a portion of the land at 4d. per foot, and the remainder, back land, at 2d. per foot, as a cleared site. His detailed valuation amounted to a total of £3948, to which he added 10 per cent., the customary allowance for compulsory sale, making £4340.—Mr. W. P. Goulding, Mr. David Burnett (Messrs. Bean, Burnett, and Eldridge), and Mr. J. R. Cooper (Messrs. Ventom, Bull, and Cooper) gave similar evidence as to value.—The jury awarded the claimants the sum of £6150, plus an allowance of 10 per cent. for compulsory sale, £615, making a total compensation of £6765.

THE reconstruction of the sea wall and promenade at Herne Bay, which were so extensively damaged in the destructive gales of last November, is to be proceeded with at once, the cost being estimated by Mr. Baldwin Latham at £40,000.

Builders' Notes.

ALL of us are aware that the cost of building operations has increased to an enormous extent within the past year or two, but few, probably, save those immediately interested, have any conception of what the advance has really been. A year ago £1100 was paid to a builder for the erection of a villa in a northern suburb. To-day the builder requires an additional £300 for the erection of a sister villa in the same thoroughfare.

At the Westminster Police Court last week the summons taken out by the London County Council against the owner of Abbey Mansions (north block), Victoria Street, Westminster, under the dangerous structure clauses of the London Building Act, again came before Mr. Marsham. Mr. Pollard was counsel for Mr. Pawley, the owner of the building, and Mr. Seager Berry represented the County Council. The summons before the Court had reference to the alleged unsafe condition of the stonework of the angle turret, which the County Council demanded should be taken down on the ground that it was cracked and defective. After much argument at the previous hearing, and contention by the defendant that the building was vested in the Government and therefore exempt from the district surveyor's orders, the magistrate, without prejudice to the legal question, got the parties to agree to submit matters in dispute to an arbitrator, whose report should be enforceable as an order of the Court. On Friday week the superintending architect of the County Council, on the further report of Mr. Drury, surveyor, caused a fresh notice to be served on the defendant to take down the alleged defective stonework between the first and second floor windows. Mr. Pollard complained of this action as a breach of faith, and of the fair understanding which was arrived at. At the previous proceedings the district surveyor had tried to get in other matters besides the turret, but his worship confined the reference to the arbitrator (Mr. Clifton) to the matter specified in the summons. If the owner permitted the reference to be enlarged, he might be fired at in every direction by the County Council. Sooner than have this constant attack and changes of front on the part of the Council, Mr. Pawley would ask for the decision of the Court on the legal question, his worship having decided in the previous proceedings that a physical occupation was necessary, and that the agreement produced showed that the place was vested in the Crown.

MR. SEAGER BERRY, for the Council, reminded the Court that Mr. Drury had already spoken of the fresh cracks which he noticed after his report, on which the summons issued. The County Council were perfectly ready to abide by the reference agreed upon by the Court, but still the district surveyor, as a public official, would not take the responsibility for what he considered to be a defective building. It might be excess of caution, but he had served a fresh notice for what he thought was a fresh defect. This was not the subject of a summons at present.—Mr. Marsham inquired what were the signs of alteration since the previous Thursday?—Mr. Drury replied that the cracks had widened; he was of opinion that they had opened since Saturday.—Mr. Pollard said it was all very well to make this assertion. In fairness he demanded that the architect for the owner should be sworn and give his evidence of things.—Mr. J. H. Goodland, architect, then tendered himself as a witness, and swore that there was no danger to the public whatever in respect of the building. The only changes which were noticeable were due to the vibration caused by inserting the strengthening steel bands, three of which were now in position.—Mr. Berry said he would not cross-examine, as the arbitrator would report.—Mr. Marsham adjourned the summons for three weeks, deciding that the arbitrator must report in accordance with the terms of the written agreement signed by the parties in court.

COMPLETE LIST OF CONTRACTS OPEN.

DATE OF DELIVERY.	WORK TO BE EXECUTED.	FOR WHOM.	FROM WHOM FORMS OF TENDER MAY BE OBTAINED.
BUILDINGS—			
Oct. 7	Croydon—New Wing to Hospital	Committee	C. Heuman, 64, Cannon-street, E.C.
" 7	Elgin—Hospital		A. and W. Reid and Wittet, Elgin.
" 7	Hindsford—Church		Rev. J. Preston, West Bank, Hindsford.
" 7	Pembroke Dock—Bakery, Stables, &c.	Co-operative Society Limited	Society's Office, Albion-square, Pembroke Dock.
" 7	Totnes—Post and Rail Fencing	Rural District Council	S. S. Rendle, Surveyor, Stoke Gabriel.
" 8	Devonport—Wall	Council	Borough Surveyor, Devonport.
" 8	Egremont—Wall		20, Brook-street, Egremont.
" 8	Saltburn—Bridge		W. Stead, County Surveyor, Northallerton.
" 8	Cark—Barn, &c.		J. Hall, Cark.
" 10	Portsmouth—School	School Board	A. H. Bone, Cambridge Junction, Portsmouth.
" 10	Cwmavon—Inn		Jersey Arms Inn, Cwmavon, Port Talbot.
" 10	Old Hill—School	School Board	Meredith and Pritchard, Bank-buildings, Kidderminster.
" 11	Ardes—Cottages	Guardians	
" 11	Bury—Post Office	Commissioners H.M. Works	H.M. Office of Works, Storey's-gate, S.W.
" 11	Barking—Eighty-one Cottages	Urban District Council	C. J. Dawson, East-street, Barking.
" 12	Leigh—Kitchens, &c.	Hospital Board	Banks, Fairclough and Stephen, Leigh.
" 12	Swanage—Police Station	Standing Joint Committee	W. J. Fletcher, Wimborne.
" 12	London, W.—Laundry at Workhouse	Guardians	E. T. Hall, 57, Moorgate-street, E.C.
" 12	Eccles—Urinal	Health Committee	Borough Surveyor, Eccles.
" 12	Tewkesbury—Boiler House	Corporation	Water Engineer, Municipal Offices, Cheltenham.
" 12	Totteridge—Bridge	County Council	County Surveyor's Office, 41, Parliament-street, S.W.
" 13	Greenwich—Workhouse	Union	T. Dinwiddie, 12, Croom's-hill, Greenwich.
" 13	Bishop Auckland—Hospital	Joint Hospital Board	W. Perkins, Victoria-street, Bishop Auckland.
" 14	Romford—Baths	Urban District Council	Harrington and Ley, 108, Fenchurch-street, E.C.
" 15	Bangor—Electric Light Station	Corporation	F. H. Medhurst, Westminster-chambers, 13, Victoria-st., S.W.
" 15	Lyme Regis—Alms-houses		W. J. Fletcher, Wimborne.
" 15	Southborough—Hall	Urban District Council	W. Harner, 137, London-road, Southborough.
" 17	London, N.—Parish Room, &c.		E. A. E. Woodrow, 67, Chancery-lane, W.C.
" 17	Birkenhead—Baths	Corporation	C. Broward, Town Hall, Birkenhead.
" 17	Ruthin—Alterations to House, &c.		E. Roberts, Solicitor, Ruthin.
" 18	Llandaff—Assembly Hall, &c.		G. E. Halliday, Cardiff.
" 20	Wallingford—Asylum Additions		G. T. Hine, 35, Parliament-street, S.W.
" 20	Cholsey—Asylum Additions		G. T. Hine, 35, Parliament-street, Westminster.
" 22	Tottenham—Schools	School Board	G. E. T. Lawrence, 181, Queen Victoria-street, E.C.
" 26	Weston-super-Mare—School	School Board	S. J. Wilde, Weston-super-Mare.
" 27	Wanstead—School and Caretaker's Cottage	School Board	J. T. Bressey, 70, Bishopsgate-street-within, E.C.
Nov. 9-21	Sophia (Bulgaria)—Public Offices	Bulgarian Ministry of Public Works	Commercial Department, Foreign Office.
No date.	Birmingham—Bakery		T. G. Price, 63, Temple-row, Birmingham.
"	Blackwood—Three Cottages		T. Price and Sons, Circle, Tredegar.
"	Chesterfield—School		W. H. Wagstaff, Chesterfield.
"	Harrogate—Business Premises		Bland and Bown, Harrogate.
"	Hull—Alterations to Hall		T. Brownlow Thompson, 15, Parliament-street, Hull.
"	Keighley—House		J. Judson and Moore, Keighley.
"	Llanerch—Shops, &c.		W. Griffiths, Falcon-chambers, Llanelly.
"	Longtown—House	School Board	E. A. Johnson, Abergavenny.
"	Monifeth—Mission Hall		W. Rathray, Brook-street, Monifeth.
"	Oakworth—Taking-down Winter Garden		Crewe and Co., Sykes-place, York-street, Leeds.
"	Redcar—Iron Buildings		Findlay Brewery Limited, Leeds.
"	Colchester—Town Hall	Corporation	H. C. Wanlyn, Town Clerk, Colchester.
"	Cork—Bakery, &c.	J. Simcox	A. Hill, 22, George's-street, Cork.
"	Huddersfield—Pen Houses	Huddersfield Industrial Society	J. Perry, 9, Queen-street, Huddersfield.
"	Eldwick—Alterations to Fleece Inn		Hutton and Co., 74, Albion-street, Leeds.
"	Lavenham—Hall		W. E. Trevena, Ridgmont, Farnboro'.
"	Tunbridge Wells—Fifty-three Cottages	Corporation	Borough Surveyor, Tunbridge Wells.
"	London, N.—Enlargement of Baths	Islington Vestry	A. H. Tiltman, 6, John-street, Bedford-row, W.C.
ENGINEERING—			
Oct. 7	Hull—Overhead Traveller	Corporation	A. E. White, Town Hall, Hull.
" 7	Hastings—Trench	Corporation	P. H. Palmer, Town Hall, Hastings.
" 11	Toledo—Waterworks		R. Fitzgerald, Tralee.
" 12	Southampton—Boilers, &c.		W. J. Taylor, The Castle, Winchester.
" 12	Tewksbury—Boiler	Corporation	Water Engineer, Municipal Offices, Cheltenham.
" 14	Leigh—Alterations to Retort Bench	Gas Committee	J. Foster, Gasworks, Leigh.
" 17	Edinburgh—Gasholder Tank, &c.	Gas Commissioners	Gas Engineer, New-street, Edinburgh.
Nov. 1	Cairo—Bridge		Inspector of Irrigation, 2nd Circle, Cairo.
" 10	Belem (Para, Brazil)—Water Supply	Government	Brazilian Consulate, England.
No date.	Much Wenlock—Well	Sanitary Committee	Mr. Wyatt, Bryndwr, All Saints', Shrewsbury.
IRON AND STEEL—			
Oct. 11	London, S.W.—Iron Huts	Uganda Railway Committee	Crown Agents for the Colonies, Downing-street, S.W.
No date.	Ballycastle—Pipes		Secretary, Colliery Company Ltd., Ballycastle, Co. Antrim
ROADS—			
Oct. 8	Hastings—Supply of Stone	Rural District Council	D. Paine, Stonelink Farm, Fairlight, Hastings.
" 8	Londonderry—Footpaths	Corporation	City Surveyor, Guildhall, Londonderry.
" 8	Swinton—Granite Setts	Urban District Council	H. Entwistle, Council Offices, Swinton.
" 8	Swinton—Repaving	Urban District Council	H. Entwistle, Council Offices, Swinton.
" 8	Bishop Stortford—Supply Granite, &c.	Urban District Council	W. Gee, Council Offices, North-street, Bishop Stortford.
" 10	Hindley—Street Works	Urban District Council	A. Holden, Council Offices, Cross-street, Hindley.
" 10	Orsett—Road Works	Rural District Council	R. T. Stewart, Orsett, Essex.
" 10	Sittingbourne—Supply Granite	Urban District Council	W. J. Harris, Sittingbourne.
" 15	Tunbridge Wells—Roads	Corporation	Town Clerk, Tunbridge Wells.
No date.	Colchester—Road Works		T. H. Baker, Surveyor, Colchester.
SANITARY—			
Oct. 8	Swinton—Drain	Urban District Council	H. Entwistle, Council Offices, Swinton.
" 8	Preston—Sewerage Works	Rural District Council	J. Clark, Union Offices, Preston.
" 21	Wilmslow—Sewers	Urban District Council	W. Cobbett, Swan-street, Wilmslow.
No date.	Swaffham—Removal of Sludge	Urban District Council	Surveyor, Swaffham.
PAINTING AND PLUMBING—			
Oct. 10	Newchurch—Painting Chapel	Trustees	J. Rawstron, Bridge-street, Newchurch.
" 12	Dalton-in-Furness—Painting, &c.	District Council	W. Richardson, Station-road, Dalton-in-Furness.

COMPETITIONS.

DATE DESIGNS TO BE SENT IN.	DESIGNS REQUIRED.	AMOUNT OF PREMIUM.	BY WHOM ADVERTISED.
Oct. 7	Tetbury—Workhouse		Guardians, Tetbury Union.
" 13	Sandown—Hospitals		Sandown and Shanklin Joint Hospital Board.
" 15	Ardrrossan—Hospital		Committee of Saltcoats and Ardrrossan Joint Hospital.
" 28	Chertsey—Sewerage Schemes	£50, £30, £20	Chertsey Urban District Council.
" 29	Shrewsbury—School		Borough Surveyor, The Square, Shrewsbury.
Nov. 18	Sheffield—Board School		J. Moss, School Board Offices, Sheffield.
" 31	Stockholm—New Stations		Secretary, Royal Administration Swedish State Railways.
Dec. 1	Aberavon—Extension of Market	£21	Aberavon Corporation.
Jan. 2	Harrogate—Pump Room	£50, £30, £20	Corporation of Harrogate.
" 2	Harrogate—Alterations to Old Pump Room	£30, £20, £10	Samuel Stead, Boro' Surveyor, Municipal Offices, Harrogate.
No date.	Maidstone—Electricity Supply Works and Refuse Destructor (Assessor)	£100	Herbert Monckton, Town Clerk, Maidstone.

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Lot 4.—A Building Estate of 7 acres, frontage of 520ft.
Lot 5.—A Building Estate of nearly 4 acres, frontage of 420ft.
Lot 6.—A Building Estate of 1½ acres, with extensive frontages to two roads, extending to 210ft.
Lot 7.—A Building Estate of 1½ acres, with a frontage of 555ft.
Lot 8.—A similar Estate of 1½ acres, with a frontage of 680ft.
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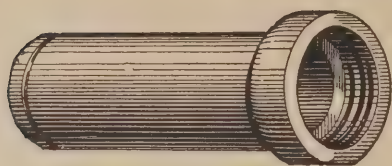
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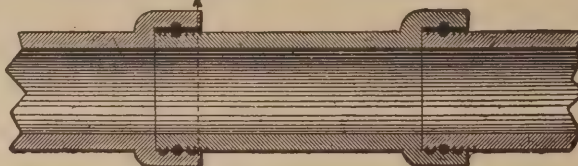


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Sound Portland Cement Joints to stand any test. True alignment of the Invert and Firm Rest. No obstructive ledges at Invert as with ordinary Socket Pipes. Free Flow. No Stoppage. Full Capacity of Sewers and Drains maintained.

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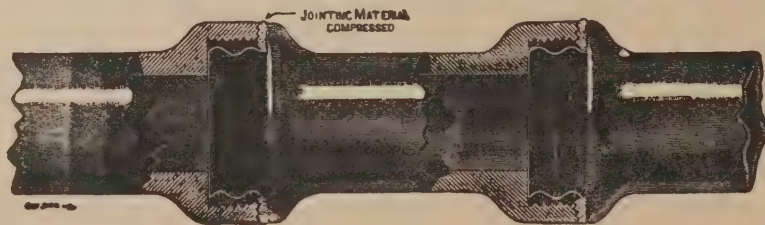
The **Patent Paragon Pipes** are superseding the **Ordinary Socket Pipes**. They are being specified for important Sewerage and Drainage Work in all parts for Government, Corporations and Sanitary Authorities. They have been used for the new Drainage of Smedley's Hydropathic Establishment, Matlock, Derbyshire, and the Royal Opera House, Covent Garden, London, &c.

To meet the requirements of **Sewerage and Drainage** according to circumstances, the **Patent Paragon Pipes** are made in **three** forms:—(A) With ordinary depth of Socket for Surface Water Drains, &c.; (B) With **deep** Sockets for **Sewers** and **House Drainage** and (C) With **extra deep** Sockets for the Best Class of Work.

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SYKES' PATENT JOINT PIPES.

THE MOST RELIABLE
PIPES FOR MAIN SEWERS
IN WATER-LOGGED
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WATERTIGHT JOINTS
MADE WITH THESE
PIPES WHEN ENTIRELY
SUBMERGED.

The Screw Joint ensures true alignment of the Pipes. The **Patent Jointing Material** is **impervious** and **imperishable**. It sets slowly and yields for a time to any settlement of the Pipes in bad ground. It cannot enter the pipes and cause obstruction therein, as in grouting. Sykes' Patent Joint Pipes have made Watertight Joints in water-logged ground where other Patent Joints have failed. Easily laid by ordinary Pipe-layers. Bends and Junctions easily inserted.

Moderate in Cost, Easy to Lay, and the most Reliable of any for Bad Water-logged Ground.

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SANKEY'S PATENT DEEP INTERCEPTING GULLY, with Galvanised Bucket to hold Detritus. Cannot untrap.

KEITH'S PATENT DRAIN TESTING AND FLUSHING TRAP. Simple in Construction, efficient and reliable.

SYPHONS, GULLIES, INTERCEPTORS, &c., with **PATENT PARAGON SOCKETS**, to avoid check to flush in forcing Solids through the Trap and fitted with **SYKES' Patent Screw Stoppers**.

INVERT, JUNCTION, and GULLY BLOCKS, STREET GULLIES to any size. **LATRINES, CLOSETS, SINKS, &c.**

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An Architectural Causerie.

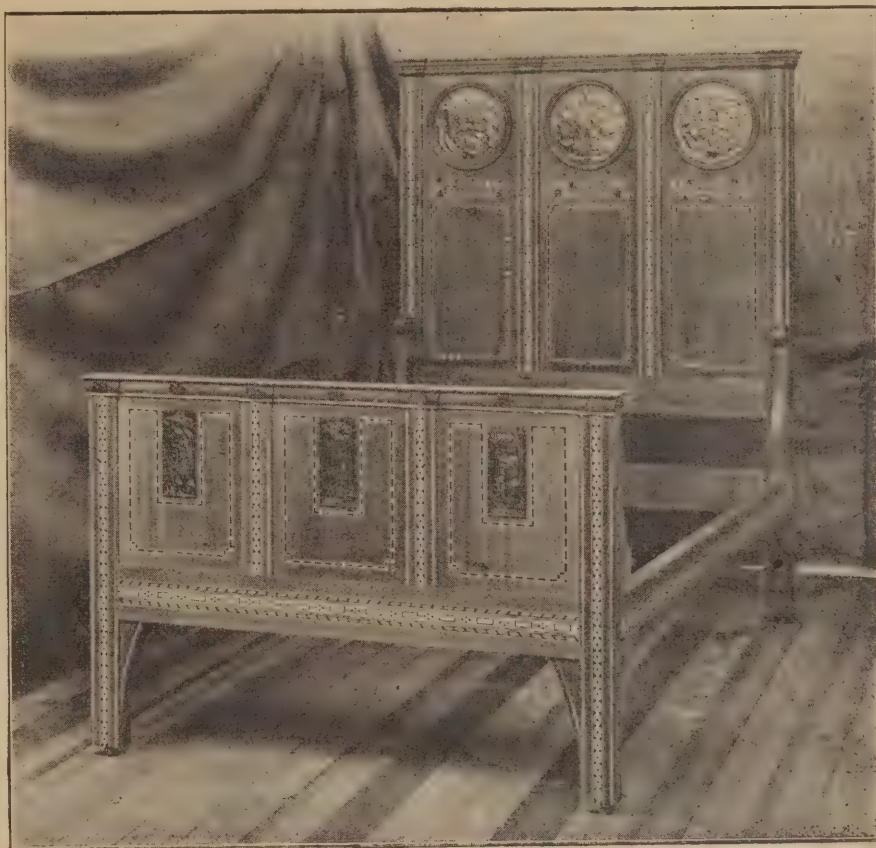
An Object Lesson.

ONE had occasion three weeks ago to refer in this column to the braggart instincts which so much deform the Art impulses of the present day. The article dealt with this question in a facetious and irresponsible manner, which assumed a general recognition of those egotistic self-advertising qualities of typical modern Art ideals which it was one's worthy object to exploit and deride. It seems, however, that a certain reader of this journal, and possibly yet others beside him, misunderstood the subject of one's capers, and, not having noticed the derogatory qualities in question, failed to comprehend one's language. It is, however, widely realised that egotism is one of the most enervating influences that can beset an Art, and the frequency with which the term is met with among modern writers and critics is itself evidence of the reality of the disorder which one has attributed to the architect and craftsman. But artistic egoism is not to be confused with personal vanity and self-esteem; the two are widely distinct, although in some individual cases they do no doubt impinge and melt one into another. An artist must naturally be conscious of his powers; must delight in them; must in his best hours be lifted up in a sort of elation to know that he has been permitted to interpret for the understanding of the world his most sacred convictions and passionate loves and enthusiasm; but while one man will feel this purely, and with a sort of reverence which sets him superior to all worldly issues, another, no less a true artist in his motives and his results, will take a human pride in his power and his gifts, and pose and strut in a fashion that indicates a weak and shallow nature, riding side by side with a great abnormal ability. But neither of these two men need of necessity be tyrannised over by the so-called "Artistic Egoism." There are numberless instances to the contrary. Wagner's is a notorious case of the vain man in whom lay the strength, devotion, and burning conviction of an artist and a genius. Our own Oliver Goldsmith was another notorious instance of the same coupling of these same antagonistic qualities, but neither of these men was an egoist in his Art. For the vital test lies here: it is in the motive, the impulse of the artist's work. The man who works with the consciousness of himself uppermost, who would celebrate himself rather than the ideal he is creating, in whom personal vanity and ambition are not completely subordinated to a devoted attachment to the work for its own sake, and for the sake of that other subtle, glowing impulse which is not to be defined—he is the egoist. It will be seen, therefore, that this impure motive must reveal itself in the completed work. We have only to consider objects of archaic artistry and we must realise that it is not the artistic connection, nor finish, nor technical precision which affects the beholder, but the truth and enthusiasm of the impulse that touches us and awakes our sympathies. Can any understanding person listen to "Lohengrin" and "Tristan and Isolde," for instance, or read "The Deserted Village" and "Vicar of Wakefield," and not recognise the burning, life-absorbing devotion and enthusiasm which thus analysed the

appeals of the blue sky and wide landscape, and the despair and passion of hopeless love; or doubt the blemishless sincerity and truth of the human sympathy which underlies the polished diction of Goldsmith's pages? Now the Art of the poet and the musician—and in these days, unfortunately, that also of the painter, and even the sculptor—is in the main personal; each practitioner is, so to speak, a virtuoso. Let him but be true to his own pure ideals, and he is true to his Art. But with the architect and craftsman it is far otherwise. They are hedged about with necessities; they can have no ideal but such as conforms with the life of the people as it is now ordered; and the man who ignores these legitimate limitations of his Art, and would be a law unto himself, working in the same irresponsible spirit as the musician and painter, comes perilously near to being an egoist in his work. He may indeed be merely foolish and unthinking, but the natural and just imputa-

chair, and its decorative qualities would be secondary to these, and would eulogise and emphasize them. A lack of this genuine impulse is widely to be met with among the work of the new generation of latter-day architects and craftsmen, and because this taint shows itself precisely in that field of thoughtful and original work to which we all look as providing the seed for a truer and more exalted architectural method than the nineteenth century will ever see, it is well and right to direct attention to it. B. C.

AMONGST other gatherings of the wise, the periodical Congress of the Sanitary Institute occupies an unique position. There are various meetings at which eminent men of science are wont to



ARTS AND CRAFTS EXHIBITION AT MANCHESTER: WOODEN INLAY BEDSTEAD.
DESIGNED BY EDGAR WOOD.

tion that must always attach to him will be the charge that (in the least) he places his own personal feelings and ambitions above and before his work, and when we view modern Architecture and craftsmanship, it is clear that a shallow-pated vanity and personal conceit is the vital impulse which directs and cherishes a great deal of it. The late Arts and Crafts Exhibition, among a great many true and valuable contributions, showed a quantity of this class of work, which must have provoked astonishment that such pitiful human weakness and vanity could be expressed through the medium of wooden furniture. The recipe for much of this work seemed to be to conceive a wriggle in the abstract, and then give it expression in a chair, screen, or table. A man who truly designed a table or a chair would be concerned in the first place to produce an excellent table or chair—one that should recommend itself for its genuine utility, for the perfection with which it fulfilled the essential needs of table or

foregather, and much profit may be derived by those who are privileged to hear the wisdom of their utterances. The practical effect in such cases, however, may perhaps be compared to that produced upon a congregation by a popular preacher, and is in all probability chiefly confined to those endowed with appreciative minds, and who are generally not included in the classes most in want of reformation or instruction. In this respect the work of the Sanitary Institute differs from that of some scientific associations, for it is eminently a practical body, whose members are working continuously, both individually and collectively, to attain one great object, the health and physical welfare of the nation at large. It is true that many other societies and institutions exist which are performing similar services to the State in connection with Architecture, engineering, medicine, and chemistry, but a part of their valuable work fails to achieve its full measure of success for lack of co-operation amongst the sister professions represented. It is difficult to suggest how

this may be avoided in the case of associations directly representative of distinct branches of science, but a happy illustration of joint effort is afforded by the Sanitary Institute. Amongst its members are to be found men known to the world as eminent architects, engineers, physicians, and chemists, as well as many who have taken an active part in imperial and local legislation. Not only at congresses, such as that recently terminated at Birmingham, but at the numerous sessional meetings of the Institute, there are ample opportunities for the consideration of practical questions from every point of view. Those engaged in the design of building or of engineering works may discuss physiological, biological, and chemical essentials with the pathologist, the bacteriologist, and the analyst. On the other hand, the latter have opportunities of becoming better acquainted with recent structural and kindred practice, and with the latest types of mechanical appliances serving various purposes in the wide field of sanitary science. An institution including such diverse and yet co-relative elements, obviously possesses many exceptional advantages. The mere fact of meeting on common ground with one main object in view is also calculated to inspire mutual confidence and respect, and should tend to discourage a state of things still existing under which the functions of several professions become somewhat illogically mixed. It is scarcely desirable that the architect should be expected to advise as an expert upon subjects appertaining to the engineer or chemist, that the engineer should be asked to report upon bacteriological or analytical matters, or that the medical officer should sometimes have to pose as an authority on structural or engineering work. A strange though striking example of perverse conservatism is to be found in the fact that either ridicule or obliquy or both still rest to some extent upon so classical and appropriate a term as the word "sanitary." An average person, and notably the proverbial "man in the street," automatically associates with the adjective "drains" in some form or other. True sanitary engineers, who as a body are responsible for some of the most important public works in the country, consequently hesitate to adopt their appropriate designation, which therefore is almost exclusively monopolised by bricklayers and plumbers. These, although performing invaluable work, are scarcely to be regarded as sufficiently representing a class upon whom the welfare of the whole community so largely depends, and it may be hoped that some day the term "sanitary engineer" may occupy the high position which it merits. The Sanitary Institute is engaged in a great national work, which should have the sympathy of all, and whose importance cannot be over-estimated. As stated in its constitution, the objects of the Institute are "to promote the advancement of sanitary science in all or any of its branches, and to diffuse knowledge relating thereto." These aims are being forwarded by the reading and discussion of papers, by lectures and practical demonstrations to students and others, by the circulation of literary matter published in this country and abroad, and by the holding of Sanitary Congresses and Exhibitions open to the public at large. Further, special courses of lectures are provided, and examinations are conducted for the benefit of those who require such special training as qualifications for official positions. Sir Joseph Fayrer, in his opening address to the Birmingham Congress, pointed out that "Fifty years ago the great mass of the population lived and died under conditions which violated all the now well-known principles on which health depends; prejudice, ignorance, and vested interest stood in the way of progress." In those days the ruling powers were unconcerned, and the people were both indifferent and opposed to alterations. Even in the

present day it may be added that ratepayers often oppose necessary schemes of water supply and of other improvements, objecting not only to possible increase of local taxation, but to the disestablishment of things which were "good enough for their fathers." If such good folk were brought to realise that the indirect cost of preventable disease is vastly in excess of direct preventive outlay, their financial policy might be discovered to be not inconsistent with filial reverence. Much has been done in the education of the masses, and in speaking of the work of the Sanitary Institute, Sir Douglas Galton remarked upon the improvement in the vital statistics of the population as evidenced by reduced death rates, by increased prospective longevity, by decline in some most powerful causes of death, and by the total disappearance of others. These improvements are without doubt largely owing to the work of the Institute and of kindred organisations, aided by an improved and enlightened system of local government. To refer specifically to the programme of the Birmingham Congress would in itself much exceed the limits of available space. Of course there was a certain amount of play, or perhaps it would be more proper to say of healthful recreation, during the session. The bulk of the time was, however, fully occupied in serious work. In addition to addresses by such well-known sanitarians as Sir Joseph Fayrer, Sir Douglas Galton, Dr Sims Woodhead, and others, upwards of 70 papers were read and discussed in the various sections. Conferences of municipal representatives, medical officers of health, municipal and county engineers, and sanitary inspectors were held, in which subjects were brought forward dealing with the dwellings and surroundings of the poor, municipal abattoirs, sanitation in rural districts, the Church and sanitary science, hospital reform, the inspection of canal boats, and the advantages of motor vehicles. A conference of ladies interested in domestic hygiene also took place, where the subject matter included the influence of women in household sanitation, sanitary knowledge for nurses, village nursing, and, of course, the hygiene of dress. Sectional meetings were also arranged for the consideration of preventive medicine, Architecture and engineering, physics, chemistry, and biology. At these were discussed questions such as food preservation, typhoid fever, birth-rate, water supply, drainage, the pollution of streams, water analysis, bacteriological phenomena, and the purification of sewage period. The Health Exhibition, held in Bingley Hall, forms no unimportant a part in the work of the Congress. Conducted on lines sufficiently popular to attract the general public, it contains an assortment of objects, of value not only to those to whom they are professionally interesting, but likely to attract the attention of the casual visitor. As evidencing the widespread recognition gained by the Sanitary Institute, it may be mentioned that upwards of 800 delegates from municipal bodies were present, and that a total of nearly 2000 tickets were issued for the Congress. The Corporation of Birmingham, one of the first municipalities to recognise the importance of sanitation, extended a most cordial welcome to members of the Institute, to whom we heartily wish Godspeed in their praiseworthy mission. W. N. T.

NEWCASTLE CATHEDRAL has just been reopened after extensive cleaning, decoration and the installation of the electric light.

SIR PHILIP MAGNUS has reopened a new technical institute at Wellingborough. The building has been erected by the Urban District Council at a cost of £3000, exclusive of the site.

"SOME LATTER-DAY PROCLIVITIES."

To the Editor of THE BUILDERS' JOURNAL.

SIR,—I am afraid I must again weary you under the title of "Some Latter-Day Proclivities," for I find the answer of this analyser of "insect" self-sufficiency is again most inadequately informed of his own leanings in that direction.

He admits, with a candour becoming to his unconsciousness, the groundlessness of his claim to omniscience. This, Mr. Editor, is a most timely admission of what has doubtless been painfully apparent to the readers of the article in question.

With all the irrelevancy of the young aspirant to literary fame, he informs us that with his "bladder-full of peas" he flogs the lowly donkey.

If the writer would only realise his limitations and confine himself to the floggings of that most patient animal, the readers of your journal would doubtless become more patient of his youthful excesses, if only exhibited in that direction. The supreme, almost superhuman, contempt with which he treats his readers when they venture into the realm adjacent to the illogical one he inhabits can only be equalled by the spirit of levity his ramblings invariably inspire in them. But, sir, I ask you, is it usual of a writer of any capability to remark of his readers that their reflections but keep him "merry"? An admission such as this is painful, for the realisation comes that the writer is aflame with the fire of his own egotism.

Just and sincere criticism—and, sir, I do not think I have exceeded this limit—comes to the best of us, as the promptings of an hitherto unknown friendship; correcting that which is false, and directing into one great current the innumerable streams of good which must be shown in all honest effort.

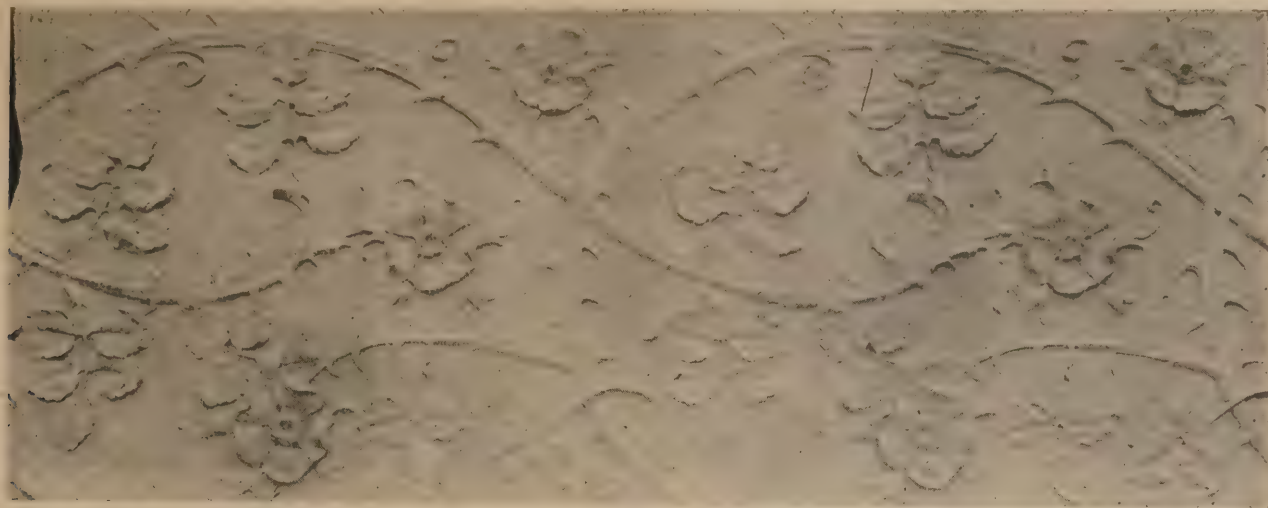
Yet "B.C."—the signature is somewhat old; I should prefer "A.D." as nearer our own times—is impatient at the smallest disagreement, intolerant of the most necessary disapproval, and barely courteous at the curbing of his soaring individuality.

I again repeat he should use of that self-examination he so hates. It would save him endless heartburnings, and silence much just criticism.

However feverishly he protest that "latter-day" is not synonymous with "modern," I beg leave to differ. It is not apparent in his article that he is discussing mediæval times or primitive man, as he would, perhaps, have us believe, for he mentions—I quote his own phrasing—"modern architect," and "the whole brood of latter-day artists." Are we to suppose that the term "modern architect" can be applied to the men, say, of the Jacobian period; or that "the whole brood of latter-day artists" flourished in the thirteenth century or thereabouts? I think not, sir!

I am afraid he is woefully adrift as to the "ear trained to specification clauses." It may be that an ear used to the eloquence of greater men more easily detects his little deficiencies. I will not echo, Mr. Editor, his phrase "of a silliness" with regard to his answer, however much my thoughts belie my smoothness of tongue; yet I may mention as a point of interest to himself, that not one word has he expended in defence of his contention that self-consciousness in Art is degenerate; and that, sir, was upon what I expended argument, seemingly sound to refute. This, in common I must admit with many others, I regard of immense importance.—I am, sir, yours faithfully, "F. B."

THE oldest Nonconformist place of worship in Richmond is the Bethlehem Independent Chapel, the 101st anniversary of which has recently been celebrated. It is a quaint little building in a quiet corner of the Ormand Road, perhaps one of the most old-fashioned thoroughfares in Richmond.



ROSE FRIEZE. MODELLED BY JAMES R. COOPER.

ARTS AND CRAFTS.

NOTES ON A NORTHERN EXHIBITION.

By A SPECIAL CORRESPONDENT.

THE small but interesting exhibition that is now open at the City Art Gallery, Manchester, is as unique in its way as was the first London exhibition of a similar character.

The proposal of the Northern Art Workers' Guild to hold an exhibition, which was to be exclusively confined to work of members of their own Association, was felt by many to be a daring experiment, and speculation was rife as to whether the material for such an exhibition would be forthcoming from this comparatively infant body of workers.

The experiment has been amply justified. Not only has the Guild been able to put together an intensely interesting collection of local work, but the whole of the multifarious accessories to such an exhibition, the poster design and printing, the literary and artistic work in connection with the catalogue and the printing and binding of it, the selection, arrangement, and hanging, and the public lectures which are being given in connection with the exhibition, have been the work of the members. In the case of one public lecture only has this rule been departed from.

Comparing the exhibition with previous Manchester Arts and Crafts exhibitions, a decidedly higher standard of merit in the works exhibited is noticeable, although the previous exhibitions were, of course, larger in

extent, representing as they did a much wider area of effort.

The most striking feature of the exhibition is undoubtedly the catalogue itself, a name which by no means conveys a correct impression of the dainty but vigorous booklet which contains on its closing pages a numbered list of the exhibits. The greater portion of this catalogue is occupied by a series of plain-spoken essays on the crafts represented, all of which are worth reading, and some of which provide plenty of food for thought. The Master of the Guild well says in his preface that the extent of the Guild's good influence will depend entirely on the faithfulness of its members to their ideals. If they are faithful to the ideals that they set up in these essays, that influence will be widespread and forceful.

The cover of the catalogue is a piece of good colour, a harmony in cream, orange, and green, in which we venture to question whether the drawing and design equals the colouring, and whether it coincides with the ideal of its author as expressed in his admirable essay.

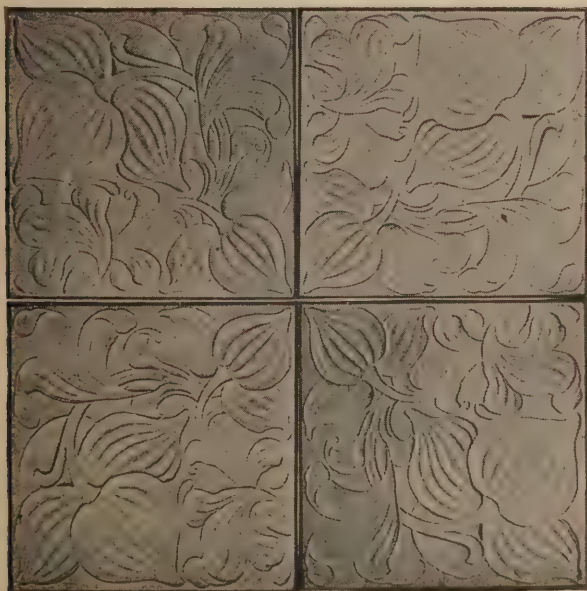
Coming to the exhibits, the place of honour must be awarded to the somewhat large assortment of tiles and pottery scattered through the exhibition, all of which owe their production to the present Master of the Guild, Mr. William Burton, and his brother, Mr. Joseph Burton, both of whom are enthusiastic potters who believe in the adage, "What men have done men can do"—and a little bit more. These are not in the colourings that we usually associate with the com-

mercial "tile," nor are they so far removed from what is usually regarded as commercially saleable as to appear either singular, odd, or crude, as are too many of the productions of men striving to break away from the fetters of the commonplace.

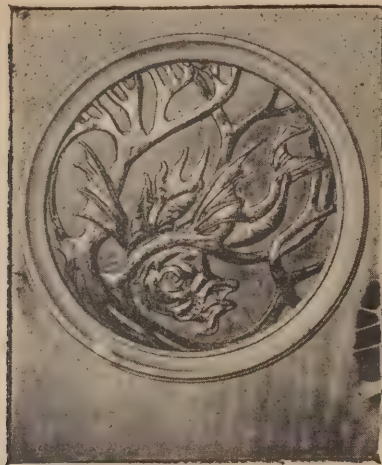
Mr. Burton has been associated with Mr. Lewis F. Day and Mr. Chambers as designers, and with his brother, Mr. Joseph Burton, and others, in the production of these exhibits, but their chief charms of colour, glaze, surfaces, lustre, and texture, are due to his scientific mastery of the possibilities of the potter and the chemist.

We single out for special commendation the glazes which he terms onyx and sunstone, and the fine range of browns, pinks, and greens in his colourings. A point of much merit is the very artistic semi-gloss which characterises some of the best of the tiles. All artists in pottery will recognise the extreme difficulty of securing this precise degree of glaze free from any appearance of porosity and yet with no more gloss than an eggshell. Attempts to produce it in faience and tiles have usually resulted in "paintiness," but Mr. Burton has produced a glaze which really looks hard and sanitary without being "shiny."

The vases shown as experiments have passed the experimental stage, and possess much of the charm of colour of the best Oriental pottery. When procurable in quantities they should rapidly take the place of the garish treacly "pottery" in impossible yellows, greens, and magenta browns, that disfigure our "art pottery" shops.



TILE DESIGNS BY WILLIAM BURTON AND LEWIS F. DAY.



REPOUSSÉ METAL MOUNTED ON WOODS: "AIR," "EARTH," "SEA."

BY J. E. C. CARR.

Mr. Edgar Wood's untiring energy causes his name to figure largely in the catalogue. He shows some fine pieces of furniture, good metal work, and a number of drawings for Architecture and furniture. His work is conceived with simplicity, breadth and dignity, and we feel regret that this is sometimes spoiled by a certain weak addition of undignified ornament that is unequal to its task of adorning that to which it is applied. His sideboard is an altogether fine piece of work, as are the two chairs in oak and inlay that flank it, Nos. 5, 6, and 10. The inlaid ornament is perhaps obtrusive, but a very short ageing will mellow the whole into a satisfactory scheme of colour. His wooden bedstead, No. 134, is deserving of commendation. A chest of drawers, and a bedroom chair in sycamore, by Mr. Wood, are well designed, well made, but altogether spoiled by flimsy ornamentation. The exhibitor describes it as gesso, but it would be more correct to call it merely oil painting outlined with a cloison line slightly raised from the surface. The effect produced is much as if small oleographs had been pasted on to the level surface of the work. Ornamentation upon plain unstained wooden furniture should be in a treatment that is as durable as the furniture itself, and one feels that if this enrichment, admirably designed, placed and coloured as it is, had been in inlay, low relief, carving, lacquer, metal *repoussé*, or even gesso or painting if protected in slightly sunk panels below the general surface, these exhibits would have been extremely fine works. The metal enrichments, like the whole of Mr. Wood's metal work, are excellent.

Mr. J. E. C. Carr sends some very fine examples of brass *repoussé* work. His three panels, Air, Earth, and Sea, and his lockplates are good, while his "lamp for an inn" is really a powerful piece of sound rugged workmanship. Mr. Carr is particularly happy in the fine quality he imparts to the surfaces of his metal. He contributes a good chair, the best in the exhibition, and an extremely good wrought-iron fender.

Mr. Gustave Hiller's work in gesso, both figure and ornament, promise better things. He has used the gesso boldly in high relief, and with a considerable knowledge of modelling. His work is characterised by a "capacity for taking pains" and has a workmanlike deftness of finish that is admirable.

Mr. James Smithies shows a very fine plaque of beaten copper and several good examples of *repoussé* work, door furniture, a fender, and a fireplace. All these are good, workmanlike, commonsense articles, that would commend themselves to the general public, yet distinctly above the standard of commercial work. We regard his paten with ship in centre as the best piece of *repoussé* in the exhibition.

The modelled plaster friezes by Mr. Cooper are noteworthy, but his best pieces of design are the "corbels in plaster, for J. Gibbons Sankey, M.A., architect."

Our further notes and illustrations are held over for the next issue.

(To be continued.)

WARRINGTON COMPETITION.

THE NEW CONSTABULARY BUILDINGS.

BY A SPECIAL CORRESPONDENT.

THE result of the above competition was announced on Tuesday, September 27th, when the assessor, Mr. Bennett, President of the Manchester Society of Architects, appointed on the nomination of the President of the Royal Institute of British Architects, presented his report. The first premium of £100 was awarded to Mr. E. Burns Dick, of 55, Northumberland Street, Newcastle-on-Tyne; the second premium of £50 to Messrs. Tapper and Crouch, of 12, Gray's Inn Square, London, W.C.; and the third premium to Mr. S. Lane Fox, of Bond Street, Dewsbury, who receives £25.



GESEO PANEL. TEASEL THISTLE. BY H. GUSTAVE HILLER.

The number of designs submitted from various parts of the country numbered eighteen, and the buildings, to be erected on the site of the Old Barracks in Arpley Street, consist of new constabulary offices, lock-up, police and coroner's court, parade room 60ft. by 80ft., single men's quarters, sergeants and inspectors' houses, mortuary, &c. The site is

a particularly convenient one, having frontages to existing roads upon three sides; there is, however, a building called the Armoury on the site, 100ft. by 40ft., which is now used as a Technical School, and the instructions to competitors in respect of same were, "If there is sufficient space on the site for the requirements without interfering with the Armoury it would be desirable to retain the building, but in no case must the keeping up of this building be in any way detrimental to the freedom of design."

The conditions regulating the cost were very stringent, which was originally fixed at £15,000, but, in the answers to queries, it was stated that "any design not exceeding £16,000 would be considered." It was to include the apparatus for heating and ventilation, lighting, water supply, and all joinery and permanent fixtures and fittings. It, therefore, required a good deal of serious consideration on the part of competitors to keep within the limits specified. Having regard to the destination of the buildings, rigid economy, combined with an architectural treatment of severity and dignity, would therefore not only appear appropriate to the occasion, but also in keeping with the conditions issued.

In the first premiated design the cells are placed in the centre of site, between Wilson Patten Street and Arpley Street, and are entered directly from the charge-room, which is lighted from the airing courts on either side. The constabulary offices are arranged along Wilson Patten Street, with the magistrates' entrance and staircase near the west end of this block. The remainder of the constabulary offices are placed along the Arpley Street front, with a corridor between them and the charge-room. There is, therefore, no inspection of the latter from either the detectives' or inspectors' offices. The position of the parade-room 98ft. by 50ft. is midway between Museum Street and the cells, with the single constables' quarters ranged round the Arpley Street and Museum Street frontages. The inspectors' and sergeants' houses are placed on the site of the existing Armoury in semi-detached houses. On the first floor the magistrates' court is placed over the cells, with stairs from corridor to dock.

The coroner's court is on the Wilson Patten Street front, the public entrance to courts is by a staircase entrance from Arpley Street, which is placed between the male and female witness rooms for each court; the public corridor separates the former from the latter. The solicitors' rooms are placed on a continuation of this corridor towards Museum Street. The jury retiring room occupies the Wilson Patten and Arpley Street angle; it abuts on the coroner's court at the public gallery end, while the coroner's room occupies a similar disposition at the other end; then, working along Wilson Patten Street towards the west, comes the magistrates' clerk and magistrates' room, all entered from a continuation of the public corridor. The single

constables' quarters are placed round the Arpley and Museum Street angle, with separate staircase from parade-room.

The elevations are treated in a much turreted, gabled and hip-roofed manner, which suggests the public institute a great deal more than the police court or lock-up; while carving is frittered indiscriminately to accentuate the hap-hazard grouping of the whole. It would appear, having regard to the destination of the building and the conditions issued, much fuss might be spared.

The author cubes up the building at 662,000 cubic feet and prices the front portions at 6½d. per foot and the rear portions with Museum Street front at 5d. per foot, which gives a total cost of £16,500,* and he thus concludes his report:—"Being engaged on similar buildings for three city and borough corporations, I am familiar both with the class of details and fittings required and the cost of same, and have little hesitation in saying, with care and careful supervision, this estimate need not be exceeded."

In executing the design, the author will doubtless be able to make many improvements in the disposition of the building, which generally requires pulling together. The inspectors' and sergeants' houses are not well placed, the necessity of conveying food to the prisoners in their cells appears to have been completely overlooked, the supervision of the charge-room from the detectives' or inspectors' rooms leaves something to be desired, the cell corridor is well placed in relation to the charge-room. On the first floor the disposition of the solicitors' rooms and the mixing up of the witnesses with the general public in a common corridor, and the omission of any public waiting place will be unfortunate in practice; neither is the jury retiring-room well placed in relation to the public. There appears no private means of access for prisoners to the dock in the coroner's court.

The general disposition of the second premiated design is in many respects like the first. The cell corridor is not so well arranged for supervision from the charge-room, but the sergeants' and inspectors' houses appear much better placed; the parade-room is similarly placed, with the single constables' quarters ranged round two sides of same. The elevations are quieter in character and more in conformity with the destination of the building.

The third premiated design has caused much adverse comment. The buildings are arranged along Wilson Patten Street, there is no supervision of cell corridor from charge-room, the parade-room is semi-detached at one angle of the site, and the single constables' quarters are diagonally opposite. The author saves the Armoury building, but other competitors save it with an infinitely better scheme; and he places the dock on one of the side walls of magistrates' court. The author further makes a van entrance in the centre of Arpley Street, and thus detaches in a separate block the sergeant's house and single constables' quarters, and places a detached inspector's house at the north-west angle of site, with Armoury in between.

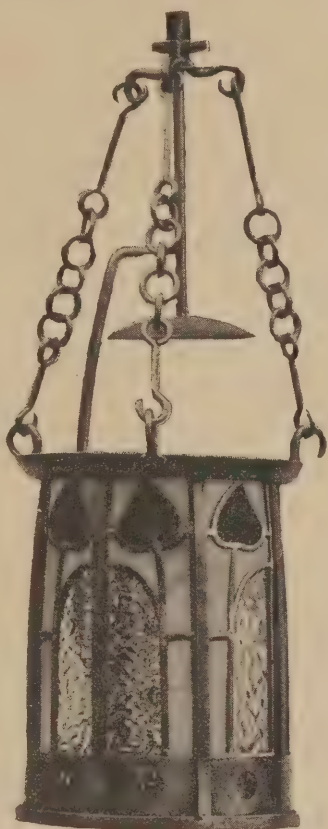
Messrs. Fryer and Warburton, of Warrington, send in a scheme saving the Armoury building; while Design F, by Mr. Harry May, shows a treatment of some skill, but elaborately carved, belonging to the Renaissance period. The plan gives no supervision of cell corridor from charge-room.

Design I exhibits a somewhat too eccentric plan and elevation, while J suffers considerable disadvantage from the necessity of having had to eke out the size of his strainers by hinged flaps.

Design N appears of especial merit, and very compactly arranged, with excellent supervision of departments and cells, and the only design we noticed which places the sergeant and inspector's apartments in separate flats on the first floor, which appears to give many advantages. It also shows a good scheme for future extension, with a simple, dignified, architectural treatment eminently in keeping with the purposes of the building.

The author was able to allow 10½ per cubic foot for the entire building, which gives a cost of £15,916, in addition to which the Armoury was not interfered with. An excellent quill pen perspective drawing shows the design to advantage.

The following gentle piece of flattery extracted from a local paper proves what extreme and general satisfaction is felt in the neighbourhood at the selection made:—"The first premiated design accepted being that of Mr. R. Burns Dick, architect, 55, Northumberland Street, Newcastle-on-Tyne, who is, according to the arrangement, entitled to the sum of £100; but the committee have decided to recommend him as the architect, and he will therefore superintend the carrying out of his own plans. The selection has given general satisfaction, and there is no doubt the new police premises, &c, will be an ornament to



WROUGHT IRON GAS LAMP FOR COUNTRY
INN. BY J. E. C. CARR.

the town, a credit to the architect, and a great convenience to the chief constable, the men under his charge, solicitors, press, witnesses, and others who will have to make use of them!"

THE danger which threatens one of the most beautiful spots in North Wales—the Aberglaslyn Pass—is now becoming serious. The project for constructing a light railway through the Pass has now received the support of the Carnarvonshire County Council. With only one dissentient a resolution has recently been passed sanctioning a loan to the company promoting the railway on condition that a free grant is received from the Treasury. The sole dissentient, Mr. Greaves, Lord-Lieutenant of the County, spoke strongly against the scheme. After visiting the route of the proposed railway he declared himself convinced that the railway would spoil the beauty of Aberglaslyn Pass, which he rightly described as "one of the great assets of the county during the summer months." It is to be hoped that before the Treasury makes a free grant towards the destruction of scenery which is in the best sense national property, the central authorities at Whitehall will satisfy themselves as to whether the line is absolutely necessary for the development of the district.

With Artists in Bermondsey.

IN a squalid part of Bermondsey, where the houses are small and the streets narrow, and both are dirty and monotonous, there can be found, standing in lonely dignity, an imposing block of red brick buildings, the premises of the Bermondsey settlement. Here there is now being held an exhibition of which comparatively few people have ever heard, and which yet is having a more genuine interest taken in it than many of those greater exhibitions which are the sensation of their time. It is the work of the boys and girls of the Board schools of the district of Southwark that is here laid out for inspection. There is no humbug in the manner in which the Southwark children appreciate this exhibition, says the Westminster Gazette. They go round it in animated groups of six or seven. And the whole half-dozen look at the same thing at the same time.

"AIN'T THAT DONE GOOD!"

or "This is all right, eh!" or "'E's a smart 'un, what!" are the sort of questions with which they incessantly hammer one another. But ask them to show you what they have done themselves, and see how excited they get. "Right, sir!" one of them will say, and march you off to his own peculiar corner. It will get buzzed round the room that "'E's asked Billy to show 'im what 'e's done," and you will be rapidly turned into a great personage, the centre of the admiration of half a Board school. Then you will proceed to ask a lot of stupid questions: "Did you really do that?" or "How was that done?" But no matter how silly you are, or how ignorant, they will be sure to say something good in reply. Then will come a bombardment. "Please, sir, this is mine," one will say, and another, "Please sir, this is mine," and a third, "Please sir, this is mine," and you will find yourself vigorously required to look at a dozen things at the same time. Your capacity for admiration will be tested, and you will be able to judge of the variety of your adjectives. But look these fellows straight in the eyes, and don't be afraid of putting your hand on their shoulders or giving them occasionally a dig in the ribs, and let them take you round the rooms. And while you find them

PUTTING LIFE INTO EVERYTHING

and making their unpretentious handiwork speak their language to you, just recall for a moment the character of the ordinary guide, whether at a Norman castle or abbey ruins, or a collection of Italian art, or an Egyptian tomb. These boys will show you some blocks of wood carved after the manner of Exercise I., and they will explain how the exercises grow gradually more difficult and more difficult. And at last they will reverentially bring you in front of a piece of carving by "the master" himself. They will show you "shadings from east," and explain earnestly and intelligently the meaning of that expression. Original designs for friezes and wall papers, pictures of horses and fishes' heads, and of lions and dogs, chisels, candlesticks, towel rails, photo-frames, inkstands, and writing-pads—among many other things, all these will be shown, with an anecdote about most and a joke about each. But don't let them omit to show you the sculpture of Clara Collins, of Sherbrooke Road School, fifteen years old, whose work, having gained the special merit prize, is to be sent for exhibition to Paris and Madrid. And finally, if you should see a little girl of ten, send her to try and find the picture of a horse hanging on one of the walls. Tell her that a little boy of ten drew that horse, and, unless you disagree with us, add that you wouldn't have thought anyone so young could draw so well.

At Macclesfield a museum, presented to the town by Mr. Pownhall Brocklehurst, of Macclesfield, and Miss Brocklehurst, has been formally handed over to the Corporation with public ceremonial. The building and endowment will cost the donors £10,000.

* The parade-room is not measured in cubic contents.

A SERIOUS INDICTMENT.

THE LONDON PLASTERER AND BRICK-LAYER ON TRIAL.

"A LONDON Architect" writes to several daily contemporaries, drawing attention to what he alleges is "a serious and scandalous state of things existing in the building trade." He says: "One duty of an architect is to see that his drawings and specifications are carried out in a proper manner, at a reasonable cost, in a given time, and, with these reservations, he is not directly concerned with the workmen who are employed and paid by the contractor; but it is at the same time obvious that in the supervision of the work upon the building he is brought into contact with the workmen, and cannot avoid observing the manner in which they perform their work and the time expended in completing it. I am at this moment erecting buildings in London, and I have taken the trouble to seek beneath the surface for some explanation of the time expended upon these works, and of the reasons assigned by the contractor for the delay in completion; and what I am about to state is the result of very careful inquiry upon my part, and I vouch for the accuracy of my statements. I select bricklayers, carpenters, plasterers, and plumbers; but, for perfection of

ORGANISED IDLENESS AND SYSTEMATIC ROBBERY.

I confine myself to bricklayers and plasterers. 1. The men I am referring to are paid the full and beyond the full union rate of wages to work the agreed number of hours per day. 2. A large proportion of these men do not present themselves on Mondays, and on Tuesdays they are not able to work properly, as they are recovering from the effects of a carouse which has lasted from mid-day on Saturday to the morning of Tuesday. 3. They come on a job for a few hours, say that it does not suit them, and obtain their wages for having upset the calculations of the foreman and done more harm than good. I know of bricklayers coming on a job and working for an hour—get their money, and say, 'We only wanted the price of a drink.' 4. They practically determine who shall and who shall not work on a job, and hold before the builder the threat of turning out bodily if their demands are not complied with. 5. They do not return more than one-third of real honest work for the full wages they receive, they resent the interference of a foreman who has the courage to complain; this resentment is sufficiently strong to constitute intimidation, and a foreman now hardly dares to do his duty. 6. There is distinct

AGGRESSIVE CONDUCT

on the part of the men, and they loiter on the building without any attempt to disguise their idleness. It may at once be retorted, "Why not put a stop to all this?" But it is more easily said than done, because there is at this moment a great demand in London for bricklayers and plasterers; therefore the men can walk from one job to another with the certainty of finding immediate employment. By a little concerted action, however, I think we can bring the plasterers to book, and keep them off the buildings altogether. I intend, in my next piece of work, to make the attempt in the following manner:—1. Use thin fibrous plaster slabs for ceilings, and canvas and paper them. Another set of men altogether can fix these slabs to the joists. Large quantities of these slabs could be obtained from Germany and Austria. 2. Use wood cornices throughout, in place of plaster, as they used to do in the good old days of Queen Anne. 3. Use wood-moulded panellings to walls or batten and canvas them as in days of old. As to the bricklayers, I can only invite the out-of-work tramcar men and labourers to devote a fortnight to acquiring the art—a man of ordinary physique and intelligence can, I am quite certain, lay bricks in that period quite as well as I sometimes see them laid by so-called bricklayers. The wages earned by these tramcar men could be doubled, and the bricklayers would be brought to their senses. I

must apologise for the length of this communication, the difficulty being to bring in a short form before the public anything like a picture of the true state of things on the buildings; but I am convinced that if architects will unite their efforts with those of the builders, it would not take long to secure a very large reduction in the price paid for, and the time taken in, the erection of buildings in London."

CORROBORATIVE EVIDENCE.

"An Architect" writes in corroboration of the above statements. "Of the two trades referred to," he says, "plasterers are, in my opinion, the worse. They show an absolute indifference to the amount of time and money they waste by their absence from work without notice, and the minimum amount of work they get through when actually employed. The extra cost of work involved must necessarily fall eventually on the public, who have to pay the builders, and I do not think it would be too much to say that the cost of building is nowadays increased to at least 25 per cent. more than it should be by this shameful state of things. The drink this branch of workmen gets through must be appalling, and the bricklayers run them very close. In my twenty years' experience I have noticed the gradual decrease in the number of bricks laid by any individual man. I can remember 800 to 1000 being considered a good day's work, but now 300 to 400 is as many as any ordinary bricklayer will condescend to lay, and that notwithstanding the increase of wages and shortening of hours of labour."

THE PLASTERERS' REFUGE.

Mr. George Stanley, of the Fireproof Construction Company, 132, Wool Exchange, E.C., writes:—"I can fully endorse your correspondent's remarks in reference to plasterers' scamping, idleness, and boycotting. Architects have long felt the want of a new idea to take the place of some of the work now done by this branch of the trade, and although my firm manufacture plaster slabs to be fixed by carpenters, and plastered over afterwards, we cannot get the plasterers to do the work themselves, and they will not allow carpenters to do the fixing. Consequently jobs are delayed, and we are daily losing work for which we have already specified through not being able to get the plasterers to work or allow others to do so. We have offered men work all through the winter with like results, owing to their being backed up by their trades union, which these men hide behind, and give the excuse that the union will not allow them to do this or do that. The consequence is that the artisan of to-day is not allowed to work in a conscientious way, for if he puts in his full work and does it well he is immediately boycotted by the other branches of the trade, and, therefore, has to reduce the quality and quantity of his work to the level of the lowest or worst work on the job."

"A REIGN OF TERROR."

"Surveyor" says: "We have enjoyed an extensive practice, covering a period of over fifty years, and at the present moment there are over forty buildings in progress with which we are connected, and we consider it under the average if less than £400,000 pass through our hands for building purposes during the year. The British workman employed on buildings in London has discovered a method of robbery which is not amenable to law, and very excellent uses he has made of it from his own point of view, no doubt. Year by year his laziness and insolence increase, and during the past three years in London builders have experienced a "Reign of Terror," and in order that it may be quite clear to you—the modus operandi—we will describe one method adopted by bricklayers. In bricklaying the line is stretched from point to point, so that courses of the brickwork may be truly laid. If a union man be working on one side of a wall and a free man on the other (i.e., a bricklayer not belonging to the union), he (the union man) will dawdle on his side to prevent the line being raised until it suits his goodwill and pleasure. Should the foreman stand and look at the men at work he is told they "Don't want foxing," or is asked, "Ain't we doing enough for you?"

and should he commit the awful crime of telling them not to handle bricks quite so long, or endeavour to coax them to do a fair day's work, he is, in the majority of cases, anathematised, and wages are instantly demanded. If possible, the other trades are persuaded to leave that particular job, the foreman being characterised as a nigger driver, the motive being a vindictive one, as very few contracts are signed without a clause imposing a penalty for non-completion within the stipulated time. Twenty-five per cent. advance in prices is a moderate computation, the price in brickwork has more than doubled in ten years, and where bricklayers will not lay more than 400 bricks per day on a thick straight wall at so much per hour, they will lay from 1000 to 1200 if paid by piecework. The invitation to learn bricklaying might be extended to any able-bodied man who is underpaid. Any ordinary man could learn bricklaying in a fortnight, plastering in one month, carpentering in six weeks, leaving the special portions to flue hands, rubbed and gauged workers, cornice hands, and so forth to the special men as now, leaving the foreman to set out obtuse or acute angles."

FOR THE DEFENCE.

A "London Carpenter" writes:—"Is it not the case of silk hat versus the cap and apron caste prejudice? These gentlemen who write to you have no practical knowledge of the works they undertake to superintend. It is but a question of supply and demand. If the offspring of working men, in deference to the spirit of the times and their mother's feelings, are brought up to be theoretical architects in the Board schools, instead of practical workmen with an indifference to dust, dirt, and danger, why, presently there will be more architects than navvies; and then, I suppose, my fellows will only "work" one hour a day—which will very much "upset the calculations of their superiors." Your correspondent's indictment is mainly true; that I admit, but can it be remedied? No; not even if all the out-of-work horsekeepers learn to be capable bricklayers at a night school in a fortnight and thereby double their horsekeepers' incomes, and make the regular bricklayer hang his head with profound shame."

SUMMING-UP.

In commenting, in a leading article, on "A London Architect's" letter, the Daily Telegraph observes that if it be "even but partly justified by facts, it brings a very serious indictment against the London bricklayers, carpenters, plasterers, and plumbers. Considering how numerous and useful these specimens of the British workmen are, a charge made against the whole class is one which must not be lightly framed or hastily accepted. However, it is for the men themselves to defend their credit as honest Britons, and only for us to state what are the accusations brought against them. The correspondent is an architect in extensive practice, having a great deal to do with workmen, and constantly shocked, as he says, by the delay in the execution of contracts caused by the idleness, the insincerity, and what he even calls 'systematic robbery' on the part especially of bricklayers and plasterers. . . . Now, these allegations are either true or false, or, more probably, partly true and partly false. The experience of other directors of London labour is wanted to confirm or to put aside such very grave charges, which, however, are so evidently made in earnest and with conviction by the London architect, that he goes to the length of suggesting substitutes for lath and plaster work, which would enable builders to dispense in a large measure with the bricklayers and plasterers. Wood cornices, wood-moulded panelling, and fibrous plaster slabs for ceilings, would, he thinks, spoil the market for the easy-going gentry who can now stroll from one job to another with a certainty of finding unquestioned employment, because the building and decorative trades are so busy. Indeed, the London architect must have been terribly vexed by the irregularities and immoralities which he says exist among the workmen of the Metropolis, as he proposes, in addition, a most drastic remedy.

He invites the out-of-work tramcar-men and labourers to devote a fortnight to acquiring the art, for a man of ordinary physique and intelligence can, he is quite certain, lay bricks in that period quite as well as we see them laid by so-called bricklayers. Another architect corroborates these accusations to-day, adding that 'the cost of building is nowadays increased to at least twenty-five per cent. more than it should be by this shameful state of things.' What have the other master builders, architects, and contractors to say upon the subject, and, above all, what do the men say for themselves? We should be very sorry indeed to believe that the accusations could be generally borne out by the testimony of other authorities, but most of all grieved if it were proved by their silence or heedlessness that the London workmen themselves were indifferent to such slur thrown on their honesty as a body. If these charges are only partially justified—if it is not an uncommon thing for the London labourer to take no manly pride in his work, to scamp it, and to sneak his pay, and lose a day in the week for drink and laziness—then we should be obliged to think very badly indeed of the average British workman. But we are quite sure the average British workman, even if he be a bricklayer or plasterer, is not so black as he has here been painted; and we hope that the echo of such serious indictments will have the effect either of sweeping them away or of shaming the consciences of those who are guilty of the meanness and fraud of shirking their lawful and promised labour."

THE sarcophagus for the late Prince Bismarck, which the Kaiser has commanded the sculptor Begas to execute, will be of an elaborate character. On the sarcophagus the figure of the Prince will rest with bare head, attired in the uniform of a cuirassier, the body partly covered with the German flag. Beside the pedestal a dog will watch the body, thus symbolising Fidelity. In a niche above the sarcophagus is seated a weeping woman, typifying Germany's sorrow. On the right is the statue of a man representing Strength; on the left, a figure of Justice carrying a sword.

STREET DEFACEMENT.

A PROTEST FROM LIVERPOOL.

STRONG protests against the newly-proposed system of tram haulage in Liverpool were made at the first ordinary meeting of the fifty-first session of the Liverpool Architectural Society, held last week under the presidency of Mr. W. E. Willink, president for the second year. At the opening of the proceedings, Professor Simpson, the honorary secretary, mentioned that it had been found impossible to make ready the programme for the session in time for that meeting, because several dates had not been filled up, but viewing the titles of the papers, &c., that had already been promised, he thought they might look forward to a very pleasant and successful year.—The President then delivered his opening address, and after thanking the members of the society for again appointing him president, touched upon the relationship that should exist between ARCHITECTS AND THE LOCAL MUNICIPAL BODY and also the public. In regard to the erection of public buildings, he quite agreed that "those who paid the piper should call the tune," yet, as he remarked, "supposing the builders did not know the music," was it not reasonable to contend that municipal authority should intervene, and prevent any addition to the already unseemly aspect of Liverpool streets? Although such a position would prove a thorny theme, he expressed the opinion that the Corporation should appoint an official who would be empowered to watch the erection of buildings offensive to the eye. Alluding particularly to the neighbourhood of Sefton Park, the President said that there were to be found edifices of all sorts and sizes, and the opportunity of preventing the erection of them had passed away. In regard to the relationship between

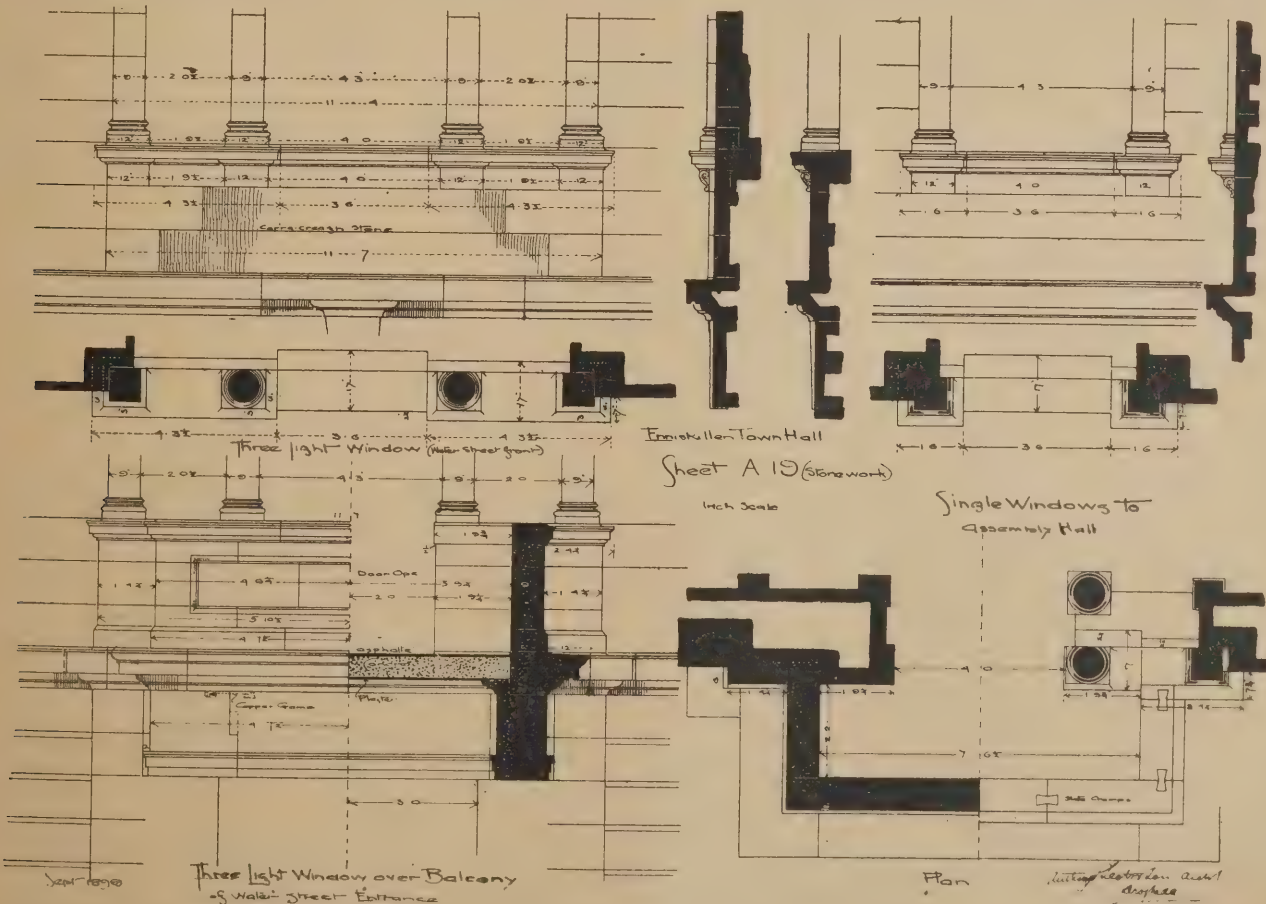
ARCHITECTS AND THE PUBLIC,

he thought that the taste of the latter concerning the erection of dwellings was constantly advancing and rising, and the time would come when the opinion of "the man in the street" would be a powerful factor in forming their views, as architects, as to what

was needed. Their aim should be to cultivate a warm and close sympathy between the public and those who served the public in the region of constructive art.—Mr. Henry Hartley (vice-president) proposed a hearty vote of thanks to Mr. Willink for his address. It was thought that the president might have expressed an opinion on the matter of the tramways and the system of erection that had been adopted. That day the members of the Society had had the opportunity of viewing the tramway system from the Dingle to the Custom House. He did not hesitate to say that anybody interested in the beauty of our streets would, after traversing that route, conclude that the arrangements were distasteful and beauty-destroying in every manner and form. There were posts on each side of the streets with cross wires and other wires running horizontally, and he could not imagine anything more offensive to the eye. He hoped that they would have the advocacy of Mr. Willink in seeing that the surroundings of the city were not further defaced by the new system. Speaking to a member of the City Council on the subject, he had been told that what was aimed at was

PRACTICABILITY AND NOT BEAUTY.

That, he considered, was a very mean way of looking at the question, for he felt that in all their practical aims they should endeavour to give the people something pleasing and attractive.—Mr. George Bradbury, in seconding the motion, said that, in regard to the tramway system, one felt horrified at the prospect of Liverpool becoming a second New York. They were now having hideous poles erected through the main thoroughfares, and eventually, perhaps, might find an overhead railway running across the principal open squares of the city. It was clear that we were drifting towards the New York style of locomotion. They could not take a calm and quiet view of these things as if they had no influence whatever, but should offer some protest against the defacement of the streets. It was formerly suggested that a memorial be sent to the City Council protesting against the erection of the poles, but nothing had come of the idea. He was of opinion that if an objection was lodged it would have some effect.—The motion was carried.



DETAILS AT ENNISKILLEN NEW TOWN HALL. MESSRS. ANTHONY SCOTT AND SON, ARCHITECTS. (See Inset Supplement.)

Photography for Architects.

MR. G. A. T. MIDDLETON, A.R.I.B.A., writing in the *Amateur Photographer*, remarks that a great deal is heard of photography in its application to medicine and surgery—of the assistance which it renders to the astronomer and the microscopist; by many others than specialists it is employed to obtain records of old buildings, curious towns, and picturesque bits of landscape. Yet comparatively few professional land surveyors, and still fewer professional architects, are alive to the help which it is capable of affording to them in their ordinary work-a-day business. That it is of such value, the few who have employed it have proved without doubt, going so far as to say that for the surveyor, at least, a knowledge of photography is as essential as an acquaintance with the theodolite.

THE OLD NARROW VIEW

of a surveyor's duty was that he had to make plans and sections of the land he surveyed, accompanied by a written description of its characteristics; the modern, broad view, that he is not only to lay down its exact configuration, but by every means in his power render others who have not been technically trained as fully conversant with all the peculiarities of the surveyed country as he himself. To obtain this end, a series of photographs taken from well-selected points of view, whose positions, as well as the direction in which the camera was pointed, are marked on the scale plan, is of the very greatest assistance; and if Colonel Stewart's rotating camera be employed, not only is the entire panorama secured, but a most accurate check obtained upon the theodolite working—so thorough, indeed, that in cases of extreme haste the theodolite can be dispensed with, and even entirely superseded in instances where the natural conformity of the ground, as in very mountainous countries, makes the recognition of the same spot from two points of view a matter of difficulty, amounting almost to impossibility where memory and rough sketches alone are trusted to. There was

A PROMINENT INSTANCE

of the value of photographs as supplementary to a land survey a few months ago, when architects were asked to submit plans in competition for a new university at San Francisco. The site was an extraordinary one, at the foot of the Rocky Mountains, and rose no less than 700ft. in a trifle over a mile; and of this a plan was, as usual, supplied to intending competitors. On application, however, they were also supplied with a scale model of the land, and a series of photographs. These would undoubtedly have been more useful had they been panoramic, or even had the directions in which they were taken been more clearly indicated than was the case, but, even as it was, they gave a very good idea of the topography, and especially of the way in which the character of the land altered at its different altitudes, and of the views obtainable. At first sight, it is, perhaps, not quite so obvious how photography can be of value to the architect as to the surveyor. Yet it is even so in even a great variety of ways. In crowded cities particularly it is of the utmost importance before commencing building work to ascertain and record what is existing on the site and what is surrounding it before commencing operations, having regard to possible legal complications, actions from neighbouring owners for infringements of rights of light and other easements, and many other eventualities; and in such cases the

EVIDENCE AFFORDED BY PHOTOGRAPHS

from well selected points of view, and taken with suitable lenses, in conjunction with proper plans and models, is most important. By themselves, however, the value of photographs as evidence is liable to heavy discount in court, as many judges, and juries also, have become sceptical of the truthfulness of the impressions conveyed by them, owing to the occasional unscrupulous use of specially wide

or narrow angled lenses, for purposes which are sufficiently obvious. Of equal importance are photographs of shoring and underpinning work, and of all work which is to be covered over, and about which disputes of one sort or another are by no means infrequent, owing in the majority of cases to the absence of evidence such as a photograph would supply; and almost invariably when bad work is condemned, and ordered to be reinstated should the camera be used, for the purpose of after-reference if necessary. When work is being carried out at any such distance from the architect's office as to render personal constant supervision impossible, the clerk of works, by supplying photographs, can keep him in touch with what is going on, and by their means a client can often be informed as to the progress of the building for which he is paying in a manner most satisfactory to all parties.

NEW TOWN HALL AT ENNISKILLEN.

THE design for this building, which we illustrate to-day, was selected in competition about twelve months ago. The building is now in course of erection, and will probably be completed next year.

The usual municipal offices are arranged on the ground floor, comprising reading-room, clerk's office, chairman's room and council chamber, minor assembly hall and committee room, and gentlemen's lavatory. The caretaker, heating chamber, stores, and fire brigade are disposed in the basement. On the first floor are situated the large assembly hall, stage and dressing rooms, committee room, borough surveyor's office. The Masonic Hall and ante-room are situated in the attic of front.

The style of the building is Free Renaissance. General facing is of fine punched Carrara-marble limestone, which is a kind of black marble, and with dressings of Dungannon, a cream-coloured sandstone. The roofs are to be covered with Westmorland green slates, with lead hips and ridges. The roofs of tower and ventilating fleche will be covered with 16oz. copper.

The works are now in an advanced condition, almost all of the walls being to the full height. It is expected that the building will be roofed before the severe weather sets in.

The entrances from both streets lead directly to the spacious staircase hall. The stairs are to be constructed of fireproof materials, as also are the whole of the corridors and passages and lavatories. Fire extinguishing apparatus will be arranged in both staircases, where there will be control of all the rooms; and the staircases and exits are so arranged that no danger will reasonably occur from panic.

The heating is to be on the warm air system—the cool, fresh air, taken from each street by ducts under the ground floor, passed through the furnace chamber, and thence by air flues in the walls to each of the different rooms, where its entrance will be controlled by regulating valves. The ventilation is to be effected by inlet panels in addition to the warming apparatus, and extracted at the ceiling and conveyed in trunks to the central upcast shaft in the fleche. The offices are provided with exhaust ventilators, having separate air flues built in along smoke flues and carried up to near top of chimney.

The design is by Messrs. Anthony Scott and Son, of Drogheda, under whose superintendence the works are being carried out. The contractor is Mr. James Harvey, of Enniskillen.

PRESIDENT CARNOT, who met his death at the hands of the Anarchist, Caserio, is to have his monument at Lyons. The statue, which is to be unveiled next year, will be of an elaborate character. It will take the form of a pedestal surmounted by a pyramid. A figure in marble of the assassinated President will be placed in the centre of the monument; above, will be the Genius of France saluting the flag; below, the arms of the town of Lyons; behind, a lion looking towards the place where Caserio accomplished his crime.

Enquiry Department.

THE STUDY OF ARCHITECTURE.

To the Editor of THE BUILDERS' JOURNAL.

DEAR SIR,—I am engaged at granite works in Westmorland, and I find it impossible to attend any classes in architectural drawing, colouring, &c. I am very anxious to pursue my studies in these subjects, but I am at a loss what books to study. I should much appreciate your advice.—Yours faithfully,
E. S.

We would recommend you, in pursuing your studies in Architecture, to procure the general guidance of someone who is already proficient. If you cannot arrange this in any other way, there are in London several competent coaches (whose names you will find in this and other professional journals) who will direct your studies by correspondence for a small fee. If you rely entirely upon yourself you will waste much time in acquiring matter that is of no importance or value. Of books, you should possess Quitt's "Encyclopædia of Architecture" and "Building Construction" (Rivington). For a study of the classic orders, we know no better book than that edited and arranged by Mr. Phene Spiers, and published by Batsford, Holborn. For opening your studies in Gothic Architecture, Parker's "Glossary" is a most useful book.

Correspondence.

TECHNICAL EDUCATION GRATIS.

To the Editor of THE BUILDERS' JOURNAL.

DEAR SIR,—In my opinion the London School Board have gone a step too far in making their Evening Continuation Schools entirely free. Amongst those who take advantage of this are many who are in a position to pay something towards the cost of the classes, and why should the London rate-payers contribute towards the cost of teaching carpentry to those who are learning it as a hobby? That technical education should be free to those connected with the various trades, and who wish to improve themselves by attending lectures and practical instruction, I do not wish to deny; to keep up with our foreign competition such things ought to be, especially for the learners, who have less chance than ever, owing to the subdivision of work, of gaining a proper apprenticeship in the trade they have chosen. But when I see clerks, draughtsmen, schoolmasters, and the like attending classes in woodwork, I feel that the thing has been carried a little too far. There are, and always were, plenty of classes at the Institutes and Polytechnics, which may be entered at a very moderate fee, open to those who care to avail themselves of the opportunities presented. It cannot be argued that these "craftsmen" do any good to the workmanship of the country; I am perfectly certain they do not learn enough to keep any tradesman out of a job—in fact, I sometimes have come across extra work made through their amateur work—so no tradesmen need look upon the classes with a jealous eye.

The only advantage gained is that they learn to appreciate good work, but even that does not say they will promote good work by learning to pay good prices.

I would suggest that those who have incomes over a certain fixed amount, say, £100 per annum, contribute towards the expenses of the classes by paying a small fee. This subject will not have very great attention till the cost is totalled up in due course, and then we shall hear all about it. Why not look to the whole business before then?—Yours truly,
"Z."

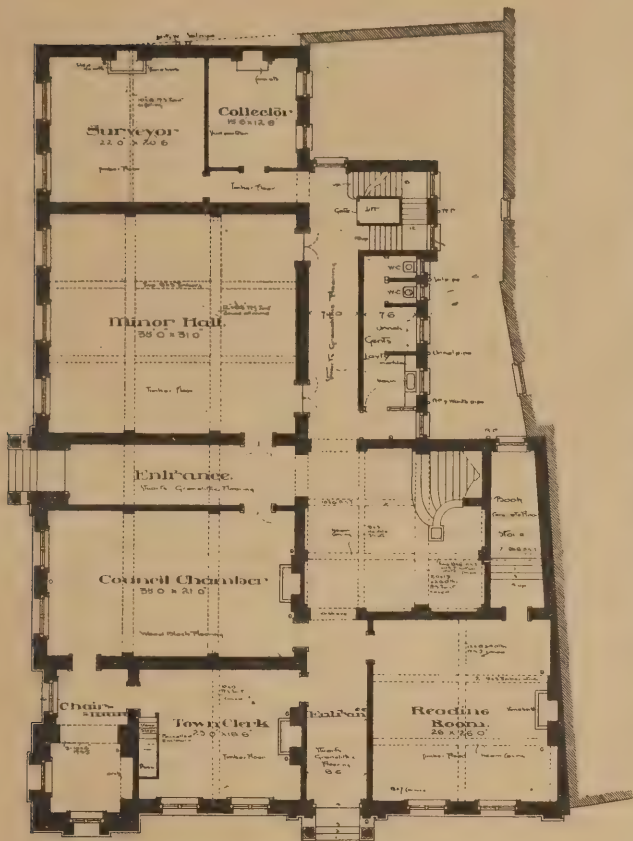
MESSRS. GREGORY BROS. are about to erect a large house at West Hill Park, Woking, from the designs of Mr. J. Wilson Wright, architect, Anthony.

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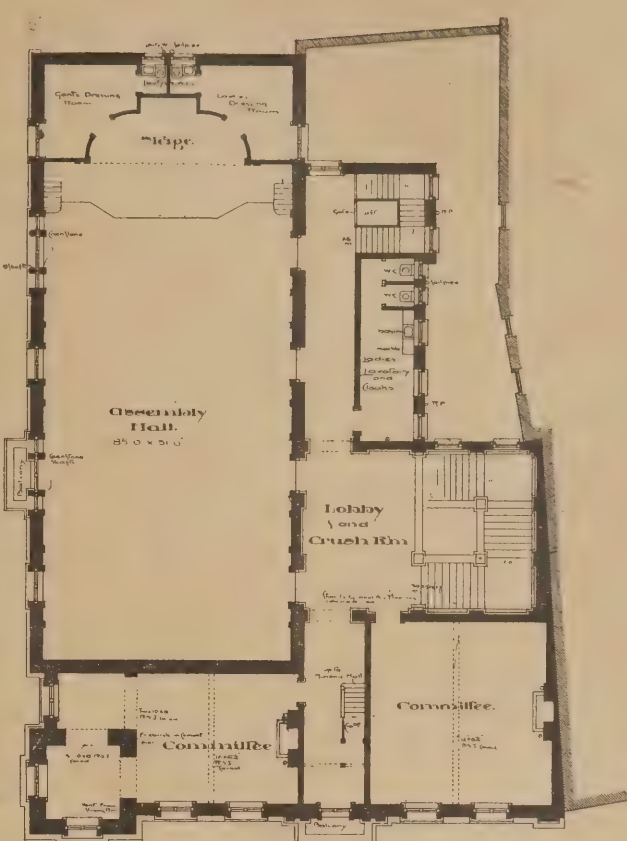


NEW TOWN HALL AT ENNISKILLEN. MESSRS. ANTHONY SCOTT AND SON, ARCHITECTS.

New Town Hall Enniskillen.

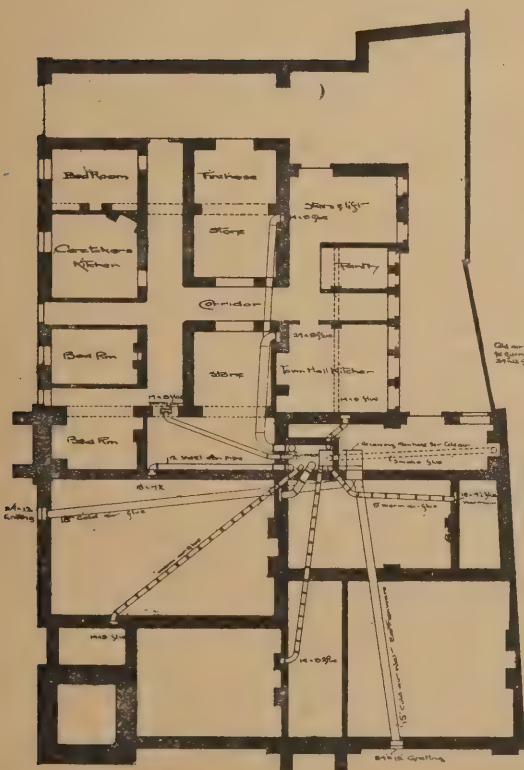


Ground Floor Plan



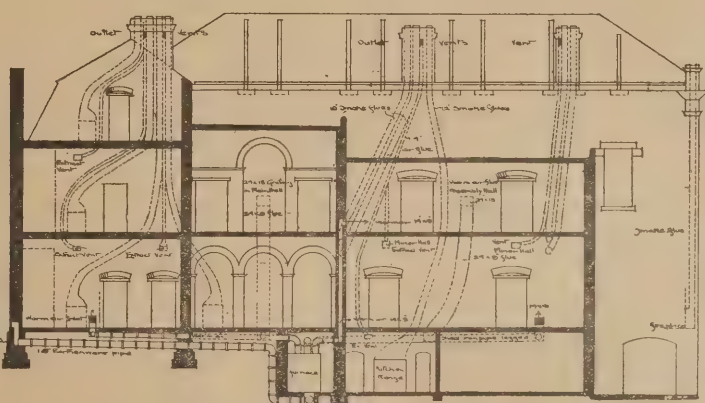
First Floor Plan

Anthony Scott & Son
Architects Enniskillen

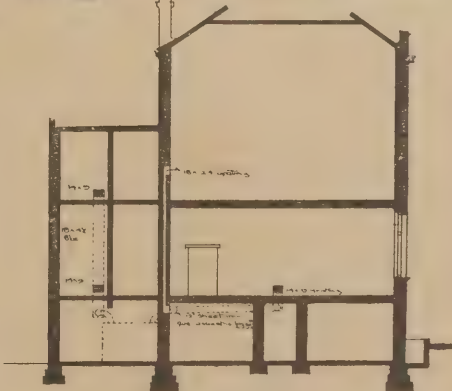
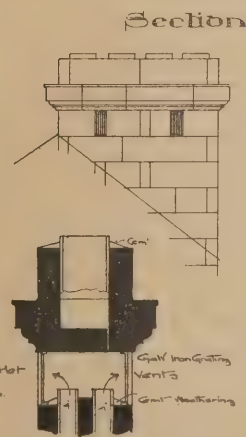


Basement Plan

September 1898



Section



Section

Anthony Scott & Son
Architects Enniskillen

PROPERTY OF THE
UNIVERSITY OF CHICAGO

THE ARCHITECTURAL ASSOCIATION.

INAUGURATION OF THE WINTER SESSION.

PRESIDENTIAL ADDRESS.

THE session 1898-9 of the Architectural Association was inaugurated on Friday night. The Association commences the winter term full of hope and vigour, and with an admirable President in the person of Mr. G. H. Fellowes Prynne, F.R.I.B.A., at its head. The adoption of the annual report and balance-sheet was the first business item of the new session, and following it came the distribution of prizes to this year's winners of the respective competitions. We have already published the list of successful students, and, passing over the annual report until our next issue, we come to the President's address. It was as follows:—"In addressing you this evening I feel my first duty is to thank you for electing me to the honoured position of your President for the ensuing year. In accepting that important and responsible position, let me assure you that my heart is thoroughly in my work, and it will be my first and last aim to pass on the good traditions of this chair unsullied to my successor. With regard to the custom, your President's annual address, it may be looked upon by many as a necessary evil, and, perhaps, by none more so than the President himself. However, custom it is, and I maintain on the whole

A HEALTHFUL CUSTOM,

as although involving almost necessarily some repetition, it enables us to look at things from a somewhat different point of view, it may open up some further field for thought, and again it may perhaps, from year to year, help to inspire or to rekindle enthusiasm for the great work being carried on by the Architectural Association. Having completed our fifty years' life as an association and entering now upon the first session of a new decade, we are in a measure able to review the past with considerable satisfaction, and, with past experience to guide us, to look forward with every hope of even greater success in the future. The very useful review of the history of the Association given in your late President's address renders it, I am glad to say, unnecessary for me to dwell further upon the historical side except only as far as it touches upon the progress in the educational work of the Architectural Association. The

FIRST OBJECT OF THE PROMOTERS

of the Association was perhaps necessarily a somewhat limited one, and it must be a source of no small gratification to Professor Kerr and Mr. Arthur Cates (now our oldest member), and other of the promoters who are still amongst us, to whom we all owe so much, to see the vigorous plant that has grown from the small seed they planted and nourished with so much care fifty years ago. Whilst we should never lose sight of the debt of gratitude we owe to the first promoters of the Architectural Association, yet I feel sure that they will be the first to acknowledge that the good work they started has been well carried forward by many able workers, to whom we owe an equal debt of gratitude; and more especially to those who were the means of bringing about the great revolution in our mode of work, and launching the new scheme of education. Useful as the educational work of the Association had been up till 1891, and successful in many ways as had been the results of the noble and generous voluntary support given in teaching and otherwise—and again, whilst it cannot be denied that the enthusiasm inspired amongst students was as great, if not even greater,

UNDER THE OLD VOLUNTARY SYSTEM,

more especially in such sections as the old Class of Design, yet undoubtedly with the rise of numerous Schools of Art, and the demands for systematic education in every branch of art and science, it became absolutely necessary

if we were to maintain our position as an educational body, that our whole system should be worked upon more methodical lines than heretofore; and further that our educational work should not be dependent solely on voluntary effort. How much this great need was felt by those most interested in our welfare, for many years before its accomplishment became possible, is purely a matter of history. With what care and surprising thoroughness the new scheme was at last launched, and became a living factor for good, under the able direction of our energetic past presidents, Mr. Stokes and Mr. Baggallay, and no less energetic secretaries, Farrow, Gale, and Goldsmith, we have ample evidence in the original curriculum. This curriculum was at once simple and comprehensive; and the fact that so few alterations to the original scheme have been found necessary, speaks wonders for the care and insight of its framers. Such changes as have been made from time to time are the outcome of experience in actual working, and that further modifications will have to be made in the near future is more than probable. Good as our start

IN THOROUGH EDUCATIONAL WORK

has been, we do not for a moment think that our system is yet by any means perfect. Indeed, there are palpable deficiencies, and especially as regards the technical and practical branches of our work, upon which I shall say a few words later on. You will, I hope, agree with me when I say that it is not well that we should always be looking only at the bright side of the picture. There is certainly another side, and it is much better to face it; and as it is a matter that affects the whole body, I trust you will forgive me if I state certain facts concerning the work of the last few sessions. One of the greatest disappointments is perhaps in finding how few students comparatively work through the four years' course proposed by the original and still recommended by the present curriculum. It is very hard to judge exact results by figures only, as a majority of our students take up various subjects, the studio work, or especial courses of lectures separately. I will therefore not attempt to compare averages, as it would probably be misleading; nevertheless, it is

DISTINCTLY DISAPPOINTING

to find that out of all the students who have joined during the years 1891 to 1894 and 1895 inclusive, only eighteen have taken the complete four years' course. Of this number seven students commenced their studies in the session 1891-92; five in session 1892-93; five in session 1893-94; one in session 1894-95. These figures at least indicate that the four years' course is either not generally popular amongst students, or otherwise that the majority of students do not under our present system of pupilage find it practicable to carry forward a regular four years' course of A.A. instruction in addition to their other work; and it must not be forgotten that the more industrious and ambitious students, or those with more time at their disposal, are tempted, and I think wisely so, to join the Royal Academy Schools, and carry on the R.A. work conjointly with that of the Association. This in itself may to some extent tell against the success of

THE FOUR YEARS' COURSE

originally proposed. What do we learn from the experience of our various divisions of work? When the work was divided into four divisions, it was Division III. and IV. that were poorly attended; when the work was rearranged in three divisions, it was Division III. that languished, and now that the curriculum is once more modified, and excellently arranged for the complete work to be included in two divisions, it is in the advanced classes of Division II. that there is still the greatest falling off. Indeed so much was this the case during the last session that the committee have felt that it was desirable to remove the valuable lectures on general history, and those on stresses and strains from Division II. to Division I., and to make land surveying, originally in Division I., one of the extra subjects. This will perhaps tend to make the

lectures in Division I. still more popular, and we hope at the same time increase the attendance at the remaining classes in Division II. But I am not confident that it will altogether solve the problem as to why it is that the majority of students do not follow on

THROUGH THE ADVANCED CLASSES.

Personally, my view is that, taking into consideration the present system of pupilage and other difficulties that beset the architectural student, a four years' course, unless under a regular college system, is too long, and that a curriculum drawn up for a three years' complete course would be more popular and successful: not that I think four years under regular systematic work too much—*per se*—but when supplemented by office and other work, it becomes impracticable. In saying this, I am aware that it is possible for a student to cram through the lectures and other classes in two years, but in doing so he must miss much of the studio work. This course cannot be too strongly deprecated. That it is resorted to by some as a means of cramming up for and passing the R.I.B.A. examination in a limited time, is, I regret to say, only too true. Again, it is found that many students, after passing through Division I., go

TO A PRIVATE TUTOR

for getting up the advanced subjects, with the same object. It is, I fear, one of the inevitable evils of this otherwise most useful examination, that students are tempted to consider the passing of this examination the goal of their ambition, and to make the historical, theoretical, and scientific side of architecture the main feature of their studies, too often to the detriment of the practical art and craft side of their education. Whilst I am most firmly convinced that the reading, the study, and the preparation that is necessary for these examinations is simply invaluable to the student as a means to an end, and that even the examination itself may be, and is, in many cases, an incentive to work, yet one cannot but deplore that

THE PASSING OF THE EXAMINATION

is the end far too often worked for, and not architecture. There are certain peculiarities I have particularly noticed about the man whose only or principal qualification to being an artist is the passing of the R.I.B.A. examination, as opposed to the artist who uses the examination, as it is intended to be used, as an accessory to his art—the former invariably wants to tell you all about it—he has a wonderful liking to discourse upon his book-learned art to others, and is sublimely critical as to what is and is not correct in style, &c. For fear of being misunderstood, however, let me repeat that I believe the R.I.B.A. examinations, within limits, to be a great lever for good, both as an incentive to study and as a test to study. If these examinations are not, as they never should be considered, or thought of, as a test of art, they may, I think, in a measure, be fairly considered as a certain qualification in the very necessary

SCIENTIFIC SIDE OF OUR ART.

But having said this, I feel I am only expressing the views of all who have interested themselves in the educational work of the Architectural Association when I emphatically assert that in no way whatever do we as an educational body encourage a system of cramming students for the R.I.B.A., or any other architectural examination; and we most strongly deprecate the idea of our classes being used for that end, to the detriment of the studio work, which, as I have before said, must of necessity be the case if students attempt to confine their studies to a two years' course. No, gentlemen, the whole scheme of our educational work is based upon a much firmer foundation than is involved in cramming. It was the aim of the framers of our new scheme, and the great desire of those who have carried on that scheme, to lay a solid foundation of elementary education, and to build up gradually a superstructure, that should be as perfect in its parts as we could make it; and in this system was it, do you

think, for one moment desired that historical, theoretical, or even scientific study should be

THE BACKBONE OF THE WORK?

Surely not! The studio work, and all that is involved in it, I venture to say, was intended to be the backbone of all other study—and that the subjects therein taught should throughout be worked conjointly with the lectures, classes, or divisions. It is here that a student will first learn to express his thoughts and ideas with his pencil—it is here that he will learn the beauty, relative proportion and value of ornament and mouldings—it is here that he will be able to formulate his ideas into actual working formula—it is here that he will be able to test the value of what he has learnt in other sections—and last, but not least, it is in the studio that he will learn the fundamental principles of design, and, having gained confidence in himself, will have many unrestricted opportunities of showing that

INDIVIDUALITY IN DESIGN,

which I trust it will ever be the object of the Association to encourage. It is for these reasons I say that the studio work should be considered by our students as the very basis of all other work. Amongst our many really able instructors, it would seem invidious to pick out any one name, when all, in their particular spheres of work, are so thoroughly good, was it not for the fact that I am now more particularly dealing with the studio work, but I think all who know Mr. Lewis will agree with me that he is simply *facile princeps* in his position as studio instructor. Whilst speaking of the value of studio work I want to take the opportunity of calling very special attention to one important section of it—I refer to the School of Design. In the August number of Architectural Association Notes you may have noticed that I took the opportunity, at the request of the committee, of inserting a short note upon what in our new Brown Book we call the School of Design and Handicraft. Our older members will remember how popular was

THE OLD CLASS OF DESIGN

in years gone by. I have previously referred to the enthusiasm in connection with this class under the old voluntary system. Many men, who are now in full-blown practice, will remember, with feelings of gratitude to the Architectural Association, the great help this old class of design was to them in their early days, and I am sure I am only expressing the feelings of many when I say I shall not only remember the class with feelings of gratitude for the good I obtained from it, but with feelings of affection for the many friendships that resulted from our social intercourse and friendly rivalry. Now, this is the class in our present system that binds us most closely with the past. It is this class that is most closely allied to the voluntary system of teaching. The instructors, or, to be more correct, I should say the visitors in this case, give their services freely and ungrudgingly for the good of the cause as of old, yet withal I regret to say that we have

TO DEPLORE & FALLING OFF

in this School of Design, both in membership and quality of work. It has puzzled the committee a good deal to try and find out the real cause of this general falling off. It surely cannot be that there is less enthusiasm amongst students for this all important branch of study. I do not believe for a moment that there is now less ability among our students than at any previous period of the history of the Architectural Association. On the contrary, there is every reason to believe that with all the advantages we have been trying to heap up for the future happy student of the Architectural Association that we comparatively old fogies shall in another decade be left far behind, and be looking on with wonder and astonishment at the freaks and fancies of the twentieth century style—what shall we call it,

THE CONGLOMERATE STYLE,

invented by those geniuses we hatched and nourished with so much care in the folds of the Architectural Association. But joking aside—it is my earnest hope that this School

of Design may be a great success during the present session, and in expressing my own wish, I am, of course, only speaking as chairman on behalf of the committee. Feeling that the fee of £1 1s. might be the real stumbling block in the way of many who would otherwise join, the committee have, and I think most wisely, decided to reduce the fee to the nominal sum of 5s. in both the elementary and advanced class of design. I trust that this inducement alone will be enough to make the class more really representative of the work of the students of the Architectural Association. One can only hope that on the principle that you value most what you pay most for, that students will not value less what they are paying so little for. The very name, and the object of the class, should of course in itself be

AN AMPLE INDUCEMENT

for any enthusiastic student to join. If, however, further inducement were needed, surely a glance at the list of names of visitors who, although all busy men, are ready to give their time, energies, and experience, freely and voluntarily for the good of the students, should be sufficient. I will not now say more on this subject, except to add that the committee will watch with hopeful interest the result of its endeavour to meet the convenience and requirements of the students in every possible way. We now come to the latter part of our title: "School of Handicraft." This question is so mixed up with that of premises that it is hard to speak of them apart. Undoubtedly the want of success in this branch of our work is owing to the want of

TECHNICAL AND DEMONSTRATION WORKSHOPS

in our own building. This being quite impossible at 56, Great Marlborough Street, the committee in past years obtained permission for students to attend various workshops and Polytechnics. The results are not encouraging, and personally I think the reasons are obvious. Suffice it to say at present that during the past session not a single student applied to be allowed to attend the Trades Training School, or the Battersea and Chelsea Polytechnics. Twelve students, however, attended the masonry and leadwork classes at the Regent Street Polytechnic under the direction of the L.C.C. Technical Education Board. But twelve out of 176 students is indeed a small proportion. I suppose that amongst the average students of the present day there is no need more conspicuously apparent than the want of thoroughly practical knowledge of materials and their proper treatment constructionally and otherwise. Our lectures and instruction on theoretical construction are, of course, very valuable. But practical demonstration in a workshop by an expert mason, carpenter, bricklayer, and plumber would be of equal, if not greater, value to the young student, and is in any case

A VERY NECESSARY ADJUNCT TO THEORETICAL STUDY.

The advice given by the late Mr. Street to a father who wished to send his son to him as a pupil was: "Please send your son to the workshops of a good builder for a year before sending him to me"; and I feel confident that this was sound advice, and I only wish that it could be more generally followed within certain limits in places where other means of practical training are unattainable. We all know what severe and prolonged workshop training is considered necessary for a civil or mechanical engineer. In a modified degree, it is not one bit less necessary that an architect should have a similar training as to the quality, uses, and correct treatment of the materials he has to deal with in various kinds of building. It is simply deplorable, comparatively speaking, how little really practical knowledge of this kind exists, and, what is worse, how little it is sought for amongst the great majority of students. This is not of course an evil by any means confined to the present generation only. The haphazard system of

LEARNING TO BE AN ARCHITECT

by means of office and class training, and picking up the practical craft side as best you can, has been quite as much an evil of the past as it is of the present day—with this

difference, however, that at the present time the facilities for practical craft training are so much greater than they were a few years ago, that there is less excuse for students not profiting by their numerous advantages. I am not for a moment urging that an architect should himself become a perfect craftsman in all trades. With the many qualifications that are considered requisite for an architect, life is far too short for such an ideal; but I do assert that an architect, worthy of the name, should have such a personal

PRACTICAL KNOWLEDGE OF MATERIALS

and actual workmanship, that he can always utilise the former to the best advantage, and correct the latter, when defective, in all trades; to do this he must gain his experience on the actual building or by practical demonstration in the workshop. It is for this reason that I sincerely hope we shall before long see proper demonstration workshops in direct connection with, if not under the same roof as, the present or future Architectural Association premises. Until such arrangements can be made, I do hope that a larger proportion of the students will join such Polytechnic or other technical classes as they may find most convenient, and that all will take every possible opportunity of visiting various works in progress wherever possible. Principals can in a great measure

HELP FORWARD THEIR PUPILS

in this way, by allowing them continually to visit works they may have in hand, whereby the pupil can study the plans and details and building together. And further, I feel sure that there are many architects who have sufficient interest in the education of their younger brethren to give to individual Architectural Association students permission to visit their buildings. Personally, by previous arrangement, I should be always pleased to do so. There are two other points bearing upon the work of the last session that I feel bound to touch upon. First, that the instructors do not think the "home-work" is as good as it should be, and the second is the want of support given to the modelling class. As regards the former—the Association cannot, of course, attempt to regulate the "home-work" of students, but let me say that if they want to obtain the full benefit of the lectures and classes they pay for—home-work is

AN INVALUABLE ACCESSORY,

and one which by being neglected leaves the individual student the main sufferer. And with reference to the latter, what I have said as regards workshop study applies with equal force to the study of modelling. Wholly independent of the intrinsic value of modelling as a means of learning form and proportion, and the value of light and shade under various conditions, and in various positions, it is one of the greatest helps to an architect being able to illustrate his requirements as to ornament, or intricate stone work, by modelling for the carver or mason—and it is a kind of illustration that both carver and mason appreciate far more than a pencil sketch, and greatly enhances the reputation and respect for an architect amongst the workmen. Somehow the great value of modelling is not properly appreciated. In Mr. Pomeroy we have an instructor second to none in the art, and this, combined with the simple facts that I have stated as regards

THE VALUE OF MODELLING

to the architect, should tend to render this one of the most popular classes in the Architectural Association. I am afraid so far you have found what I have said very severely practical, but I cannot but feel that if we wish to make the Association work more thoroughly successful than it is, it is well that we should at times look at the severely practical side of things, and see where our defects and weaknesses are, that we may be in a better position to remedy them. To turn now to more general subjects. Undoubtedly the greatest need of the Association at present is the want of new premises. For years past this need has been unceasingly felt. The prospect of

NEW AND MORE SUITABLE PREMISES

has so often been foreshadowed, unhappily without any tangible result, that I cannot

wonder that members should feel disappointed, and, consequently, somewhat apathetic on the subject. But I can assure those who are not immediately behind the scenes that the question is by no means an easy one, and beset with many difficulties. The committee, as a body, certainly have not shirked the question. Time after time have different schemes been brought before them, and many hours have been spent in the inspection of possible buildings, and yet on only two occasions have we come anywhere near a solution of our problem—and then only to find our hopes blighted by some unforeseen difficulties. The largeness of our requirements and the limited means at our disposal, form the two great obstacles to the attainment of our long deferred hope. In company with several of my predecessors in the chair, I had good reasons to hope that I should be able to bring before you this evening a scheme that would meet our requirements, and it is with much regret that I find myself at the last moment unable to do so. But I can say this much, that the Jubilee Premises Committee have under consideration another scheme that we sincerely trust we shall be able to submit for your consideration at no distant date. As certain questions have lately been put to me on the subject, I will briefly state what I consider our needs are, and what I shall aim at obtaining in any scheme for new premises. In the first place, I should like to see our Architectural Association centre made much more of

A TRUE CENTRE, A HOME, OR CLUB,

if you like it better, of architectural life; a place where one and all members could drop in at all reasonable hours of the day, and enjoy the privileges of a good common room, where light refreshments could be obtained, and a comfortable reading and writing and smoking room; a place where one would not feel ashamed to ask a friend or client to meet one, and where the parents and guardians of any student might call, without feeling that they were visiting a sort of architectural wholesale warehouse or counting-house; and last, but not least, a place where country members or members of allied societies, could call, and feel that they had a homely centre in this great metropolis, where they would be always welcome and could meet men of like interests to their own. I have no wish to draw any fantastic picture, but in my humble opinion a modified club life, such as I have referred to, would be of great service to the younger as well as the older members of the profession. Within proper limits its tendency would undoubtedly be for good all round; it would form a social background to the otherwise serious educational work of the Association, which would reflect warmth of feeling and create a spirit of *esprit de corps* amongst its members. I could wish that there was some such

CLUB LIFE IN THE ROYAL INSTITUTE OF BRITISH ARCHITECTS,

that it might be in reality what it should be—the proper social, as well as the professional, centre in London for all architects. In addition to good offices and library and classroom accommodation, it is, I think, desirable that we should have our own meeting room if possible, and a large well-lighted and ventilated studio will be an essential feature; and the next important new requirement should be demonstration workshops—an addition which will, I hope, be one of the great features of our future educational work. You will notice that I use the title demonstration workshops; I do so advisedly. Any scheme for extensive workshops in various trades would (even if it were desirable) be entirely beyond our means. Men who wish to attend regular workshops where they can see a large variety of work can always make arrangements with some good builder to do so, and they will no doubt obtain

A GOOD INSIGHT INTO PRACTICAL WORK.

There are, however, many obvious difficulties, and, I think, some objections to regular builders' workshops training. To begin with, anyone who wishes this sort of training to be of real service to him must make up his mind that no half measures will be successful. He must

drop any sort of kid-glove studentship, and be ready to work with his hands, and on the same footing as any ordinary mechanic. There are troublesome class difficulties and craft jealousies to be faced—a footing to be paid for, added to which there are only too often influences of a low moral and degrading kind, that cannot be healthful to the younger student just starting upon his life's career; and in saying this, I speak from personal experience. Again, hard manual work at the bench or banker may often be injurious to a man's sketching and pencil work. It is for these reasons that I think

THE FIRST PRACTICAL TRAINING

for architectural students should be in technical schools and demonstration workshops rather than at the actual bench or banker at a builder's works. If after such training a student can take the position of a clerk of works, or a place under a good clerk of works, I believe he will have precisely the kind of practical training that an architect requires. The demonstration workshops that I should like to see in connection with the Architectural Association ought to consist of at least three large rooms: one for carpentry, a second for mason and bricklayer's and tiler's work, and a third for plumbing and general metal work. The furniture would, of course, consist of benches, bankers, lathes, and other necessary tools and appliances on a modified scale—but, further, it should be furnished with

MODELS OF WOOD, STONE, AND METAL CONSTRUCTION,

and plumber's work. In some cases, such as roofs, floors, staircases, and groining, the models would necessarily be on a small scale, but in all cases they should show accurately the construction, with joints, tenons, mortices, scarfings, etc., complete. But for such details as doors, window sashes, and casements, and other things of every-day use that will readily suggest themselves, full-size models would be more useful, and so made that they could be taken to pieces and put together again, so as to be copied, bit by bit, to small scale by students.

(To be continued.)

A GERMAN amateur, Dr. Selle, has made a noteworthy advance in adapting the processes of colour photography already known so as to make them of practical value. Hitherto the pictures have been expensive, and have taken a long time to produce. Dr. Selle has devised a method of making negatives from exposures taken through three films of complementary colours, which enables him to rapidly reproduce the pictures to any extent in the natural tints. It is asserted that prints by his method can be made at the rate of one a minute, by duplication very similar to that of the collotype process. Certainly the pictures which he has already produced are very beautiful, and surpass the most careful colour printing in the accuracy and delicacy of the hues. The shades of a butterfly's wings, the plumage of a bird, the tints of a piece of Bayeux tapestry, are shown with marvellous fidelity.

SOME uneasiness has been created at Southsea by preparation for the erection—on the edge of the Common, between the Clarence Esplanade Pier and the Castle—of a building which is to serve as an engine and boiler house for the generation of the electricity for the search lights at the entrance to Portsmouth harbour and along Southsea beach. The building will be, it is stated, about 24ft. long by about 15ft. wide, and 15ft. in height. Concrete bases are being laid for two sets of engines and two dynamos. It is feared that the building, &c., will be a serious eyesore from the residences and hotels on the other side of Southsea Common; and though it is not disputed that for defensive purposes the War Department have full power to avail themselves of the Common, it is felt by the townspeople that within the walls of the Castle and elsewhere there is ample accommodation for such a building, and that by the erection of such a structure on this part of the Common little consideration has been shown to the authorities and inhabitants of the watering place.

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EFFINGHAM HOUSE,
ARUNDEL STREET,
STRAND, W.C.

Bricks and Mortar.

EFFINGHAM HOUSE, ARUNDEL STREET,

October 12th, 1898.

"I know what it is to live in a cottage with a deal floor and roof, and a hearth of mica slates; and I know it to be in many respects healthier and happier than living between a Turkey carpet and a gilded ceiling, beside a steel grate and a polished fender. I do not say that such things have not their place and propriety; but I say this, emphatically, that the tenth part of the expense which is sacrificed in domestic vanities, if not absolutely and meaninglessly lost in domestic discomforts and incumbrances, would, if collectively offered and wisely employed, build a marble church for every town in England; such a church as it should be a joy and a blessing ever to pass near in our daily ways and walks, as it would bring the light into the eyes to see from afar, lifting its fair height above the purple crowd of humble roofs."—JOHN RUSKIN.

THE two Roman pavements recently discovered at Leicester, close to the old church of St. Nicholas, were discovered during the digging out of cellars for some new shops to be built. Their present level is from 8ft. to 12ft. below the street. The surface of the larger piece is much damaged, and the border is lost on two sides. The colouring is very rich, and the design handsome. It consists of nine octagons with a rope ornament. The central design is a peacock, with a beautiful circular border.

THE smaller pavement lies at a distance of 4ft. The margin is defective, but otherwise it is in almost perfect condition. It is plainer than the large piece, and is in two parts. Over two-thirds of its surface there is a simple diagonal pattern, alternating in white upon a grey ground, enclosed in a white rectangular border with a broader strip of grey outside. The other third is of plain grey stone, with red ends, the grey ground being dotted over with clusters of five white tesserae in the form of a cross. Leicester occupies the site of the Roman Ratae, an important station on the Fosse Way.

A LETTER from Friedrichsruh informs us that the building of the mausoleum for Prince Bismarck is being pushed forward with considerable speed, and that great numbers of workmen are now busy upon it. Its huge dimensions are already perceptible; the height of the dome will be not less than twenty-six to twenty-seven metres, and the stone walls are about 1½ metres thick. A chapel, with an altar and decorations, will occupy the centre of the mausoleum. Beneath this will be a huge crypt, with nave and aisles. The bodies of Prince and Princess Bismarck are to be laid side by side at the western end of the nave of the crypt. It is hoped that the building will be so far advanced before the end of autumn as to permit the ceremonial "translation" of the coffins of the great statesman and his wife to their final resting-place.

It is well-known that "megalithic monuments," that is to say, erections of big stones such as our "dolmens" and "cromlechs," are scattered over a great part of Europe from Scandinavia southwards, the north of Africa, and elsewhere. There are very good examples at Ellez, in Tunisia, between Kef and Kairouan. They are built of limestone slabs, and many of them are divided into chambers which have evidently been inhabited. The fact that no regular vents for air or smoke have been observed in them led M. Gauckler,

Director of Antiquities and Fine Arts in the Regency of Tunis, to regard them as tombs. Others look upon them as the remains of an ancient necropolis, which came to be inhabited later on. As to the date of the structures opinions vary, some placing it after the invasion of the Vandals in the fourth century of our era, others referring it to a prehistoric period. Probably the last view is the more correct. At any rate the European dolmens are prehistoric.

THE destroying hand of the builder is being laid heavily on Dulwich village. Thanks to the determination of the trustees of Dulwich College not to grant a fresh lease to anyone proposing to carry on the business of a licensed victualler, the picturesque "Greyhound" has been razed to the ground. The hotel which has been demolished had stood for upwards of two centuries. In its rooms wits like Dickens, Thackeray, Mark Lemon, and others, often whiled away pleasant hours; and Sir Joseph Paxton frequently stayed there during the building of the Crystal Palace. The records of the house, however, go much further back. Camberwell's parochial archives, too, bear witness to the fact that in the days when the village magnates were wont to settle parish affairs in favoured inns the "Greyhound" had its turn, for in 1768 they met there to settle the poor rate.

MUCH credit is due to the promoters of the Photographic Salon—a small band of enthusiasts who, six years ago, made a notable endeavour to lift the art of sun picturing to a higher place than that of a mere copyist. They sought to prove that in educated hands the camera was something more than a recorder of bare facts, and that by its aid a picture could be produced possessing those qualities which are called artistic. Annual exhibitions of photographs had, it is true, been held in London and occasionally in the provinces, ever since Daguerre in France and Fox Talbot in England had found out how to entrap the fugitive images formed by means of a lens, but the pictures shown were, with few exceptions, much of the same type, mere transcripts of nature, while at the same time they were unnatural, and full of blemishes which made their acceptance as works of Art impossible. The members of the Salon determined to do their best in the way of reform, and as they deemed it hopeless to influence to any great extent exhibitions which had kept to the old ruts for so long, they took the bold step of starting an exhibition of their own on altogether novel lines. That their efforts have been successful is evident from the circumstance that the present exhibition, held, as heretofore, at the Dudley Gallery, is the sixth.

MANY of the prints are produced by a comparatively new process, in which actual brush work is considered not only permissible but necessary, a process which is hardly recognised by the professional photographer who has not the time to devote to the necessary manipulations. Briefly this process, known as gum-bichromate, consists in coating a sheet of paper with fine carbon, or any suitable pigment, which has been tempered with gum water and bichromate of potash. This salt renders such pigment insoluble. After exposure to light; and when paper so prepared is placed under a negative through which the light is allowed to act, the highest lights only remain soluble, while the various gradations of the negative cause a gradual increasing insolubility to be attained until the deepest shadows are reached. This print, after exposure to light, is left to soak in water so as to remove the soluble portions, and a brush can be used to modify the attachment of the pigment to the paper to any extent desired. It would seem, however, that there are many difficulties in bringing this process to anything like perfection, at least so we judge by several pictures hung here, which have the appearance of studies in charcoal or black chalk rather than photographs; while, on the other hand, some seem to know how to so work the process that they can produce by it pictures of the

utmost delicacy. This is notably the case in the works of Robert Demarchy, who has taken the lead in this new kind of photography, as will be seen especially in his decorative panel No. 11, which is full of charm.

EDOUARD DETAILLE, the famous French battle painter, is the subject of an interesting article in the *Century Magazine*. This great artist was born some fifty years ago in Paris. His early youth was passed entirely in a military atmosphere. He was a constant visitor for many years to the studio of Horace Vernet, where the most illustrious survivors of the Grand Army were wont to meet. At an early age he became a pupil of Meissonnier, and in 1867 exhibited his first picture at the Salon. One year later he appeared again at the Salon with a larger work, entitled, "Halt of the Drum Corps," with which he scored a great success. To-day his studio on the Boulevard Malesherbes is a military museum.

NEVER was soul of artist more completely reflected in his work than is Detaille's. His soul expands into solemn grandeur in his series of paintings of the French army. It appears emotional in "The Dream" (*Le Reve*), in "The Victims of Duty," in "The Sally of the Garrison of Huningen," and in the "Retour de Chalons." It reveals itself in all its jovial kindness, its clever and gentle irony, in the humorous sketches which may be placed in sequence with those of his famous predecessors, the Vernets, Raffet, Charlet, without fear that the comparison will be to his disadvantage.

For some time past most of the popular Art shows have reduced the number of their pictures, and there has been a general tendency towards exhibitions of moderate dimensions, it being generally allowed that such a course is not only more agreeable to the public, but it raises the character of the collection, and is of greater benefit to the artist. It is satisfactory to find that the directors of the New Gallery are conforming to this excellent custom, and it is to be hoped in due time the Royal Academy may see its way to a similar reform. If we mistake not, this is one of the smallest autumn exhibitions ever held in this gallery—there being but sixty-two pictures hung in the two principal rooms. These are the work of forty-seven artists of the modern French school. The South Room contains a collection of objects of Art exhibited by Signor Bordini, of Florence, and in various cases may be found enamels designed and executed by M. Eugène Feuillâtre, M. René Foy, and others.

AMONG the pictures above alluded to especial attention may be called to Madame Virginie Demont Breton's vigorous and lifelike presentation of a young girl bathing "In the Azure Sea," and M. Adrien Demont's fine study of sea, sky, and shore in "Wreckage." Two fine bits of portraiture and wondrous contrasts between the costume of the past and the present may be found in M. J. P. Laurens' portrait of his son and "A Bravo," by M. F. Roybet. "Grandpapa's Visit," by M. J. A. Muenier, recalls the work of some of our early Pre-Raphaelites, and M. R. Collin's "Awakening" is a graceful nude on a large scale. M. J. Machard's "Sleep of Eros" is poetically rendered, but loses considerably from the pallor and coldness of its flesh tones. M. Benjamin-Constant's portraits should all be attentively considered. Among them may be especially named those of M. Hanotiaux, M. Saint-Saëns, and the aunt of the artist. M. A. Muraton's "Marquis de V." is vigorous and lifelike, and another portrait by M. E. Bordes is full of power. "Cast up by the Sea," by M. F. Tattergrain, "Moonshine on the Canal of St. Denis," by M. R. Billotte, and "In the Park of St. Ange," by M. E. G. Marché, are among other landscapes which should by no means escape careful inspection. Lovers of the mystical will find ample food for reflection in "Diana," by M. J. L. Gérôme, "An Angelic Choir," by M. E. Maxence, and "A Fantasy," by M. G. G. Roger. There are some interesting cases of ancient musical instruments, marriage caskets, and majolica in the central hall, and a

fine collection of photographs from notable pictures is on view in the balcony.

THE advance of years does not seem to have diminished in any way the artistic energy of Mr. G. F. Watts. Few modern artists can show a more wonderful record of work accomplished year by year, or more convincing evidence of most valuable mental activity. The veteran painter is constantly busy with new schemes for the popularisation of the highest type of Art, and is ever devising fresh ways of appealing to the latent æstheticism of the masses. His latest idea, says the *Globe*, the outcome of a suggestion made by him eleven years ago, is to provide a series of permanent memorials of heroism in every-day life. His argument is that the great deeds of individuals constitute one of the chief "abiding possessions" of the nation to which these individuals belong, and that courage and devotion in the ordinary circumstances of private life claim as much recognition as magnificent achievements in battle or in the public service.

To provide a first step towards the realisation of this scheme, Mr. Watts has undertaken, with the hearty sympathy of the vicar of the parish, to build in the churchyard of St. Botolph's, Aldersgate, an open gallery in which can be placed memorials of the type that he considers appropriate. The first one he will contribute himself, taking as his motive the devotion of a young nursemaid, Alice Ayres, who, at a fire in Gravel Lane, in 1885, sacrificed her own life to save those of three children who were in her charge; and he hopes as time goes on to make other additions to the series. The material suggested for these illustrations of everyday heroism is terra-cotta, which will, it is thought, have the advantage of being convenient to handle and reasonably permanent.

MR. WATTS, meanwhile, is busy making additions to his great collection of contemporary portraits which will eventually become one of the most important of the national possessions. He has just completed a portrait of Mr. Gerald Balfour, adding him to the already long roll of notable men whom he has numbered among his sitters. The final touches to the great statue of "Physical Energy" are also occupying the artist's time. This colossal equestrian figure forms part of his gift to the nation, and a site for it is to be provided ultimately in some central position. It will serve admirably as a memorial of a great worker whose whole life has been a record of devotion to the best interests of our native Art.

AFTER lying neglected and almost forgotten in a house at Maidenhead for over twenty years, a remarkable collection of intaglios have come to light. The collection embraces nearly 2000 "impressions" of cameo work of the most delicate description, the material on which the impressions have been made being red sealing-wax. Additional interest is lent to the collection by the fact that it formerly belonged to a Lord Mayor, Mr. Alderman Boydell, who filled the civic chair in the year 1790. There appears to be no doubt that the Alderman was an enthusiastic as well as a careful collector, and the fact that he must have spent enormous sums of money upon his hobby is evidenced by the quality and the number of the specimens which he secured during his lifetime. It is known that he succeeded to an old-established print-seller's business in Cheapside, and was at one period of his career a man of considerable wealth. His collection of pictures when sold by auction fetched a very large sum of money. His enterprise in the advancement of British art ended, unhappily, in bankruptcy. The present collection is, of course, one of impressions from original stones, and if those stones could be gathered together, as the replicas have been, they would be worth many thousands of pounds. Great care was taken in forming this collection, which is contained in nearly twenty fairly-sized cases, made of English oak and strongly fastened. Each specimen is numbered, a fact which proves that they were at one time carefully cata-

logued. Not one of the specimens is duplicated; at least, that is the opinion which has been formed by those capable of judging. Many are very minute, and their artistic beauty can only be fully appreciated by means of a powerful glass. Some are obviously comparatively modern in character, and this may be judged by the lack of that delicate expression and exquisite workmanship which is the charm of the old—and lost—art.

THE much-felt requirement for thoroughly independent tests with fire-resisting materials and systems is now to be met by a testing station, organised under the auspices of the British Fire Prevention Committee, where, in lieu of the often one-sided exhibitions given by makers and inventors, the investigations will be carried out reliably in an essentially practical manner and on scientific lines. The committee's testing station will be near Regent's Park, within easy reach of the West End, and the necessary arrangements are already being made to inaugurate the first series of tests. Systematic research work in the question of fire resistance has, as yet, only been commenced in the States, and the testing station in question will be the first of its kind in Europe. The preliminary arrangements have been in the hands of Mr. Edwin O. Sachs, acting for the Executive, and Mr. Fredrick R. Farrow, acting for the commercial section. The tests in each case will be undertaken by the Executive, in conjunction with representatives of the Council and the general body of members, and the reports will take the form of statements of facts, supplemented by diagrams and photographs duly attested. The first set of tests will be with ceilings, and among the firms on the register in order of application whose work is being investigated, we see that the Asbestos and Asbestic Company and the Expanded Metal Company hold the first place.

THE works in connection with the conversion of Hertford House, Manchester Square, into one of the national museums for the housing of the collection which Lady Wallace bequeathed to the nation, are being rapidly carried out by the Office of Works, under the direction of Sir John Taylor. Galleries are being erected over the north wing of the house, where in former times the stables stood, and new staircases have been constructed for both the west and the east wings, while the front staircase will remain as it was in the days when the Prince Regent ascended it so often. The walls of the smaller rooms are being pierced with archways, so that they will form a succession of galleries, while provision is being made to light the picture galleries from the roof, and the entire building with the electric light. The celebrated ball-room in which Becky Sharpe displayed her histrionic ability in the charades has had a gallery placed around it, and the two lodges at the gates, outside which Rawdon Crawley was "nabbed," are to be swept away to make room for a better approach to the new entrance and vestibule, which is being built in front of the house. Hertford House was built in 1771 by the Duke of Manchester, and before becoming the property of the Marquess of Hertford it was successively the habitation of the Spanish and French Embassies, Talleyrand living in it during this period. The collection of armour, pictures, and curiosities has not been removed during the alterations, but has been carefully stored in the completed parts of the building.

It would scarcely be possible to praise too highly the plate which Messrs. Leggatt have just published after Romney's exquisite portrait of Mrs. Townley Ward, which was lately lent by Lord Aldenham to one of the Guildhall Loan Exhibitions. It was executed in pure mezzotint by Mr. Scott Bridgwater, who has been exceptionally successful in retaining the characteristic charm of the picture. He has interpreted delightfully the distinctive beauty of style and elegance of drawing of the original, and has gained notable richness of tone throughout without losing delicacy in his gradations or variety in his surface. The reproduction does full justice to the genius of the artist.

L.C.C.

THE BUILDING COMMITTEE'S REPORT.

THE sittings of the London County Council were resumed on Tuesday of last week at the County Hall, Spring Gardens, Mr. T. McKinnon Wood presiding.

COMPLETED LOANS.

The Finance Committee reported that the following loans had been completed: Bermondsey Vestry, £4000 for paving works; Hackney Vestry, £2190 for additional expenditure on town-hall; Hammersmith Vestry, £15,500 for electric lighting; Hampstead Vestry, £16,700 for electric lighting; Hampstead Vestry, £39,980 for electric light installation; Islington Vestry, £23,840 for electric light installation; Kensington Vestry, £15,500 for addition to offices and coroner's court; Lambeth Vestry, £5,985 for paving works; Newington Vestry, £5000 for various works at depot; Poplar District Board, £9200 for paving works; St. Pancras Vestry, £4590 for sanitary conveniences, and £17,000 for baths, &c.; St. Pancras Vestry, £16,560 for street improvement and paving works; Shoreditch Vestry, £11,340 for electric lighting; Wandsworth District Board, £1800 for sanitary conveniences; Camberwell Guardians, £11,000 for purchase of land; Islington Guardians, £50,000 for erection of infirmary; St. Marylebone Guardians, £58,340 for erection of workhouse; Shoreditch Guardians, £3140 for school and infirmary; Whitechapel Guardians, £7500 for alterations to workhouse; and Battersea Overseers, £4840 for additions to town hall, &c.

PROPOSED LOANS FOR LOCAL WORKS.

Upon the recommendation of the Finance Committee, it was agreed to lend the Battersea Vestry £1545 for the erection of conveniences; the Islington Vestry £21,010 for street improvements, laying out open space by Cattle Market, &c.; St. George's East Vestry £3000 for paving works; the Westminster Vestry £15,000 for similar purposes; the Strand Board of Guardians £7035 for the erection of receiving wards at the workhouse; the Wandsworth Guardians £11,400 for the erection of a nurses' home; and the Managers of the Central London Sick Asylum District £32,000 towards the cost of building an asylum at Hendon.

A QUARTER'S EXPENDITURE IN TECHNICAL INSTRUCTION.

The regulations made by the Council on May 29th, 1894, governing the financial relations between the Council and the Technical Education Board, provide that the Board shall furnish quarterly to the Finance Committee a detailed statement of receipts and expenditure, and that it shall be the duty of the Finance Committee to report to the Council upon the expenditure of the Board in relation to the estimate. The statement of account submitted by the Technical Education Board for the quarter ended June 30th, 1898, had been examined by the Comptroller, the Finance Committee reported. The expenditure for the quarter amounted to £25,918 18s. 3d., and under one head had exceeded the estimate, viz., under the head of art teaching, science and technology, and the manual instruction for the year 1895-6. The excess, however, was not large, being £71 2s. 7d. on an estimate of over £17,000, and it was stated that the expenditure under that head for the year in question was practically completed. The balance in the hands of the Board on June 30th was £90,800 3s. 5d., including the £75,000 paid over to the Board's account under the resolution of the Council of June 21st.

THE EAST LONDON WATER SUPPLY.

The Chairman gave urgency, after the Council had sat for two hours, to the following motion placed on the paper by Mr. W. Crookes, one of the Labour members for Poplar:—"That, in view of the existing difficulty in obtaining an adequate supply of water in a large portion

of the County of London, it be an instruction to the Water Committee to forthwith submit its proposals with regard to legislation affecting the water supply in the ensuing session of Parliament." In proposing this motion, he said the Council needed no apology after recent events for the introduction of this important question. They had been told time after time that the companies were quite capable of attending to their own businesses if left alone, and that they were able to give the people an adequate supply. In his opinion, had it not been for the efforts of the sanitary authorities there would have been a very serious epidemic in the East End of London. They had been told that all would have been right if cisterns had been provided, but the Council were advised that such cisterns were hotbeds of disease, and there was therefore the alternative of a constant supply. As to the statement that the water was pure, he could only say that after it had stood for a time there was a film upon it. The fact was, the people of the East End had no means of storing the water, and when he told them that in one block of ten houses there was one tap for the eighty-six persons who lived in those houses, they could readily understand what a short supply meant for those people. Whatever happened, he hoped the Council would look at the water question from a view quite apart from the companies' present supplies, since nine-tenths of that supplied by the East London Company came from the Valley of the Lee. What the Council ought to do was to go straight away to Wales, and not waste time and money in attempting to patch up the present system.—Mr. J. Stuart, M.P., in seconding the resolution, expressed the view that the water famine was due to the culpable negligence and carelessness of the East London Company. It was only last year that the Company obtained Parliamentary powers to connect their mains with those of other companies in case of urgency, and yet it had taken all the summer for the company to realise that that opportunity was in their grasp. He denied that the County Council were responsible for the famine owing to their opposition to the Bill of 1893, and said that the facts were against those who sought to prove that. The Company's representative told the Select Committee, when the Bill was before the House, that they could depend upon a supply of 36,000,000 gallons a day, but that assumption had been proved to be fallacious. They also told the Committee that they had a storage capacity of 910,000,000 gallons. It was eventually found that the Company's storage did not exceed 615,000,000 gallons. That showed the very loose way in which the company made its statements before the Committee.—Mr. Beachcroft moved an amendment to add the following words to the motion, "and also obtain the opinion of the engineer as to what works are required to provide connection with the mains and works of the several companies for use in case of emergency." He thought his proposal was a practical one, and would not affect the main question of future supply.—Mr. H. Percy Harris seconded.—Sir Arthur Arnold said that no greater condemnation of the companies could be made than that which was contained in the amendment, which actually suggested that the engineers of the companies had not taken every step possible to meet the wants of London.—On the motion of Mr. Dickinson, the debate was adjourned.

THE GREENWICH TUNNEL.

The Bridges Committee thought it advisable that the Council should invite tenders for the construction of the tunnel, and recommended accordingly.—This was agreed to.

MESSRS. RAPHAEL TUCK'S PLANS REFUSED.

The Building Act Committee submitted the following recommendation, which was agreed to: "That the consent of the Council be not given to the erection on the west side of Moorfields, between Tenter Street and White Street, of a building to exceed in extent 250,000 cubic feet, and to be used only for the purposes of the trade of a fine art and book publisher, as shown by the plans and particulars submitted with the application of Messrs. Raphael Tuck

and Sons, Limited; as it has not been shown to the satisfaction of the superintending architect that the additional cubical extent is necessary for the purposes of the trade or manufacture to be carried on at the premises, and that proper arrangements have been or would be made and maintained for lessening, as far as reasonably practicable, danger from fire.

LLOYD'S AVENUE—A NEW CITY STREET.

The Building Act Committee also submitted the following recommendation, which was agreed to:—"That the consent of the Council be given to the erection of a building on the south side of Fenchurch Street, flanking on a proposed new street, named Lloyd's Avenue, between Fenchurch Street and Crutched Friars, with the flank exceeding in height the width of Lloyd's Avenue, as shown upon the plans, dated July 23rd, 1898, submitted with the further application of Mr. T. E. Colclutt on behalf of Lloyd's Register of British and Foreign Shipping, such consent being subject, however, to the following conditions—that the building be commenced within eighteen months from August 30th, 1898.

ALTERATIONS AT THE CITY OF LONDON BREWERY.

The Building Act Committee recommended: "That the consent of the Council be given to the erection of a two-story angle-turret to 89, Upper Thames Street, at the corner of All-hallows Lane, to the line shown on the plans submitted with the application of Mr. A. J. Gale on behalf of the City of London Brewery Company Limited, such consent being subject, however, to the following conditions—that the angle-turret be commenced within six months and completed within eighteen months from October 4th, 1898; that within three months after the erection of the angle-turret the whole of the land coloured blue on the deposited block plan be dedicated to and left open to the use of the public."—This was agreed to.

THE KING'S ARMS, LOWER THAMES STREET.

The Committee further recommended "That the consent of the Council be not given to the erection of a four-story oriel window at the King's Arms public-house, Lower Thames Street, at the corner of Water Lane, as shown upon the plan submitted with the application of Mr. H. M. Wakley on behalf of Reid's Brewery Company Limited, as having regard to the fact that Lower Thames Street and Water Lane are both less than 40ft. wide, it is considered undesirable to permit the erection of the proposed oriel." With reference to the general plans for the rebuilding of this house, the committee also recommended:—"That the sanction of the Council be not given to certain deviations from the plans certified by the district surveyor, under Section 43 of the London Building Act, 1894, so far as it relates to the proposed rebuilding of the King's Arms public-house, Water Lane, as shown upon the plans submitted with the application of Mr. H. M. Wakley on behalf of Reid's Brewery Company Limited, as having regard to the narrowness of Water Lane and Lower Thames Street at this part, it is deemed inexpedient to permit the erection of the new building to the height proposed."—This was agreed to.

THE CUSTODY OF THE EMBANKMENT.

The Council discussed at some length the adjourned report of the Local Government and Taxation Committee's report relative to the proposed transfer of powers from the Council to the local authorities. The first matter which in any way at all affected the City was the following recommendation of the committee: "That the maintenance of the Victoria Embankment and portions of streets adjoining in the precincts of the Savoy and the footways of the Albert and Chelsea Embankments be transferred to the local authorities, and that the lighting, watering, and cleansing of the Victoria Embankment and the footways of the Albert and Chelsea Embankments be transferred to the local authorities, subject to the maintenance and lighting of the walls of the Embankments being retained by the Council."—The recommendation of the Committee was agreed to.

Professional Items.

ABERDEEN.—The opening ceremony of the new Donegall Road Presbyterian Church, Aberdeen, was performed recently. The new church is designed in the Tudor style, carried out in red perforated walling, with red sandstone dressings, window sills, and copings. The ground plan is almost a square of 80ft., divided into nave and aisles by cast metal columns, which rise up to support the galleries and roof principals. A doorway of large size, with clustered columns at jambs and moulded arches, form the centre portion of the main front. The angles of the façade are occupied by projections containing the gallery staircases. One of these is designed to be carried up as a square tower of massive proportions, terminating in lofty pinnacles. The other projection is covered with a steep octagon slated roof. The gable finishes in a brick pinnacle, surmounted by a copper vane. Boldly projecting buttresses are planted at intervals along the side walls, with lofty double light mullioned windows between them. The shallow transepts have three-light windows. Access is obtained through a spacious vestibule to the body of the church, in which the pews converge to one centre point filled by a handsome platform, executed in pitch pine and walnut. The contractor is Mr. Robert Corry, and the architects Messrs. Young and Mackenzie.

BRISTOL.—New offices are being erected in Telephone Avenue, Baldwin Street, Bristol, for the directors of the National Telephone Co. The frontage of the new building will extend for a distance of about 104ft. towards Telephone Avenue, which is to be the name of the street connecting Baldwin Street and Marsh Street, and it is to be faced with Cattybrook bricks, with Hartham Park stone dressings. On the ground floor are a spacious entrance hall, with offices for the local manager and staff, and public call rooms. The switch room occupies the whole of the rear portion of the building. On the same floor are girls' dining rooms, kitchen, cloak rooms, and lavatories. The first and second floors are devoted to spacious and well lighted offices for the district manager and staff, and for the various departments. On the lower ground floor are the test rooms, instrument room, general stores, strong room, lavatories, workmen's rooms, &c. The contract for the building was secured in competition by Messrs. W. Cowlin and Sons, and the work is being carried out from the designs, and under the superintendence, of Mr. Edward Gabriel (Edmeston and Gabriel), of Bristol and London.

CARDIFF.—The Royal Hotel, Cardiff, has recently undergone considerable structural alterations. The principal features in the re-arrangement is the doing away with what is known as the "Cathedral" bar, and throwing the space into the reception hall, whence a grand staircase is to be carried up to the first floor, the existing stairs being dispensed with. The kitchens, which are now located in the basement facing St. Mary Street, are to be converted into a series of billiard rooms, the kitchens being arranged on the top floor of the building, where also extensive laundries are to be constructed. The plans of the alterations were prepared by Messrs. J. P. Jones, Richards, and Budgen.

CLONFERT.—A two-light stained glass window for the east end of Clonfert Cathedral has recently been erected by Messrs. Hardman, of Birmingham. The stained glass windows for the south side of the chancel are being made by Messrs. Watson, of Youghal. It was this firm which supplied the Oliver Goldsmith window for a church in Co. Longford. The work of repair and restoration of the chancel is now almost complete.

DONAGHADEE.—The ceremony of laying the foundation-stone of a new Masonic hall in Donaghadee has been performed. The build-

ing will be of selected red brick, with Griffnock stone dressings to windows, buttresses, and barges. The style of the building is Gothic, of the decorative or fourteenth century period. The barge is of stone, and the ornamental kneelers and apex stone, with carved finial, will pleasingly break up the severity of the skyline. Underneath the barge in the gable Masonic emblems will be carved in a decorated shield. The side walls of the structure will be strengthened by deep buttresses, with stone weathers and string courses, which, in conjunction with the recessed window, will give an artistic display of light and shade to the building. The builder is Mr. Wm. Curragh, who is carrying out the work from the plans and under the superintendence of Messrs. J. J. Phillips and Son, architects.

GLASGOW.—The High School building construction students on Saturday had their first sessional visit to the Dalmarnock Sewage Works. Over 50 of the 102 students belonging to the class attended. Considerable improvements have been effected on the system of purification, and the result is economy and efficiency, the water ultimately being sent into the Clyde a comparatively clear effluent.

LIVERPOOL.—The Sutton National Schools, St. Helens, Liverpool, have been enlarged at a cost of about £3400. The work of enlargement was carried out by Mr. Thos. Woods, builder and contractor, St. Helens, from plans prepared by Mr. B. F. Biram, architect, St. Helens.

MACCLESFIELD.—The West Park Museum, Macclesfield, which was opened last week, stands on the left of the entrance gates in Prestbury Road, and is from the designs of Mr. Pardon Clarke, director of the South Kensington Museum. There is one gallery, with a vestibule, in addition to the curator's room, cellars, and storage accommodation. The walls are built of Ruabon pressed bricks, with mouldings, cornice, and ornamental panels of Ruabon terra-cotta. There is also a medallion of the Queen over the main entrance. The roof consists of Westmorland green slates, upon boards and felt, and on the side nearest to the park is an ornamental iron verandah, under which are placed seats for the public. The interior of the museum is already well supplied with a collection of works of art, geological specimens, and Egyptian and other curios. A feature of the interior is a beautiful frieze, above the wall hoarding, composed of plaster casts of the Elgin Marbles. The building itself has cost about £4000.

SWANSEA.—The old parish church at Swansea has been rebuilt. The nave of the old edifice only dated back to about 1739, and though the chancel and tower were probably about fourteenth or fifteenth century work, they possessed no features of sufficient value to hinder the much-needed rebuilding of the entire church. The old building was also too small, and in many parts unsafe. The new church, in the Early English style, was commenced in December, 1895. The nave was opened in August, 1897, and, with the chancel, is to be consecrated on the 20th inst. The tower, which is up about 35ft., is to be finished next spring. The building is spacious, exceedingly well-proportioned and stately. The nave which has been lengthened at the west end by 26ft., is 60ft. in height to the ridge, and 5ft. higher than the old tower. The chancel has been widened about 7ft., is only 4ft. less in height than the nave, and is joined to the nave by an arch 40ft. high, whereas the old chancel arch was less than 20ft. high. The new tower will be 85ft. high, an increase of 30ft. upon the old tower. The accommodation will be increased by about 300 sittings, all on the ground floor. The Herbert chapel will now be opened by two fine arches, on the west and south, to the nave, and the handsome old tombs will be opened to view. The total cost will be £26,000. Sir A. Blomfield is the architect.

WOLVERHAMPTON.—The completion of Lichfield Street, Wolverhampton, will bring to a

close a very important improvement, which was commenced about twenty years ago, under powers conferred upon the Corporation by the Wolverhampton Improvement Act of 1877. The street was planned, and with the exception of one plot, the land was slowly filled with buildings. The remaining piece is now to be occupied by a handsome block of commercial buildings to be erected for a Birmingham company, known as the Midland Estates Company Limited. The new buildings will consist of three distinct blocks, comprising in all nine shops, with professional and other offices and showrooms above. The upper stories will be approached by three separate entrances, and the internal walls are to be so constructed as to be easily removable to suit the requirements of tenants. Advantage has been taken of the slope of the land, which admits of an accommodation cartway being formed at the level of the basement floor, to plan the construction of a lower story for the provision of showrooms and warehouses under the shops, which can be let independently if necessary. The shop fronts in Lichfield Street will be continued down to that lower story with narrow areas protected by ornamental iron railings. The design, which is of a somewhat ornate character, is in a free Renaissance style of Architecture, and the buildings will be of red brick, with buff terra-cotta dressings, the principal features being the introduction of two-story terra-cotta bay windows with ornamental gables. Messrs. Essex, Nicol, and Goodman are the architects. The contract has been let to Messrs. Henry Wilcock and Co., of Wolverhampton, and the total cost is estimated at upwards of £11,000.

Views and Reviews.

A HANDBOOK OF LAND DRAINAGE.*

This very useful work has just attained the well-deserved dignity of a second edition. It would, no doubt, surprise many people to learn that the subject of land drainage is as scientific and important as the systems of sewerage which are so constantly before us. The book gives particulars of main and tributary drains, intercepting and relieving drains, outfalls, the character of soils, &c., and all information from the manufacture of the pipes to the methods of gauging streams, from the rainfall statistics to a bibliography of the subject. We can confidently recommend a study of Mr. Mitchell's book to all in search of the most authoritative work on land drainage, and architects who wish to have good sites and dry houses should also number it among the technical works upon their shelves. The information on legal matters bearing on the subject is not the least valuable of its features.

* "A Handbook of Land Drainage." By G. S. Mitchell, F.S.I. Second Edition, 5s. "The Land Agents' Record," Limited, 149, Strand, W.C.

LINCOLN CATHEDRAL.*

Lincoln is the latest cathedral dealt with in the series of monographs now being edited by Messrs. Gleeson White and Edward Strange, and published by Messrs. George Bell and Sons. This volume has been compiled by Mr. A. F. Kendrick, B.A. We have already expressed a favourable opinion of the manner in which this series is being brought out, and there is little left to be said but that this volume is a worthy successor to those on Peterborough or Norwich, and maintains the high standard which the editors have set before themselves. The peculiar beauty and interest of the subject-matter no doubt lends an especial attraction to this particular book, and in the selection of the photographic illustrations this beauty seems appreciated and well displayed. If one must be critical, fault might be found with the few black-and-white sketches, which are not first-rate; and would it not be possible in the general plan at the end to show the different dates of the work, as it is often shown on similar plans in the professional journals?

* Bell's "Cathedral Series," edited by Gleeson White and Edward Strange: Lincoln, by A. F. Kendrick, B.A. London: George Bell and Sons.

TENDERS.

Information from accredited sources should be sent to "The Editor." No results of tenders can be accepted unless they contain the name of the Architect or Surveyor for the Work.

ALDERSHOT.—For the erection of two shops, &c., Station-road, for Mr. R. S. Blades. Messrs. Friend and Lloyd, architects, Aldershot:—
Martin, Wells and Co. £2,700 W. Garland ... £2,497
W. J. Snuggs ... 2,639

AMBLE.—For levelling, paving, &c., Albert and other streets, for the Urban District Council. Mr. W. Gibson, surveyor, 51, Queen-street, Amble:—
J. Scott ... £213 0 R. & G. Brown, Amble* £225 8
A. Douglas ... 253 10 E. Coulson ... 219 0
Surveyor's provisional estimate, including 3 per cent. for plans, &c., £232
* Accepted.

BARNET.—For erecting a villa residence. Mr. F. Denzil Thomas, architect, Woodside Park, North Finchley:—
Brown & Sweetland £2,327 0 Daniels ... £2,240 0
Poller ... 2,270 0 Smith and Son ... 1,897 10

BEVERLEY.—For the erection of Registrar's Offices and extension of the County Council Offices, Beverley, for the East Riding County Council. Mr. B. S. Jacobs, architect and surveyor, Lincoln's Inn-buildings, Bowdley-lane, Hull:—
T. Hodgson ... £1,829 3 3 J. R. Foley ... £1,163 0 0
J. Constable ... 4,543 14 9 R. Potts, Beverley* £1,161 1 7
G. Pans ... 4,239 17 10 * Accepted.

BROMLEY (Kent).—For the erection of stabling, &c., at "Lomond," South Hill, Bromley, Kent, for Mr. J. A. Shepherd. Mr. W. A. Williams, architect, 84, Chancery-lane, W.C.:—
Grady ... £130 Duthoit* ... £397
Somersetford ... 414 * Accepted.

DOVER.—For the erection of stables and coachman's cottage at River, near Dover, for Mr. J. L. Rubel, M.D. Mr. A. H. Steele, architect, Dover:—
Smith ... £223 Dixon* ... £372
Golder ... 385 * Accepted.

DOVER.—Accepted for the erection of a cottage at Martin Mill, near Dover, for Mr. O. C. Shawe. Mr. A. H. Steele, architect, Dover:—
Dixon, Dover ... £280

DOWNPATRICK.—For the erection of water supply works, reservoir, &c., Tannaghmore, for the Union Guardians:—
D. J. Jardine, Belfast ... £826 6 4

DURHAM.—For the execution of private street works, Neville's Cross, for the Rural District Council. Mr. G. Gregson, surveyor, "Eastwood," Western Hill, Durham. Quantities by the surveyor:—

Section 1.	
G. T. Manners ... £651 15 11	J. Carrick* ... £638 9 0
J. G. Bradley ... 666 0 0	
Section 2.	
G. T. Manners ... £156 12 7	J. Carrick* ... £154 11 3
J. G. Bradley ... 155 0 0	
Section 3.	
G. T. Manners ... £886 10 8	J. G. Bradley* ... £917 0 0
J. Carrick ... 871 9 11	
Section 4.	
G. T. Manners ... £166 4 11	J. G. Bradley* ... £171 10 0
J. Carrick ... 179 18 0	

[All of Durham.] * Accepted.
EASTBOURNE.—Accepted for the construction of a gas-holder tank for the Gas Company. Mr. Henry E. Jones, engineer, Stepey, E.:—
G. W. Bell, Tottenham and Manchester ... £5,791

HUDDESFIELD.—For erecting ten houses, Deadwaters, for the Huddersfield Industrial Society Limited. Mr. J. Berry, architect, Huddersfield:—

Masonry.—Mark Brook, Leeds Road, Huddersfield.
Joinery.—George Ainley, Crossland Moor, Huddersfield.
Plumbing.—Ernest Mitchell, Milnsoridge, Huddersfield.
Plastering.—Broadbent Bros. Moldgreen, Huddersfield.
Painting.—Haigh & Shaw, High-street, Huddersfield.
Slating.—T. B. Tunncliffe, West Parade, Huddersfield.
Concreting.—John Cooke, Little Royd, Huddersfield.

LONDON.—For foundations of new police station, Cannon-row, and extension of chief offices at New Scotland Yard adjoining for the Receiver, for the Metropolitan Police District. Mr. J. Dixon Butler, Police Surveyor. Quantities by Mr. W. H. Thurgood:—

Nightingale ... £27,347	Holland and Hannen £20,560
Patman and Fotheringham ... 22,460	Colls and Sons ... 20,335
Mowlem and Co. ... 22,369	Lathey Bros. ... 20,300
Holloway Bros. ... 22,235	T. Parker ... 19,970
Bywaters and Sons ... 21,740	Cubitt and Co. ... 19,890
Sydney Hart ... 21,590	Ashby and Horner ... 19,690
Thompson ... 21,541	Lawrance and Sons ... 19,550
Dove Bros. ... 21,455	Greenwood ... —
Higgs and Hill ... 21,240	J. Carmichael ... —
Grover and Son ... 20,595	Scrivener and Co. ... —
	Trollope and Sons ... —

LONDON.—For erecting five cottages at New Barnet. Mr. F. Denzil Thomson, architect, Woodside Park, North Finchley:—
Brown and Sweetland £2,446 J. Smith and Son ... £1,785
Lye ... 2,298 Knight ... 1,640
Pointing ... 1,830

LONDON.—For rebuilding Mr. Hugh Reed's drapery premises, Powis-street, Woolwich:—
Chapman ... Accepted at Schedule.

LONDON.—For painting and decorative works at the Abbey Mills Pumping Station, &c., for the London County Council. Quantities supplied:—
J. Kybett ... £4,372 17 10 F. W. Harris ... £2,251 0 0
Vigor and Co. ... 2,812 0 0 E. Proctor ... 2,172 14 0
F. F. Foley ... 2,774 0 0 A. H. Inns ... 2,154 9 4
D. Gibbs and Co. ... 2,558 10 7 A. J. Wick ... 2,092 12 10

LONDON.—For erecting the first portion of a new building in Throgmorton-street and Throgmorton-avenue, City, to be used as a restaurant, shops, and offices, for Messrs. J. Lyons and Co. Ltd. Mr. Charles Bell, architect, 23, St. Swinburn-lane, E.C. Quantities by Messrs. Gardner and Theobald, 110, Gt. Russell-street, W.C.:—

Hall, Beddall and Co. £42,265	Holland and Hannen £39,360
Ashby and Horner ... 41,920	Foster and Dicksee ... 39,220
G. Trollope and Sons ... 41,310	Barnsley and Son ... 38,983
J. Mowlem and Co. ... 40,946	Colls and Sons ... 38,693
LOWER EDMONTON. —For alterations and additions and new stables to the "Cross Keys" public-house, for Mr. C. Gibbons, Messrs. A. Drews-Mercer and A. E. Taylor, joint architects, Granville House, Arundel-street, Strand, W.C.:—	

House.		Stables.	
A. Porter ... £6,697		£3,692	£10,389
J. Peerless ... 6,450		3,640	10,090
J. Weibking and Son ... 6,375		3,639	9,995
W. Gregor and Son* ... 6,350		3,236	9,546
W. Johnson and Co. ... 5,923		3,210	9,133
A. Monk ... 5,740		3,185	8,925
S. and J. Redhouse ... 5,485		3,242	8,727
C. Ansell, Lambeth* ...			
* Too late. * Accepted.			

MIDDLESBROUGH.—For new printing works, Short-street, Middlesbrough, for Mr. W. Appleyard. Mr. W. G. Roberts, architect, 61, Albert-road, Middlesbrough. Quantities by Mr. F. Cartwright, Sheffield:—

Full Tenders.	
W. A. King ... £2,443 0 0	Perks and Son ... £2,129 8 14
Joseph Howe & Co. £2,300 0 0	Allison Bros.* ... 2,060 0 0
Excavator, Concretor, Bricklayer, and Mason's Work.	
W. Pounder ... £1,356 1 2	John Davison ... £1,016 4 6
J. Johnson ... 1,139 15 0	D. Doughty ... 986 6 6
Jos. Coates ... 1,064 16 0	

Slating.
J. and R. Marscall £82 14 0 J. Harrison ... £80 14 0
W. B. Robinson ... 83 19 0 J. Davison ... 70 18 1
W. Tyreman ... 83 2 0

Carpentry and Joinery.
R. Sweeting ... £490 13 3 J. Davison ... £410 14 11
W. A. King ... 428 0 0 W. Thompson ... 379 9 6
Hudson Bros. ... 421 0 0

Plastering.
G. E. Jarran ... £92 10 0 J. Johnson ... £67 13 2
John Davison ... 86 6 6 S. W. Trepasso ... 57 17 8
J. R. Smiles ... 78 18 0

Ironfoundry and Smithing.
R. Sweeting ... £335 7 1 Hudson Bros. ... £252 15 0
W. Thompson ... 289 10 0 Baker Bros. ... 225 10 1
J. Davison ... 268 7 1

Plumbing, Glazing, and Gasfitting.
Baker Bros. £185 7 0 G. Ripley ... £174 8 2
Curtis & Bowman ... 181 16 0 J. Barwick ... 163 19 0

Painting.
W. Ridgway ... £28 14 3 W. L. Taylor & Sons £23 14 0
A. Lewis ... 25 10 3 J. H. Hill ... 23 3 4
J. Scott and Co. ... 25 8 6 E. Turner ... 19 8 10

NANTWICH.—For the execution of water-supply works, Spurstow, for the Rural District Council. Mr. J. A. Davenport, C.E., 152, Hospital-street, Nantwich:—

Pipe-laying.
Rowland ... £289 0 0 Dodd ... £191 5 0
Jowett ... 303 19 0 Dale ... 187 9 6
Small and Co. ... 237 16 6 Dodd ... 179 11 6
Birchall ... 236 0 0 T. Wood, Small ... —
Greedy ... 193 0 0 main-road, Crewe* 164 10 0
Newbale ... 191 15 0

Pipes and Specials.
D. Parsons, Brierley Hill.*
Fittings and Valves.
Blakeborough and Co., Brigham.*
* Accepted.

TUNBRIDGE WELLS.—For the erection of the lower portion of St. John's-road Free Church, comprising lecture hall, class rooms, kitchen, offices, &c. Mr. H. Y. Coley, architect. Quantities by Mr. H. Elwig:—
Strange and Sons ... £2,446 J. Jarvis ... £2,069
W. and F. Penn ... 2,344 J. Smith ... 1,992
J. Crates ... 2,280 J. Marshall ... 1,897

WALTHAMSTOW.—For the erection of school buildings, Queen's-road, for the School Board. Mr. W. A. Longmore, architect, 7, Great Alie-street, London, E.:—
J. A. Reed ... £22,655 H. J. Carter, Grays, Essex* ... £20,210
C. Gray Hill ... 20,970
Merridew and Wort ... 20,274
* Accepted.

WHITLEY (Northumberland).—For widening, &c., Marine-avenue, for the Urban District Council. Mr. J. P. Spencer, C.E., Newcastle-on-Tyne:—
Geo. Maughan, Jarrow-on-Tyne, schedule of prices.

CONTRACTS OPEN.

SOUTHBOROUGH URBAN DISTRICT COUNCIL.

VICTORIA HALL.

TO BUILDERS AND OTHERS.

The Urban District Council of Southborough, in the County of Kent, are prepared to receive TENDERS for the ERECTION and COMPLETION of the proposed Victoria Hall and Buildings in London-road, Southborough.

Plans and specifications may be seen, and bills of quantities, with forms of Tender, obtained at the office of Mr. WILLIAM HARMER, Surveyor, 137, London-road, Southborough, on payment of One Guinea, to be returned on receipt of a bona-fide Tender.

Tenders, with priced bills of quantities, to be sent in on or before SATURDAY, OCTOBER 15th, 1898, and endorsed "Tender for Victoria Hall," and addressed to the undersigned.

The Council do not bind themselves to accept the lowest or any Tender.

Dated this 20th day of September, 1898.
PHILIP HANMER,
Clerk to the Urban District Council.
Council Office, Southborough.

CORPORATION OF BANGOR. BUILDINGS.

The Corporation of Bangor is prepared to receive TENDERS for the ERECTION of BUILDINGS, CHIMNEY SHAFT, &c., for its Electric Lighting Station.

Plans and specification may be inspected at the Offices of JOHN GILL, A.M.I.C.E., Borough Surveyor, and at the Offices of F. HASTINGS MEDHURST, B.Sc., M.Inst.E.E., the Consulting Engineer to the Corporation, Westminster-chambers, 13, Victoria-street, S.W., from the latter of whom the bill of quantities can be obtained on payment of a deposit of Five Guineas, which will be returned on receipt of a bona-fide Tender.

Sealed Tenders, endorsed "Buildings," must be delivered to me on or before OCTOBER 15th, 1898.

The Corporation do not bind itself to accept the lowest or any Tender.

This Advertisement will not appear again in this Journal.

R. H. PRITCHARD,
Bangor, September 21st, 1898.
Town Clerk.

VESTRY OF ST. GEORGE-IN-THE-EAST. TO BUILDERS.

The Vestry of the above Parish will meet on THURSDAY, OCTOBER 20th instant, at SIX o'clock in the evening, to receive TENDERS for the ERECTION of an ADDITION to, and for the ALTERATION of the VESTRY HALL, in Cable-street, in conformity with plans and specification prepared by Mr. G. A. WILSON, the Vestry Surveyor, which can be seen at his Office at the Vestry Hall on any day during office hours.

Bills of quantities and forms of Tender may be obtained on application to the Surveyor on payment of £1, the latter to be returned on receipt of a bona-fide Tender.

Tenders, on the form supplied, accompanied by the priced bills of quantities under seal, are to be delivered to me under cover, endorsed, "Tender for Vestry Hall," not later than FOUR o'clock on the day name. Bank of England Notes to the value of £25 must be enclosed with the Tender, as a guarantee of bona-fides of Tender, the same to be immediately returned if Tender is declined, and to be retained in the case of the accepted Tender until the contract is executed.

The Vestry do not bind themselves to accept the lowest or any Tender.

By order,
Vestry Hall, H. THOMPSON,
Cable-street, E., Vestry Clerk.
October 3rd, 1898.

LONDON PLATE-GLASS INSURANCE CO. Ltd.

Head Office: 49, Queen Victoria St., E.C.

MODERATE RATES. PROMPT REPLACEMENTS.
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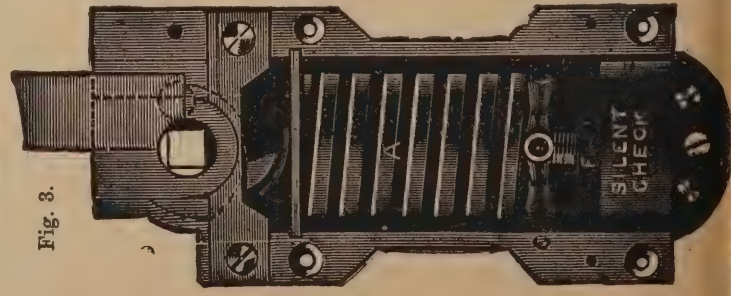
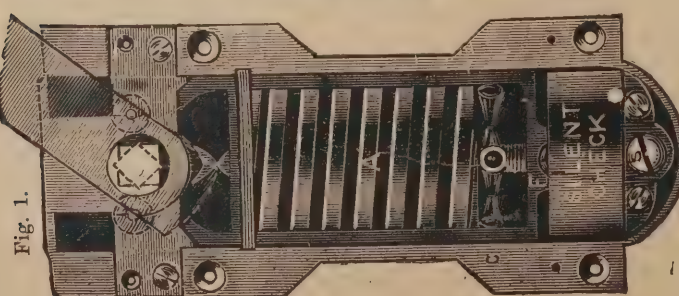
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made.
CAN BE FITTED TO ANY
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A Double-Action
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which opens to and
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Single Action Spring.
It opens to and closes
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OCTOBER 12TH, 1898.

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See Large Advertisement, Back Page, Monthly.

INTRODUCTION OF NON-FLAMMABLE WOOD INTO EUROPE.

The British Non-Flammable Wood Co. Ltd.

Beg to announce that their Works in London, the first erected in Europe, are now completed, and they are prepared to

Take Orders for the supply of "NON-FLAMMABLE WOOD" in large quantities.

"NON-FLAMMABLE WOOD," as produced by the Company's process, is now in use on the following

UNITED STATES WAR VESSELS:—

BATTLESHIPS.—"IOWA" and "OREGON." MONITOR.—"MIANOT." CRUISERS.—"BROOKLYN," "CHICAGO."
GUNBOATS.—"HELENA," "WILMINGTON," "NASHVILLE," "ANNAPOLIS," "WHEELING," "MARIETTA," "NEWPORT," "VICKSBURG."

And is being used for the Battleships "KEARSAGE," "KENTUCKY," "ALABAMA," "WISCONSIN," and "ILLINOIS," now being built.

"NON-FLAMMABLE WOOD" has also been used for all the Carpentry and Joinery Work in the following well-known colossal Buildings in New York:—

THE COMMERCIAL CABLE BUILDING, THE QUEEN'S INSURANCE BUILDING, and THE E.G. DUN BUILDING, (each of which is over eighteen stories high).

"NON-FLAMMABLE WOOD" has been tested by H.M. Admiralty, and Large Orders have been given to the Company by the Government.

Quotations will be furnished on receipt of Specifications.

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BRITISH NON-FLAMMABLE WOOD CO. Limited,

2, Army and Navy Mansions, Victoria Street, London, S.W.

SANITARY CONGRESS.

THE INSTITUTE'S PURPOSE AND PROGRESS.

PRACTICAL PAPERS.

(Continued from page lxxvii.)

DR. J. F. J. SYKES (London) read a paper on "Dwellings of the Poor." Having canvassed the merits of different kinds of dwellings, the writer said that the cubic space per head was the most difficult point of all to deal with in practice, and must be regarded sanitariously as the most important. Calculated on a physiological basis, the requirement for the human adult was 10,008 cubic feet. We were continually bemoaning the large death-toll of consumption, or tubercular phthisis, essentially a disease spread by crowding, and the medical profession was now strongly advocating the cure and mitigation of the disease by fresh-air treatment. Was it out of place to advocate even more strenuously the prevention of the disease by fresh air, by the provision of more cubic space, and especially by raising the present inadequate minimum standard? The minimum standard should be advanced to 400 cubic feet at the very least. They were living in a fool's paradise if they thought they were going to succeed in providing the working classes with more breathing space without having the means of preventing it being compressed to its original proportions by the pressure of population.

INSANITARY AREAS.

Mr. Peter Addie (late manager of the Birmingham Improvement Scheme) read a paper on "The Removal of Insanitary Areas, and the management of Improvement Schemes under the Housing of the Working Classes Act." Having with the aid of maps and diagrams given an exhaustive account of the Swansea and the Birmingham Improvement Schemes, and of the dwellings about to be erected by the Birmingham Corporation in Milk Street, Mr. Addie went on to say that it was difficult to provide for a population of so diverse a character as the working classes. The respectable element was weighed down by a number of thriftless and unclean people, and, though this difficulty might be removed ultimately by universal education, he was afraid that many years would elapse before the dwellings municipalities so liberally provided would be appreciated and used to the best advantage. Among other difficulties spoken of in the paper was the reluctance which magistrates sometimes exhibited to make orders for the closing of dangerous or insanitary houses, the authorities having no appeal against their decision. This was one of the greatest blots in the Act. It was a matter of deep regret that many of the houses inhabited by the working class were in bad repair, and that infectious diseases claimed the majority of their victims from such houses. If the local authority did not step in, area after area became insanitary, and in many of our large towns there existed courts and alleys without number where perpetrators of crime or vice congregated. It was to be earnestly hoped that municipal representatives would study closely the provisions of the Housing of the Working Classes Act, so that these plague-spots might be abolished, and the lives of the working men be rendered brighter and happier.

ARCHITECTURE AND SANITATION.

One of the principal sections meeting on Thursday was that devoted to Engineering and Architecture. Mr. William Henman, as president, gave an address on the sanitary aspects of Architecture. According to his view, it is not only the function of the architect to produce artistic design and decoration, but to erect edifices which shall be at once artistic, safe, and free from sanitary defects. After glancing at the abuses of the by-law system, Mr. Henman turned to specific instances of defective building construction. He predicted the future banishment outside of buildings of

all traps and interceptors. If every house-drain were of suitable size, well ventilated, amply flushed, with well-laid and untrapped sewers, sewer gas might become a thing of the past. On the head of sewage disposal it might be that a new era was upon them if the "septic tank" fulfilled the promise of its so far rapid advance in public estimation. In regard to building materials, the use of glazed materials was often advocated for the exteriors as well as the interiors of buildings. Many architects, however, preferred materials of permeable construction. Ventilation was another subject glibly talked of and much misunderstood. Failures in applying mechanical means for sewerage ventilation in large buildings were, in his opinion, traceable to three causes:—(1) Too low an estimate of the volume of air required; (2) want of efficient mechanical appliances; (3) want of constant and intelligent management. So long as architects and the public shut their eyes to the ascertained fact that a change of air from seven to ten times per hour was essential for health and comfort, failure must inevitably result. Good health could not be secured in defective dwellings. Among the labouring classes the home was often defective. In Mr. Henman's opinion, the reason was to be found in the system of existing ground-rents. The excessive value put on land for building purposes, particularly that required for the houses of the working classes, was a leading cause of bad building.

HOUSE DRAINS.

Professor A. Bostock Hill read a paper—or rather it was read for him—on the construction and ventilation of house drains. He held that as to the size of drains, the smallest that would convey the necessary quantity of liquid was certainly best for purposes of cleanliness. The use of too large pipes was attended with grave disadvantages, such as the collection of putrefiable matter and the difficulty of flushing. The traps which, under the law, were commonly put at each junction of the sub-drain, held a considerable quantity of liquid and solid matter, and for the time being became a small depositing tank where solids in suspension precipitated themselves. The ventilation of sewers up private houses Dr. Bostock Hill regarded as a danger to health, and he protested against the method as utterly wrong in principle. He likewise protested against some of the systems of public sewerage, which, instead of preventing the formation of noxious gases, tended to bottle them up and discharge them some few feet above the roofs of private houses.

COMBINED DRAINAGE.

The subject of combined drainage was discussed by Mr. Joseph Priestley. In practice he would restrict the number of houses allowed in a combined drain to six or less, and have the combined drain itself intercepted and ventilated separately. But with more than six houses the main drain became a sewer, and each house drain separately intercepted therefrom and ventilated. Where the system of drainage was simplified and the drains kept outside by means of a combined system, it ought to be allowed, instead of a separate drain being insisted upon. When six or fewer houses were combined, the combined drains were to be intercepted and ventilated separately as a whole; but where more than six houses joined the main drain had better be treated as a sewer, and each house separately intercepted therefrom and ventilated. The pros of combined drainage were many and the cons few.

ENGINEERING AND ARCHITECTURE.

Upon the concluding day the Engineering and Architecture Section again met in the Medical Lecture Theatre of Mason College, under the presidency of Mr. W. Henman. Four papers were down for discussion.—Mr. Mansergh, the engineer of the Birmingham water scheme, occupied the attention of the meeting for upwards of an hour with an interesting description of the progress made with the Elan Valley undertaking. Mr. Mansergh first alluded to the responsibility of the Birmingham Corporation in regard to water supply,

and explained how they were compelled to make provision for water beyond the confines of the city. The total area of their supply embraced 130 square miles, or 10 per cent. in excess of that of the county of London. The probability of the pollution and failure of existing methods of supply in the course of a comparatively limited period caused the Birmingham authorities to look further afield, and the Rhayader district was hit upon on account of the prospect it held out of an abundant supply, and of its suitability.

ON THE GROUND OF GRAVITATION.

Mr. Mansergh pointed out the necessity there then was for immediate action, as the Metropolitan authorities were on the look-out for a gathering ground in the same locality. If Birmingham had not immediately gone to the Elan Valley, it was exceedingly likely that London would have forestalled them. Mr. Mansergh then proceeded to show the amount of water which the scheme would give Birmingham. They had calculated that the volume which would flow into the city would be 75 million gallons a day, after allowing for 27 million gallons per diem for compensation water to the river affected—a quantity which was something like six times the average flow of that river. Provision was made to meet a drought of 180 days. Of the 74 miles from the source of supply to Frankley the water would pass through 30½ miles of tunnel, and would take 44 hours in its passage. The lecturer showed by means of photographs the character of the district which would be submerged. Included in the area were the poet Shelley's home and many places of historic and antiquarian interest. He described how, step by step, the work of construction had progressed, and mentioned the measures which had been taken to provide against all chance of accident. The lecture concluded with a series of views of the locality.

RURAL SANITATION.

Mr. G. H. Smith dealt with some of the sanitary defects in rural districts, and made suggestions for their remedy. His contention was that the difficulty of obtaining pure water in the country was due to the supply being drawn chiefly from wells and watercourses which were liable to serious pollution. It was not uncommon to find the well and cesspool in close proximity, and the well consequently suffered. Rivers and watercourses were another source of water supply in country districts which were liable to easy pollution. Farmers, for instance, turned streams into washing places for sheep. As a remedy for this state of things he advocated an increase of the powers of rural authorities. Another sanitary defect was the condition of village cottages, the insanitary state of which frequently arose from bad buildings, insufficient repairs, and sanitary conveniences of the most primitive type. In these circumstances it was only their outdoor life which caused labourers to escape disease and early death. The most practical remedy was to grant power to the Parish and Rural Councils to obtain land and build cottages wherever it was considered necessary, and the money to do this should be raised on the security of the local rates. All inspectors of nuisances should hold certificates granted by that Institute, and, moreover, they should only be permitted to hold the one office.—In the course of a brief discussion, Mr. E. Smith, of London, thought an improvement would be effected if wooden cottages were erected.—This view, however, was opposed to that of all the other gentlemen who took part in the discussion.—The opinions expressed by the reader of the paper were generally endorsed by the meeting.

THE SEWAGE QUESTION.

The programme in the section devoted to Physics, Chemistry, and Biology consisted of four papers, all bearing upon the treatment of sewage, and the course was adopted of reading the whole string at the outset and allowing a general discussion towards the end of the sitting.—Dr. H. Kenwood, assistant-professor of Public Health, University College, London, opened by reading some observations on the natural purification of sewage, written in

conjunction with Dr. William Butler, upon experiments made last autumn on the Finchley Sewage Farm. The action of the anaerobia filter was described, and stress was laid upon the value of secondary filters. Dibdin's septic tank was discussed at length, and the result arrived at was that a bacterial filter was better than a tank. Dealing with the methods of analysis and standards, the writers expressed the opinion that a standard of effluents having a low limit of organic nitrogen was to be preferred to any standard of oxygen absorbed, or oxidised nitrogen. What was wanted was a uniform method of procedure in the taking of samples and in the performance of the analysis.—"The quality of sewage as influencing

ITS MODE OF DISPOSAL"

was the subject treated in a paper by Mr. S. Rideal. He explained how the choice of a system of sewerage must be determined by the quality of sewage and its quantity, as affected by local circumstances, and described the essentials of the "combined system," under which it is necessary to construct special arrangements for storm overflow; and the "separate system" in which the sewage proper is kept apart from rainfall and storm water. He emphasised the importance of the raw storm water of populous districts not being allowed to pass in large volumes directly into a stream. He detailed the efforts of varying qualities of sewage, and the alterations occasioned by mere mechanical straining or filtration, and also when being submitted to various other processes of purification.—Mr. W. D. Scott-Moncrieff dealt with "The Biolysis of Sewage," claiming to have reached something nearly approaching to finality in the results he had obtained. The working hypothesis for the advocates for the purification of sewage by biolysis was based upon the belief that the effete substances contained in sewage were within the capacity of Nature to deal with, unaided by the use of chemicals; and the problem really resolved itself into the discovery of methods by which Nature could be so aided in the case of sewage that it could be purified on the largest scale at a reasonable cost, without creating a nuisance, and without the aid of chemicals. The advocates of purely natural methods contended that after the changes which had taken place in the digestive organs, or even without them, bacteria were capable of completing the work of purification. Having described at length experiments he had himself made, Mr. Scott-Moncrieff said that what appeared to be certain was that full information could now be obtained both chemically and bacteriologically as to what actually went on during the whole process of nitrification, and he had provision for discovering if possible the point to which the anaerobic changes should be carried, and beyond which they ought to be arrested.—Mr. W. E. Adeney, Examiner in Chemistry at the Royal University of Ireland, read a paper on "The

BACTERIO-CHEMICAL ANALYSIS OF SEWAGE

and Sewage Effluents," in which he discussed the question whether, now that it was generally accepted that the purification of polluted waters was under natural conditions the work of bacteria, the methods employed for the analysis of the same waters should not be based upon the fact that they were fermentative liquids, and whether the information sought from analysis of them should not be the amount of fermentative matters apart from their other possible constituents. The writer described what he styled a simple process for the chemical analysis of polluted waters. In the course of the discussion which followed, Professor Frankland said that he did not think anything could surpass the results obtained by intermittent downward filtration and irrigation. The real point of importance was whether the effluent would enter into putrefactive fermentation when it entered a stream. Manufacturers were frequently guilty of wholesale pollution, and it seemed to him that the only remedy public authorities had was to obtain powers to compel manufacturers to distribute as much as possible the escape of waste liquors over the twenty-four hours.—Dr. Porter (Stockport) pointed to the streams in

the vicinity of Manchester as being altogether unfit for use for domestic purposes, and deprecated any legislation for sentimental reasons which would harass manufacturers.—Mr. H. Parry (Dublin) called attention to the fact that in all the suggestions brought forward nothing had been said about cost, and until some definite idea on this head was arrived at it would be impossible for engineers to deal with the question upon permanent lines.—Mr. Dibdin (Surrey) urged that in any system of purification care should be taken not to interrupt

THE CONTINUOUS LIFE ACTION

which went on in foul water. Purification depended more on the living organisms in the water than on chemical mixtures.—Dr. Hewitt (Norwich) gave the results of some experiments at Manchester, which showed, he said, that the effluent in the tanks could be so dealt with under Mr. Dibdin's process that it was good enough to turn into a slow-moving large body of water like the Ship Canal.—Mr. Arthur J. Martin (Exeter) advocated as most effective and economical the use of such septic tanks as were laid down at Exeter.—The President spoke with satisfaction of the great advance made since last year's Congress. Then they could only deal with generalities, but now they had definite data to go upon, and the authors of the various papers had provided sufficient material to keep them going for at least another twelve months.—The readers of the papers having replied to some of the criticisms raised, the section closed with a vote of thanks to the president.

(To be continued.)

ENGINEERING SCIENCE.

AT last a step has been taken in the right direction in connection with experimental science and the endowment of research, says Machinery. It will be recollected that last year an influential deputation waited upon the Premier to solicit his influence for the establishment of a natural physical laboratory, where facts could be determined, constants fixed, and instruments standardised. As Lord Salisbury himself not very long ago delivered the opening address at the British Association, the advocates of State assistance in the department of engineering science could hardly have addressed themselves to a more favourable arbiter. The Premier's response was naturally sympathetic, and in the end a small committee was appointed to report the result of their investigations. They took evidence, and went abroad to inspect one of the many institutions on the Continent which have been founded either by the State or by municipalities for the promotion of scientific education. Sir John Wolfe Barry was enabled to tell the folks of Bristol that the committee had sent in a report in favour of the establishment of the laboratory which was absolutely unanimous. After all we have heard recently from the President and Vice-President of the Council of Education it is a fair presumption that the Government will adopt the suggestion, and that a vote will be asked for by the Chancellor of the Exchequer in his next Budget. There is undoubtedly no field in which foreign competition presses us so severely as the work of the engineer. And, quite apart from the desirability in a general sense of stimulating scientific research, it is obvious that if we are to hold our own in the world's new markets we must meet our rivals with at least as good weapons as they employ.

OPPOSITION OF SCIENTISTS.

Bristol, of course, has historic claims upon the Association, for it held its first meeting in the old cathedral town in 1836, when Brunel, the famous engineer of the Great Western Railway, who built the Clifton Suspension Bridge, was engaged in the construction of the Great Western steamer launched on the Severn in 1837. Sir J. W. Barry seizes the successful venture in ocean steaming across the Atlantic as an illustration of the difficulties which practical engineers have to

surmount in the promotion of any novel enterprise arising from the opposition of scientists. When that Great Western steamer was on the stocks Dr. Dionysius Lardner wrote a lengthy dissertation on the subject of oceanic communication, and demonstrated to his own satisfaction, as well as to that of the theorists generally, that the resistance to a ship's progress must vary in accordance with her capacity; that the steamer would require a certain number of tons of coal per horse-power, and that no ship under such conditions, whatever her tonnage might be, could carry enough fuel for a voyage across the Atlantic. Naturally the public looked askance at the new departure. Nevertheless, the Great Western made her first voyage in 1838, and reached New York in 14 days with 200 tons of coal still left in her bunkers. Since her day the merest tyro knows that the larger the ship the greater the speed, given a corresponding increase in horse-power, and the less the consumption of fuel. So much for the predictions of the savant who, too often, shuts his eyes to the pernicious process of what logicians call "hasty generalisation," and becomes, in this way, instead of a pioneer in the work of progress, a stumbling-block in its path.

PREJUDICIAL DICTA.

Another instance of a similar character is recorded in the fierce opposition, which most of us can recollect, directed by Sir William Airy, the Astronomer Royal, against the designs of the Forth Bridge. He convinced himself that the engineers of the new bridge had neglected certain recognised laws in regard to the resisting power of long struts to buckling, and went so far as to say that the bridge ought not to be built, and that if it were, "we might reasonably expect the destruction of the Forth Bridge in a lighter gale than that which destroyed the Tay Bridge." Experience has proved how utterly erroneous the assumptions of the Astronomer Royal were. It is easy to see how prejudicial to the public interests these dicta of authorities may become. After the panic caused by the fall of the Tay Bridge the Board of Trade gave instructions that all railway bridges throughout the kingdom should be in future designed to resist 56lb. of horizontal wind pressure on the whole exposed area. These instructions are carried out to-day. But Sir John Wolfe Barry states that from experiments at the Forth Bridge on two wind gauges of 300 square feet and of 1½ square feet respectively, with the same conditions of wind and exposure, the larger gauge registered a pressure of 38·7 per cent. less per square foot than the smaller gauge. The designer and constructor of the new Tower Bridge had to contend against this very unnecessary insistence on the provision of 56lb. on the square foot. He was careful not to tell his audience what needless expenditure he had had to meet in order to comply with the requirements of the Board of Trade. Had he made public the futility of the obnoxious provision, in all probability the work would have been taken out of his hands. But the instances he has given of hasty assumption, and his own personal experiences, alike demonstrate the vast importance of the establishment of such an institution as the Physical Laboratory, where the various conditions which confront an engineer entrusted with such important works as those to which we have referred, may be thoroughly investigated by practical men, and the alliance of science and experience may be expected to produce grand results.

THE Sanitary Department of the City Corporation applied to his Worship for an order to have a house in Bow Street, the property of Rose Cunningham, closed as being dangerous to health. It was shown that the drainage was most defective, and the dwelling house was in need of limewashing. Sir Charles Cameron said the odour in the house was terrible, and there was an entire want of cleanliness, which was injurious to health. The order asked for was granted. Prohibitory orders were also made in the case of several other houses in which it was shown the sanitary accommodation was defective.

PRACTICAL CARPENTRY AND JOINERY.*

BY GEORGE ELLIS.

(Continued from page lxxviii.)

X.—SHUTTERS.

REVOLVING SHUTTERS are now coming into use for the insides of windows, and have much to recommend them on the score of simplicity and economy of cost and space. The vertical section, Fig. 165, illustrates the method of arranging these coils under a seat formed in the window reeess. Two purpose-made $\frac{1}{2}$ in. channel irons are fixed at the sides of the window, either in grooves in the linings or to wood plugs in the walls, as guides for the shutter. A stout rail is carried across in front of the sash sill, rebated to receive the guard iron. The latter is provided with a flush ring for lifting, which also engages with a tilting hook in the soffit when the shutter is lifted. The seat is hung to the back bearer to facilitate examination and oiling of the coil. The minimum space required for a coil, when the shutter is 6ft. high, is 10 $\frac{1}{2}$ in. Care should be taken that the spring is not wound excessively strong, as in the event of the shutter being allowed to run down, the guard bar would be torn off. These shutters may also be fixed in a recess behind a cornice, travelling over the soffit and down in front of the window, and thus fixed, are safer and more easily secured than when fixed under the window.

THE HINGED OR WALL SHUTTER is simply a thin piece of panelled framing about an inch thick, hung to the outside lining of the window frame in such a manner that when opened back it will lie close to the surface of the wall. The hinges used are called Parliament hinges, and are said to be so dubbed because their use was rendered compulsory by enactment; when window frames were first set back from the front of the walls,

these hinges, when open, have the appearance of the letter H, the connecting band equalling in depth the reveal, and enabling the shutter to complete a half revolution. The shutters are fastened by tower bolts, and kept open by turnbuckles, but they are not now in much use.

FRAMED OR LIFTING SHUTTERS are confined to shop fronts, and are made in sets, in width some equal division of the length of front, ranging from 11in. to 18in.; they are usually made out of $1\frac{1}{2}$ in. stuff, framed with flush panels, beaded, and the sides rebated together; the top ends enter a groove in the soffit; the lower are fitted with slotted plates that slip over studs in the stall-board, and when entered they are each moved sideways half an inch, taking the slot past the stud and thus preventing any outward movement. When all are in position they are further secured by an iron bar passing horizontally across from side to side, one end entering a slotted plate in the pilaster, the other being secured by a bolt passing through the story-post and fastened inside with a butterfly nut. These shutters are sometimes panelled in two thicknesses with a small space between, into which a thin steel plate is loosely fitted to prevent an opening being cut by burglars. The reason for having the plate loose is that it shall yield readily under pressure of any boring tool, and



FIG. 167. ELEVATION OF VENETIAN SHUTTER.

FIG. 168. SECTION.

iron mandrel with squared ends, which is fixed into bracket plates at each end of the shop front, in a box formed behind the fascia, or in a recess prepared beneath the bressumer. One end of the spring is secured to the barrel, the other to the mandrel, the hanging bands are fastened around the barrel, and the normal condition of things is that when the shutter is "up" the spring is at rest. The pulling down of the shutter winds up the spring, and the tension is so arranged that it is a little more than counterbalances the weight of the shutter when the latter is down; of course, as the shutter goes up, the weight to be lifted gets less, but at the same time, the spring in unwinding gets weaker, so that this compensation prevents the shutter rushing violently up when released. A groove about $\frac{1}{2}$ in. square should be formed as a guide for wood shutters between the plaster and the sash in preference to the iron guides supplied by the makers, as these latter rapidly chafe the surface, and eventually cut the ends through. Great care should be taken in fixing these shutters to make the barrel lie perfectly level, and parallel with the shop front, and to securely fix the brackets; self-acting lubricators should also be fitted to the bearings. Fig. 166 is a section through a fascia, showing the shutter fixed upon the face of the wall, where no provision has been made for same, above the front, when building. B is the spring blind, C the shutter coil, F a friction roller, the dotted lines indicate the position of fixing brackets, the remaining portions are obvious. It should be remembered in designing casings for shutters that the M.B.A. limits the projection to 18in. from face of wall. When the shutters are made of iron or steel for extensive frontages, they become too heavy for automatic action, and they are wound by means of rods and bevel wheel or chain gearing actuated by a small winch placed beneath the stall-board or some other easily accessible point. The laths of the iron and steel varieties are connected by wrought iron hinges screwed or rivetted at the backs, and the original patentees use them also for their best quality of wood shutters.

THE VENETIAN or louver shutter (Figs. 167 and 168) is principally used as a sun-blind for upper windows, and consists of two rectangular frames about three inches deep, filled in with louver boards, and capable of sliding along the face of the wall on each side of the window in a light frame fixed just above the stone sill. The shutters should be made of yellow deal or other light wood, dovetailed at the angles, and the louver boards housed into the sides. The guide frame should be of oak or teak and is fixed with wall hooks. A pair of brass pivot rollers fitted in the bottom edge of the shutter facilitates opening. Fig. 167 is drawn to scale of $\frac{1}{2}$ in. to 1ft., the remainder to 1in. to 1ft.

(To be continued.)

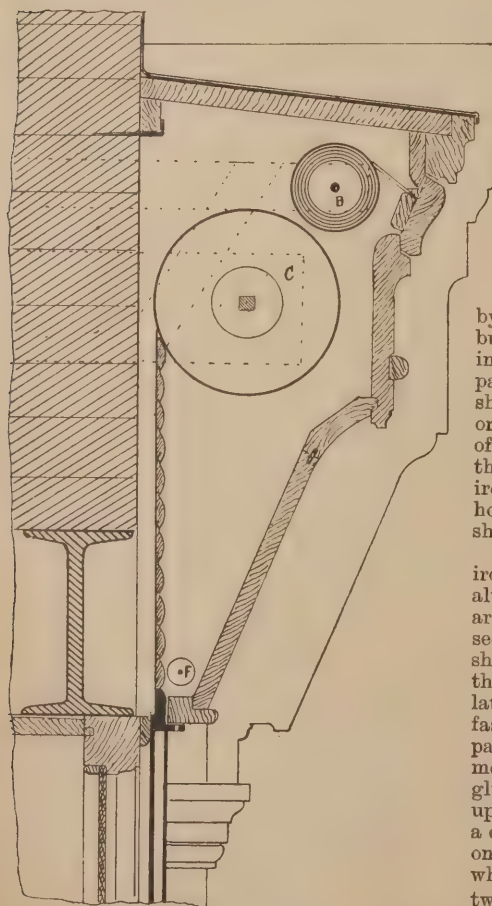


FIG. 166. SECTION OF A SPRING ROLLER SHUTTER FOR SHOPS.

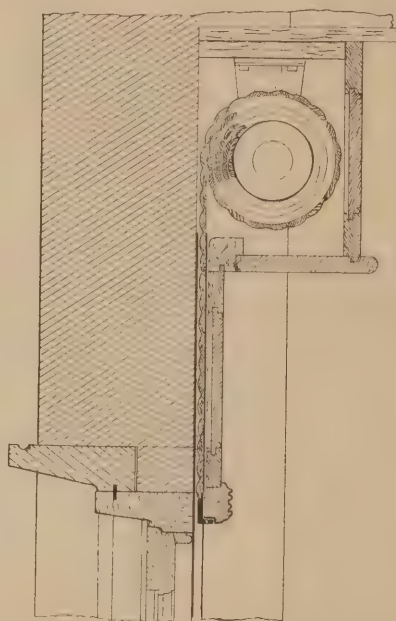


FIG. 165. REVOLVING WINDOW SHUTTERS.

by its vibrations cause an alarm. A similar, but better method, inasmuch that it does not increase the weight of the shutter, is to fix pairs of hook plates upon the backs of the shutters in straight lines, and when every two or three shutters are in position, loose sheets of iron about 3ft. high are slipped in between the hooks, thus lining the entire front with iron, the last shutter to be put up has no hooks, the sheet resting upon a stud in the shop front.

REVOLVING SPRING SHUTTERS are made in iron, steel, and painted or polished woods, and although somewhat monotonous in appearance, are, in consequence of their convenience and security, fast superseding all other kinds for shops and public buildings. They consist, in the case of the wood variety, of a number of laths of plano-convex, oval, or ogee section, fastened together by steel or copper bands passing through their thickness and supplemented with strips of waterproof webbing glued along the back about every 5ft. The upper edge of each lath is rounded, and fits into a corresponding hollow in the lower edge of the one above it; this peculiar, overlapping joint, whilst preventing the passage of anything between the laths, readily yields when the shutter is wound around the barrel containing the spring. This barrel, usually of tinned iron, encases a stout spiral spring wound around an

STREET MUD.

MR. GILBERT R. REDGRAVE, Assoc. Inst.C.E., writing to The Times with reference to the experiments made at Cardiff in order to ascertain the amount of mud yielded by various qualities of macadam, observes:—"The subject is no doubt one of great importance to the authorities of large cities, and the values assigned to the materials tested will perhaps cause some surprise, unless due weight is given to the methods in which the tests were conducted. Three sets of tests are stated to have been carried out, and the substances named had to undergo (1) percussive attrition tests; (2) absorption tests; and (3) thrusting tests. The only description given of the first of these tests is that they were carried out by subjecting the specimens to 'rapid motion against the ribbed sides of an iron cylinder in a manner calculated to reproduce the action resulting from vehicular and other traffic.' The test No. 2 contains nothing novel in character, and it would seem that the test No. 3 was that ordinarily employed to ascertain the resistance to a gradually-applied load on a given surface. Permit me to state that tests of the same nature of those under No. 1 have long been adopted in America, in order to ascertain the

RELATIVE DURABILITY OF SUBSTANCES

used for paving and roadmaking purposes, and such tests are applied in a machine known as a 'rattler.' This machine, as described in the Journal of the Association of Engineering Societies of August, 1898, is a species of tumbling barrel, polygonal in form, having fifteen staves, revolving on trunnions, and driven at any desired rate by a constant-speed electric motor. The percentage of loss in weight of the specimens under trial, after a given number of revolutions in the rattler, can readily be ascertained and comparative results can be computed. Without a more detailed description of the machine employed by Professor Elliott at Cardiff it is difficult to say whether the results he has obtained would equal in uniformity those produced by means of the rattler, but it seems doubtful whether the ribbed side of the cylinder would fairly reproduce the action on the road materials due to wheeled traffic. The tests of Portland cement by abrasion are well known and are much employed on the Continent in cement testing, but they do not apply in this case. I should like to point out that Portland cement is never used neat for road making, and therefore that the value assigned to it in the table is most unfair. If the basalt samples had been crushed and mixed with good Portland cement in the proportion of one part of cement to eight parts of basalt, or other hard aggregate, the cement concrete would have occupied a very different place. I venture, therefore, to doubt whether very great reliance should be placed on the results quoted."

AN accident occurred some days ago at a new building, intended for the London Joint Stock Bank, situate at the corner of Wood Street and Gresham Street, E.C. The building had been fitted with concrete staircases, and while the boards that supported the concrete were being removed, the third floor staircase gave way and fell through to the basement. There were four men working on it at the time, all of whom were more or less injured.

Trade and Craft.

THE UNITED ASBESTOS CO. LTD.

The United Asbestos Co. Ltd., have just issued a revised price list, showing an appreciable reduction in the cost of many of their leading lines in "Salamander" decorations. The Company have been enabled to make these reductions owing to improved manufacturing facilities and the increasing demand for their goods.

Surveying and Sanitary Notes.

THE Bristol Sanitary Committee have discussed in private the report of Messrs. Taylor, Sons, and Santo Crimp on the question of the disposal of the city sewage. The scheme for discharging the sewage at Avonmouth and Dunball was most favoured by the committee. The engineers estimated the cost of the undertaking at £379,000, the sum required for repayment of capital and interest being £15,487, and, with an extra cost of £2000 for pumping, the annual expenditure would be about £18,000. It was estimated that after forty-five years the annual cost would be only £2500. The report will be sent on to the Council.

It seems to be the fate of Londoners, and in a lesser degree of Englishmen generally, to be behindhand in all modern applications of electricity. Figures recently collected for the United States Government show how backward we are in the matter of electric traction. There are altogether 1422 miles of electric tramway in Europe. Of these 707 are to be found in Germany and 87 in the United Kingdom. Even little Switzerland, with a population hardly greater than that of London, is ahead by three miles of our magnificent total. Yet the English towns which have adopted electric traction are able to furnish overwhelming evidence of the profit to be derived from tramways.

A SINGULAR difficulty has arisen in the making of a contract for water supply to the town of Carrickmacross. Tenders were received from a number of firms, and the Board of Guardians, having confined their attention to the two lowest, eventually decided by a majority to accept the tender of Messrs. Hagarty and Gault, although that of Mr. M'Kee, of Duncannon, was £66 lower. Mr. M'Kee, through his solicitor and in person, protested against this, contending that the Guardians should follow the usual practice, and a number of Guardians appeared to have come to the same conclusion, for at last week's meeting two Guardians proffered notice of motion to rescind the former decision. The chairman, however, refused these on the ground that an action for breach of contract might lie against the Guardians. At this week's meeting Mr. M'Kee offered to indemnify the Guardians, and to reduce his tender still further, but as it appeared that the bond had been perfected and work begun, the Guardians had, reluctantly on the part of some, to let the matter remain as it was.

Builders' Notes.

THREE valuable sites in important localities have just been secured by the Congregationalists for the erection of new churches. The first of these is at Herne Hill. The site just secured is on the Dulwich Park Estate, and within ten minutes' walk of Herne Hill Station. A site has also been secured at Harlesden, near Willesden Junction. The third site has been generously given for the purpose of erecting a suitable church at Ilford.

AN accident, resulting in the death of five men, occurred some days ago in Govan Road, Glasgow, on some premises in course of reconstruction. A large crane had been erected to assist the builders in their work, and this suddenly collapsed, carrying with it not only a large portion of the building, but a number of workmen. The building, which was five stories in height, was being converted into a lodging-house in the upper stories, with shops in the basement.

FOR several years past Giltspur Street, E.C., has been disfigured by a huge advertisement hoarding that marks the boundary of Christ's Hospital. Over and over again the hoarding has been denounced as a nuisance and an eyesore, and yet it remains in position. Some day—some day, by the way, has a habit of never arriving—the authorities will notice it, and then in a moment the place thereof will know it no more.

SIR GUILFORD MOLESWORTH has been engaged to inspect the Uganda railway, and will shortly leave England for the purpose. Further information regarding the extraordinary rift or gap in the country beyond the railroad shows that the engineering difficulties have not been exaggerated. The land falls suddenly away to a depth of thirteen hundred feet, and the dip is one in one and a half inches. This enormous fault in the surface extends for some three hundred miles, right in the path of the advancing line. To cross it will involve work of an exceptionally heavy character; to carry the line round it seems to be even more difficult. When Sir Guilford gets beyond the completed portion of the railway, which extends two hundred miles into the interior, he will find himself in dense virgin forest where travelling has to be done mostly on foot.

AN inquiry as to the propriety of confirming a scheme for the erection of eighty-three houses under the Labourers Acts was held at Wrexford by Mr. C. R. Lynch Staunton, Inspector Local Government Board. It appeared from the evidence that there have been 246 houses erected already in the union. It was proposed to allot half an acre to each cottage. Nearly all the proposed cottages are intended to replace condemned houses.

A VERY costly viaduct railway is being constructed in the sea at the eastern extremity of Dover in connection with the naval harbour works. The viaduct is being carried along under the cliffs to the point from which the great eastern arm of the harbour will run out seawards. The preliminary works in connection with the harbour are immense. In addition to the marine railway a permanent railway will connect the cliffs with the Dover and Deal line about four miles inland.

COMPLETE LIST OF CONTRACTS OPEN.

DATE OF DELIVERY.	WORK TO BE EXECUTED.	FOR WHOM.	FROM WHOM FORMS OF TENDER MAY BE OBTAINED.
BUILDINGS—			
14	Gravesend—Club Buildings	Town Council	Surveyor, Town Hall, Gravesend.
14	Romford—Baths	Urban District Council	Harrington and Ley, 108, Fenchurch-street, E.C.
15	Bangor—Electric Light Station	Corporation	F. H. Medhurst, Westminster-chbrs., 13, Victoria-st., S.W.
15	Lyme Regis—Almshouses		W. J. Fletcher, Wimborne.
15	Southborough—Hall	Urban District Council	W. Harmer, 137, London-road, Southborough.
15	Ac rington—Vicarage		Rev. P. Saben, East View, Acrrington.
15	Consett—House	B. Wright	J. Doherty, 24, Sherburn-terrace, Consett.
15	Fulwood—Convalescent Home		Hemson and Paterson, 18, Norfolk-row, Sheffield.
15	Northallerton—House		Clark and Moscrop, Feethams, Darlington.

COMPLETE LIST OF CONTRACTS OPEN—continued.

DATE OF DELIVERY.	WORK TO BE EXECUTED.	FOR WHOM.	FROM WHOM FORMS OF TENDER MAY BE OBTAINED.
BUILDINGS—Continued.			
Oct. 15	North Sunderland—Converting	.....	J. Ewing, Sea Houses, Chathill.
" 15	Port Talbot—Drill Hall, &c.	.....	F. B. Smitt, Port Talbot.
" 15	Trillick—Repairs to Chapel	.....	Rev. J. Bradshaw, The Manse, Irvinestown.
" 15	Tunbridge Wells—Fifty-three Cottages, &c.	.....	W. C. Cripps, Town Hall, Tunbridge Wells.
" 17	Portrane—Lunatic Asylum	.....	H. Williams, Custom House, Dublin.
" 17	Darwen—Church	.....	J. B. Thornley, 45, Market-street, Darwen.
" 17	Gloucester—Buildings	.....	H. A. Dancy, 26, Clarence-street, Gloucester.
" 17	Horsham—Infirmary	.....	C. H. Burstow, 6, West-street, Horsham.
" 17	Leith—School Additions	.....	A. and B. McCulloch, 3, Bernard-street, Leith.
" 17	Pontypool—Alterations to Town Hall	.....	H. Haden, Town Clerk, Pontypool.
" 17	London, N.—Parish Room, &c.	.....	E. A. E. Woodrow, 67, Chancery-lane, W.C.
" 17	Birkenhead—Baths	.....	C. Brownridge, Town Hall, Birkenhead.
" 17	Ruthin—Alterations to House, &c.	.....	E. Roberts, Solicitor, Ruthin.
" 18	Llandaff—Assembly Hall, &c.	.....	G. E. Halliday, Cardiff.
" 18	Burnham Market—Additions and Repairs to Chapel	.....	R. W. W. Carter, Church-street, Cromer.
" 18	Lancaster—Bridge	.....	W. Cumming, Surveyor, Lancaster.
" 18	London, E.C.—Enlargement of Telegraph Factory	.....	M. Tanner, H.M. Office of Works, Story's-gate, S.W.
" 19	Camborne—Masonic Buildings	.....	A. Walters, Solicitor, Camborne.
" 19	Newcastle—Bicycle House	.....	Engineer's Office, Belfast.
" 19	London—Alterations to School	.....	F. J. Smith, Parliament-mansions, Victoria-street, S.W.
" 20	London, E.—Addition to Vestry Hall	.....	Surveyor, Vestry Hall, Cable-street, E.
" 20	Wallingford—Asylum Additions	.....	G. T. Hine, 35, Parliament-street, S.W.
" 20	Cholsey—Asylum Additions	.....	G. T. Hine, 35, Parliament-street, Westminster.
" 21	Ovenden—Offices	.....	M. Hall, 29, Northgate, Halifax.
" 22	Tottenham—Schools	.....	G. E. T. Lawrence, 181, Queen Victoria-street, E.C.
" 23	Trowbridge—County Offices	.....	C. S. Adye, Stallard-street, Trowbridge.
" 24	Llandudno—Public Hall and Offices	.....	Silcock and Reay, Octagon-chambers, Nilson-street, Bath.
" 26	Weston-super-Mare—School	.....	S. J. Wilde, Weston-super-Mare.
" 27	Wanstead—School and Caretaker's Cottage	.....	J. T. Bressey, 70, Bishopsgate-street-within, E.C.
Nov. 9-21	Sophia (Bulgaria)—Public Offices	.....	Commercial Department, Foreign Office.
No date.	Barry—Two Blocks of Villa Residences	.....	Jones, Richards, and Budgen, 18, St. Mary-street, Cardiff.
"	Belfast—Three Houses	.....	H. T. Fulton, 91, Donegal-street, Belfast.
"	Bradford—Eight Shops and Residences	.....	F. Wild, 7, Charles-street, Bradford.
"	Bridlington—Houses	.....	Howorth and Howorth, Cleckheaton.
"	Carlisle—Two Houses	.....	Johnstone Bros., 39, Lowther-street, Carlisle.
"	Elland—School	.....	H. W. Booth, Hopwood-lane, Halifax.
"	Felling—Engine House	.....	Heworth Colliery Office, Felling.
"	Harrogate—Villas	.....	T. E. Marshall, Harrogate.
"	Hest Bank—Two Residences	.....	Holden, Wheldon, and Wilson, Solicitors, Lancaster.
"	Liverpool—Theatre of Varieties, &c.	.....	Secretary, Kiernan's Palace of Varieties, Liverpool.
"	London—Alterations to House	.....	M. B. Horncastles, Cheapside, E.C.
"	London, S.E.—Converting	.....	P. Davies, Haslemere, Rosendale-road, Herne Hill, S.E.
"	Londonderry—Shop, &c.	.....	R. H. M'Elwee, 9, Carlisle-road, Derry.
"	St. Albans—Stone Staircase at Workhouse	.....	F. Foster Woodman, St. Albans.
"	Worley—Hotel	.....	W. Bakewell, 38, Park-square, Leeds.
"	Horsham—Infirmary, &c.	.....	C. H. Burstow, 6, West-street, Horsham.
"	Cornwall—Mansion	.....	Graham and Graham, Powey, Cornwall.
"	Whitehead—Three Houses	.....	H. T. Fulton, 91, Donegal-street, Belfast.
"	Chesterfield—Additions to Grammar School	.....	W. H. Wagstaff, Chesterfield.
"	North Walsham—House	.....	T. J. Goldie, Highbury House, Theatre-street, Norwich.
"	Nottingham—Warehouse	.....	E. R. Sutton, Bromley House, Nottingham.
"	Harrogate—Business Premises	.....	Bland and Bown, Harrogate.
"	Tetbury—Workhouse	.....	W. A. Burge, Tetbury.
"	Ballymacarrett—Convent, &c.	.....	S. W. Hunter, 4, Waring-street, Belfast.
"	Telav—Hotel	.....	J. Hutton, Kendal.
"	South Shields—Schools, &c.	.....	T. E. Davidson, Edinburgh-buildings, South Shields.
ENGINEERING—			
Oct. 14	East Harling—Bridge	.....	Norfolk County Council
" 14	Leigh—Alterations to Retort Bench	.....	Gas Committee
" 15	Brighouse—Machinery	.....	Corporation
" 17	Edinburgh—Gas-holder Tank, &c.	.....	Gas Commissioners
" 19	Belfast—Reservoir	.....	Water Commissioners
" 22	Cowes—Cast-iron Tank	.....	Urban District Council
" 22	Edinburgh—Boilers, &c.	.....	Council
" 22	Farrington—Excavation Works	.....	Rural District Council
" 27	Sligo—Water Supply	.....	Harbour Commissioners
Nov. 1	Cairo—Bridge	.....	Government
" 10	Belem (Para, Brazil)—Water Supply	.....	Government
" 16	Knowle—Engines, &c.	.....	Bacup Benefit Buildings Society
No date.	Bacup—Water Pipes, &c.	.....
"	Sutton-on-Hull—Bore	.....
IRON AND STEEL—			
Oct. 14	Salford—Railing	.....	Corporation
" 15	Glasgow—Pipes	.....	Uganda Railway Committee
" 17	London, S.W.—Pipes	.....	Commissioners
No date.	Wishaw—Cast-iron Pipes	.....	Urban District Council
"	Cowes—Cast-iron Pipes	.....
ROADS—			
Oct. 14	Preston—Paving, &c.	.....	Corporation
" 15	Tunbridge Wells—Roads	.....	Westmoreland County Council
" 15	Kendal—Widening, &c.	.....
" 15	Whitney-on-Wye—Roadway	.....	Urban District Council
" 24	Hoddesdon—Making up Streets	.....	Urban District Council
No date.	Amble—Street Works	.....	Rural District Council
"	Dewsbury—Paving, &c.	.....
"	Staines—Widening, &c.	.....
SANITARY—			
Oct. 18	Tarbert—Cleaning Drains	.....	Corporation
" 19	Blackpool—Sewers	.....	Urban District Council
" 21	Wilmslow—Sewers	.....	Urban District Council
No date.	Swaffham—Removal of Sludge	.....

COMPETITIONS.

DATE DESIGNS TO BE SENT IN.	DESIGNS REQUIRED.	AMOUNT OF PREMIUM.	BY WHOM ADVERTISED.
Oct. 15	Ardrrossan—Hospital	.....	Committee of Saltcoats and Ardrrossan Joint Hospital.
" 23	Chertsey—Sewerage Schemes	£50, £30, £20	Chertsey Urban District Council.
" 29	Shrewsbury—School	.....	Borough Surveyor, The Square, Shrewsbury.
Nov. 18	Sheffield—Board School	.....	J. Moss, School Board Offices, Sheffield.
" 31	Stockholm—New Stations	.....	Secretary, Royal Administration Swedish State Railways.
Dec. 1	Aberavon—Extension of Market	£21	Aberavon Corporation.
Jan. 2	Harrogate—Pump Room	£50, £30, £20	Corporation of Harrogate.
" 2	Harrogate—Alterations to Old Pump Room	£30, £20, £10	Samuel Stead, Boro' Surveyor, Municipal Offices, Harrogate.
No date.	Maidstone—Electricity Supply Works and Refuse Destructor (Assessor)	£100	Herbert Monckton, Town Clerk, Maidstone.

Property and Land Sales.

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1898.

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Lot 6.—A Building Estate of 18½ acres, with extensive frontage to two roads, extending to 2100ft.

Lot 7.—A Building Estate of 11½ acres, with a frontage of 555ft.

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"Essays in Criticism."

It is possible that the architect who studies these essays in criticism may involuntarily apply them, as he reads, to his own Art; and should he do so, he cannot but feel how great is the need for some such criticism on Architecture at the present day. During the period of fermentation and seeming confusion through which the plastic arts are moving, how great might be the service, how beneficial the influence, of so serene and dispassionate a critic as was Mathew Arnold. There is, indeed, room nowadays for such a man; one who, refusing to be led astray, or to attach himself too closely to any extreme of sentiment, will keep a cool clear head amidst the clash and din of conflicting opinions, and with eyes steadfastly fixed on

theology, philosophy, history, art, science, to see the object as in itself it really is." It is shown how this criticism must confine itself to the world of ideas, must resolutely decline to mix itself up with their application to practical purposes, or to lend itself to the point of view of the practical man; how in this country criticism having been so directly controversial and polemical—think of the battle of the styles!—has "so ill accomplished its best spiritual work, which is to keep man from a self-satisfaction which is retarding and vulgarising, to lead him towards perfection by making his mind dwell upon what is excellent in itself, and the absolute beauty and fitness of things." It is pointed out that the exercise of the creative power in the production of great works in Literature and Art is not, at all epochs and under all conditions, possible, and that, therefore, labour may be easily spent in attempting it, which might with more fruit be used in preparing it—in rendering it possible. That criticism, by creating a current of true and fresh ideas, tends to make an intellectual situation of which the creative power can profitably avail itself. "Criticism first; a time of true creative activity perhaps, which must inevitably be preceded amongst us by a time of criticism, hereafter when criticism has done its work." One cannot help asking whether much labour is not just now being vainly spent on attempted creative work in

question of current Architecture, what answer shall we get? Again, is it not refreshing to the serious lover of Art, surrounded as he is with so much exaggeration of sentiment, so much narrowness of sympathy, so much of a confident self-assurance that at times degenerates into blatant vulgarity—is it not refreshing to come across a sentence written in the tone and temper of this?—a tone and a temper that quite admirably express the spirit of these essays. "To try and approach truth on one side after another, not to strive or cry, nor to persist in pressing forward, on any one side, with violence or selfwill, it is only thus, it seems to me, that mortals may hope to gain any vision of the mysterious goddess whom we shall never see except in outline, but only thus even in outline. He who will do nothing but fight impetuously towards her on his own, one, favourite, particular line, is inevitably destined to run his head into the folds of the black robe in which she is wrapped.

A. R. J.

The Society of Architects' Examination.

WITH the holding, a fortnight ago, of its first examination of candidates for membership, the Society of Architects enters upon a new and eminently useful



STUDY FOR "WESTWOOD CROFT," NEAR LEEDS. FRANCIS W. BEDFORD, ARCHITECT.

the truth as he sees it, will resolutely uphold the standard of the ideal and the perfect. Remembering alway that Art is one and unique, and that an essential unity underlies all its various manifestations, whether in music, in poetry, or in Architecture, it cannot but be serviceable to the practitioner of any one branch to make himself acquainted with the best of thought and of criticism as it obtains elsewhere. It is hardly necessary to say that much of this best, as applied to Literature, is to be found in these essays; and there is also that in their general tone and temper of which we, as architects, are just now somewhat in need. Though first published over thirty years ago, there is much in them that applies with peculiar fitness and force to the position of our Art at the present day. It is impossible here to deal with all these essays in any adequate manner, but taking the first in order, we find it particularly interesting as being concerned with "the function of criticism at the present time," a subject of general application. In this it is pointed out that "of the intellect of Europe in general, the main effort, for now many years, has been a critical effort," criticism being defined as "a disinterested endeavour to learn and propagate the best that is known and thought in the world," its business being the "endeavour in all branches of knowledge,

Architecture, labour that might be more profitably employed in rendering it possible in the future? Whether the present is a true creative epoch? Whether we have either the "nationally diffused life and thought" which rendered Shakespeare possible, or "the quickening and sustaining atmosphere which the many-sided learning and the long and widely combined critical effort formed for Goethe." It is to be feared, that if the present revival of enthusiasm and activity in the plastic arts of this country be examined in the same calm and impartial method, and judged by the same standard as these essays, that the same judgment must be reluctantly passed on it as is here passed on the revival of poetry represented by Wordsworth, Byron, and Shelley—that it "has its source in a great movement of feeling not in a great movement of mind;" that "with plenty of energy, plenty of creative force, it does not know enough;" that lacking the materials and a basis supplied by a long continued critical effort, which is necessary for success in the highest sense, "a thorough interpretation of the world is necessarily denied to it." Then he asks how much of current English literature comes into this "best that is known and thought in the world;" to that the answer is—"not very much I fear." If we ask this same

phase of existence. Ever since the R.I.B.A. instituted its scheme of three examinations, each demanding arduous preparation, and necessarily preceded, in the case of the Intermediate and Final at least, by the preparation of several sheets of carefully prepared drawings known as "Testimonies of Study," there has been a demand for a single qualifying examination. There are many men, competent men, who are willing to study and anxious to possess an examination diploma, but earning their living as assistants or in practice, who have not the time at their disposal to go through the whole Institute course. Just here it is that the Society has come in. Without conflict with the older body, it provides a diploma for those who are unable, through one cause or another, to give up several years to study and the preparation of show drawings. Under such circumstances there may have been a temptation to make the examination of a lower grade than that of the Institute, at first at any rate; but it would have been a grievous mistake to have yielded to it, and, writing with both the syllabus and the questions set at the examinations before us, it is obvious that it has been resisted, while undue severity has been equally avoided. Except in the subject of sanitation, too much has possibly been asked of students in the limited time

allowed, making it exceedingly difficult to obtain the 80 per cent. of the total number of marks necessary to secure the Society's medal; but this is not a serious matter, and possibly an advantage, rendering it a real honour to obtain this distinction, so long as 50 per cent. necessary for passing can be earned by any competent and intelligent candidate. There is a remarkable evenness about the questions set, and between the papers in the various subjects, evidencing both a good board of examiners and some excellent controlling and organising influence. In design, the subject which has caused most trouble elsewhere, a great deal of difficulty is overcome by setting two alternative subjects; while the important subject of stresses, involving the scientific understanding of construction, is evidently in masterly hands, a minimum of knowledge, based on sound principles, such as every architect ought to possess, being demanded, without any encroachment on the province of the civil engineer. With such an examination so conducted, the Society is sure to advance, inducing many and good men to join its ranks; while its influence for good upon architects and Architecture is immensely enhanced. It is not the examination in itself which is of the greatest value, or even the diploma conferred, but the fact that every candidate, in the effort to succeed in passing, studies much which might otherwise be passed by, solidifies and systematises his knowledge, and prepares himself to take higher rank in his Profession in days to come, or the same rank in a profession whose average of attainments has risen. This latter is the more likely, and in the aggregate the more valuable. All round, the standard of attainment is rising amongst architects as amongst the members of all other professions. The stimulus to study such as the new examination will afford to many is a necessity of the times, and we welcome it accordingly.

G. A. T. M.

A SERIOUS INDICTMENT.

THE ALLEGED IDLENESS IN THE BUILDING TRADES.

THE allegations of idleness in the building trades, to which we referred last week, increase in number and strength. A Contractor says: "The architect's letter on 'Organised Idleness' in the building trades is but too true. If anything, he has understated their pernicious conduct to their employers. As a contractor with eighteen years' experience, and doing in that period a large amount of Government work, I feel I am in a position both to give an opinion and to support the statement brought before the public by your correspondent's letter. My experience teaches me the following: (a) That bricklayers, carpenters, plasterers, &c., enter upon their work with a determination and an understanding to do as little as possible, and in most cases this little is done against their will, with a view of prolonging the work and so prolonging their pay. (b) No work worthy of the name is performed before breakfast, and about eleven o'clock a messenger is despatched for beer, and under the influence of this the men are temporarily incapacitated from work. Should the employer object to beer being brought on the works all hands would lay down their tools, and, in a bullying attitude, demand instant payment of their money. (c) If by any possible chance the foreman ceases for an instant his close and untiring supervision, a suspension of work immediately ensues until such time as the supervision is resumed. (d) Workmen out of sight scarcely do anything, and there is such a combination among the men that on the approach of a foreman a sign is given, when all assume a deceitful diligence. (e) Apart from overtime, the full limit chargeable is 5½ hours per week, at an average price of 10d. per hour, which is

equal to a weekly wage of £2 6s. 3d., payable at noon on Saturday. The employer, as a return for this, gets, on an average, work which could be easily performed in thirty hours by a conscientious workman at a proportionate cost. (f) A foreman cannot exercise the authority due to his position; he cannot complain, or even comment adversely on the work. On the slightest assertion in this respect of his rights he is confronted with abuse of the most terrorising and intimidating character. This is the kind of aggression, imposition, and insolence which an employer has to meet and grapple with as best he can, and, as a result, a house, the labour of which should not exceed in cost £300, is to-day costing at least £550, owing to the systematic idleness and concerted oppression of the British workmen connected with these trades. For the reasons stated, it will be easily seen that conduct of this sort accounts in a large degree for high rents and high rates. I mention rates, for probably public bodies who employ this class of labour are penalised even to a greater extent than a private builder."

"A MOST SERIOUS MATTER."

"London Builders" write to the effect that "as large employers of labour in London, we must fully corroborate the allegations of 'London Architect.' It is a common occurrence for bricklayers and plasterers to come on a job, start work for one hour, and then give one hour's notice, simply for the purpose of obtaining two hours' pay, amounting to 1s. 8d., to be immediately spent at the nearest public house. It can be readily understood that the value of the work done during this period bears no proportion to the cost, most of the time being taken up in preparing to start, giving notice, and getting ready to leave. We had two such cases at one job yesterday. Again, out of a total of twenty-nine bricklayers employed upon this same building, only four started work before breakfast on Monday morning last, their labourers (about thirty-five in number), who, with a few exceptions, were present, ready to wait upon them, of course had to be paid in full. No wonder the cost of building has increased 25 per cent. within the last few years, when, in addition to these facts, unconcealed laziness, so aptly described by your correspondent as "organised idleness," is so prevalent. We are very glad to see this question taken up, as it is getting a most serious matter for the building trade, as well as for the public generally, who eventually have to pay, and we trust that the correspondence may lead to some tangible result."

"FROM BAD TO WORSE."

A "General Foreman" remarks: "As a builder's foreman of over twenty years' London experience, allow me to corroborate the charges made by 'London Architect' against the mechanics in the building trade. If the architects have erred it is by having underestimated the idleness of the men. I speak particularly in regard to the bricklayers. They have been going from bad to worse for some years, and have now reached a culminating point, when something must be done to stop this loss of labour and waste of capital. One of your correspondents says he can remember when a man would lay from 800 to 1000 bricks per day. On first-class work this was a recognised day's work of ten hours. Three or four years ago I could only get from 400 to 500 laid in the day of nine hours, but now the average number does not exceed 200 on precisely similar work, and for a foreman to complain (in ever so quiet a way) he is at once met with the reply: 'Brass up, guv'n'r, we have had enough of this,' and away they go, in many cases to return in three or four hours (the worse for drink) to insult and abuse him. I have sometimes had to call in the police. My firm opinion is that the trade unions are chiefly to blame for this state of affairs. If the builders would unite, and stand firm, they could, with the assistance of the architects, soon put an end to this robbery and hindrance. The foremen cannot do it themselves, which is palpable to anyone who knows anything about it. I am sure that nearly every foreman and clerk of works can testify in a general way to the above."

The "Bitter Cry" of the Outcast Architectural Assistant.

To the Editor of THE BUILDERS' JOURNAL.

SIR,—In his recent address to the Architectural Association, the President found in the largely increased membership a subject for congratulation. Though no doubt an excellent thing for the Association's finances, some people may be pardoned for finding in it room for much melancholy reflection on the status of the architectural assistant.

How many of the students who are crowding into the ranks are fated to achieve a practice and a competency? and how many are doomed to an obscure career as mere draughtsmen? To those who have neither the connection or push to gain the first, and who can only look forward to the dull career of office drudges, this large membership must be alarming. Still more competitors for their ill-paid posts! How many of the young aspirants to architectural fame are fated to get better remuneration than a carpenter or bricklayer?

The advertisement columns of the professional journals are a sad study to a thinking man. When we read of an assistant who can (apparently) draw, design, do perspectives in ink or colour, level, do accounts and quantities, write specifications, etc., etc., offering his services for little more than labourers' wages, do we think of the tragedy that may underlie it all, of the time and expense of his articles, of the crushed hopes, the penurious existence, the struggle with genteel poverty, the blank future? What do we think when we see middle-aged men toiling for others for their two or three guineas a week? Now and again a man by exceptionally hard work or special aptitude may rise to the pay of a shop-walker or builder's foreman. But for the crowd—who do not—what of them?

Is the Profession so overcrowded, or is it the worst paid under the sun? Five per cent. does not leave much margin for handsome salaries. Recently the writer was called upon to advise a schoolboy who wished to enter the Profession. After a long talk he said, "And when I have paid £200 or £300 for my articles, when I have worked as hard as a French agricultural labourer, and for as many hours a day as a bus-driver, when I have given my services as improver, been ground through the [A.A. curriculum, and passed the R.I.B.A. examinations—what may I expect to earn?" What was there to tell him? Two hundred a year? No! If he was lucky and very clever, thirty shillings a week! He was not dazzled at the prospect. But what must the assistant do? He cannot strike. If he has won a travelling studentship he will go abroad, and be made much of by the nations we despise. To their architects he is a *confrère*, to the rest an artist and a superior being. But in England he is a "clerk," scorned, scouted, socially damned; so let him return to his original obscurity, or tout for orders for builders' materials or books, and die a pauper—anything but blessing the malign fate that pitchforked him into "The Profession."—I am, Sir, yours faithfully,

A. R. I. B. A.

October 15th, 1898.

KEW OBSERVATORY, which the Parliamentary Committee suggest should form, so to speak, the nucleus of a National Physical Laboratory, is an unpretentious Government building, leased at present to the Royal Society at a nominal rent. It stands in the Old Deer Park, Richmond, which is Crown property, so that no difficulty would be experienced in the formal matter of transfer.

THE ARCHBISHOP OF CANTERBURY at Rugby recently reopened the school chapel. The building has just been enlarged at a cost of £6000, subscribed by old Rugbeians as a memorial to the late Rev. Philip Bowden Smith, assistant-master at the school. The Archbishop also unveiled a stained glass window erected by old pupils in memory of Dean Goulburn, formerly head-master of the school, and a marble medallion of Archbishop Benson.

MODERN LONDON WINDOWS.

BY RUPERT C. AUSTIN.

THE subject reminds us how dependent we are upon windows by means of which to avail ourselves of the stray gleams of sunshine which occasionally break through the canopy of London fog and smoke.

Many improvements have been made of late years in opening up the more crowded thoroughfares, and more will follow. Let us avail ourselves to the fullest extent of these privileges, and confer an everlasting boon on posterity by introducing as much light and air as we are able to in our buildings; and if our efforts in this respect are to be crowned with success, art must go hand in hand with science to attain the end in view.

London, like many other cities, has suffered artistically from the commercial instincts of its inhabitants; it is this commercialism which saps the very foundations of our art. From end to end of London we are confronted by buildings of which even the bricks and mortar are defiled by the grimy hand of commerce. So much the more is it incumbent upon us therefore to make a record of those buildings which have not sprung from an ignoble source, though the comparatively small number of such buildings makes the task a somewhat difficult one.

One brilliant exception has been planted right in the heart of the enemy's camp. Let us hope that it will be followed by others.

This window is sketched from the Passmore Edwards' Settlement, Tavistock Place.

The window lights a large hall opening off a corridor on the first floor, approached by an ample staircase.

The treatment of this gable end is decidedly



WINDOW AT THE PASSMORE EDWARDS' SETTLEMENT, TAVISTOCK PLACE, LONDON, W.C.

uncommon, the large central semi-circular window with its deep reveal, combined with the horizontal lines of the flanking windows, forms a very pleasing composition. The piers in the side compartments are alternately angular and circular, the entasis on the angular ones

is very strongly marked, the capping is a small hollow moulding enriched with pateræ, the spaces between are tinted blue, the bases to the columns are plain cubes.

There is a bold simplicity about the grouping which is very telling; perhaps the entasis on the pilasters might, with advantage, have been a little less marked, but it does not seem to be so obtrusive on the detached circular columns. It was a pity that stone was not used in the dressings of this window, but doubtless the choice was not optional.

The coping is formed in finely dressed stone, and the surroundings are of red brickwork.

82, Mortimer Street, introduces us to a higher type of art, in which figures are employed, and not merely as decorative adjuncts, but with symbolic purpose, and so justifying their existence.

It is not often that one has the opportunity of studying work of this class in London, where good sculpture is so rarely met with. What usually passes as sculpture (saving the name) creates a feeling of profound depression, especially when one thinks that someone must admire it; if not, why is it there?

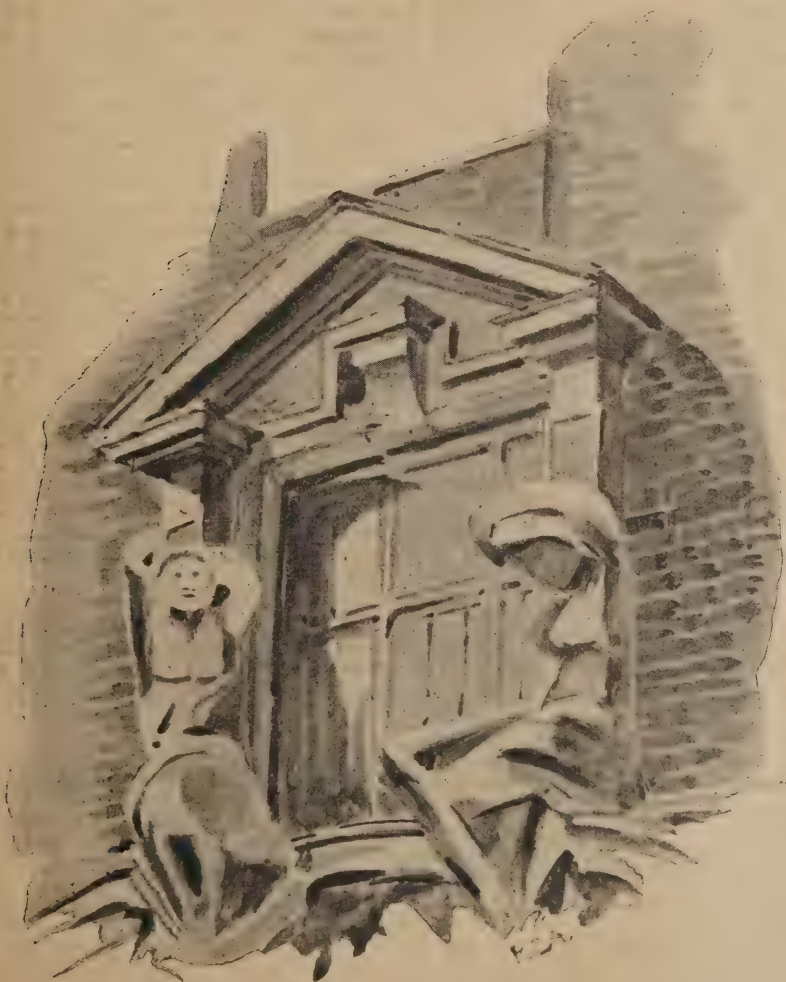
To return to the subject: the idea of "Night" and "Morning" is here vividly portrayed. On the right hand is "Night," a female figure, with shrouded head and sunken form, the face in deep shadow, the embodiment of the toil and weariness of the day brought to its close.

On the left is "Morning," a full-grown man in the prime of life and strength, just awakening from sleep; latent strength is well expressed in the boldly sculptured muscles. The drapery in both figures is well handled and without mannerism.

The architectural detail in this window is not so happy as the figure work; it is rather coarse in parts, as, for instance, in the key block, round which is a returned string, for no apparent reason whatever.

The mouldings in the pediment are not very happily chosen—in fact, all the detail has a tendency to coarseness—but the charm of the figures amply compensates for any defects in this respect. Breadth of treatment has been aimed at rather than over-refinement, and, in the main, the result is highly satisfactory.

In the accompanying sketch, taken from a portion of the Imperial Institute, we have a much broader treatment than in either of the previous examples. This is partly due to the difference in scale of the buildings, but not wholly so, as other parts of the same building



WINDOW AT 82, MORTIMER STREET, LONDON, W.



WINDOW AT THE IMPERIAL INSTITUTE, SOUTH KENSINGTON.

are much smaller in detail than either of the former windows.

At first sight this little pailion seems hardly a part of the parent building, but upon closer examination one can detect similarity between them.

The main cornice arrests one's whole attention. Its deep soffit forms a splendid shadow, in which the obvious weakness, for there are no modillions, is well counteracted by the semi-hexagonal buttresses occurring at frequent intervals; between these buttresses are three lighted windows.

The bed mouldings of the cornice, which are bold in outline, break round the buttresses, sufficient soffit being allowed for this feature. Just below the bed mouldings is a course of red brickwork. This is repeated again below the architrave, on a line with the underside of the necking of the engaged columns. The frieze is quite plain, and the architrave composed of slight mouldings; the soffit of the architrave is supported by detached and engaged columns, dividing the window into three parts; the plinth block of columns dies on to a three times weathered and deeply-splayed cill. This cill forms one of the most telling features in the composition, the steepness of the weathering conveying the idea of great depth of masonry.

The string below the cill breaks round the buttresses, and further on becomes the top of the cornice to the adjacent building. Just below this string the hexagonal form of the buttress terminates, and is continued as a pilaster.

It may be seen from the sketch that the whole effect of this piece of work lies in the deep recesses, rather than in the depth of the mouldings employed, a far more legitimate means of obtaining a result than by increasing the depth of the mouldings.

In conclusion, I should like to draw attention to the porch and vaulted corridor, which are both charming in their way, the vaulting of the latter being highly enriched with colour decoration.

The workshops in Newman Street, Oxford Street, in which Messrs. Liberty's cabinets are made, has been totally destroyed by fire. The property destroyed, besides the building, consisted for the greater part of unfinished work.

New cottage homes and schools have been built by the Chorlton Board of Guardians at Styal. The new buildings have cost a little over £50,000. There are fifteen cottages—thirteen to accommodate twenty children each, and two for ten each.

THE GREAT CALIFORNIAN UNIVERSITY.

NO BRITISH ARCHITECT AMONG THE CHOSEN ELEVEN.

NOT one of the eleven plans selected by the Antwerp jury for the Great Californian University, to be erected at Berkeley by Mrs. Phoebe Hearst, was by a British architect. This notable fact caused a Daily Mail representative to wait on Mr. Norman Shaw, who represented Great Britain on the jury, on his return from Antwerp, and to seek from him an explanation. Mr. Shaw pointed out that although a British architect was not among the eleven selected, it did not follow that an architect from these isles had not submitted a plan. The names of the successful eleven were alone published; the identity of those who failed was not disclosed. At the same time Mr. Shaw said it was quite possible that

NO BRITISH ARCHITECT HAD ENTERED the competition. The principle of architectural competitions was "blown upon" in England. Public buildings erected on this plan had always been more or less a failure. Mr. Shaw instanced the Houses of Parliament, the huge block of Government offices in Whitehall, and the Law Courts. Plans for all these had been selected by open competition, and in no case could the result be called successful. Furthermore, such competitions had at times been marked by proceedings the reverse of above-board. British architects had come to distrust them. Mr. Shaw felt a twinge of national regret when no English name appeared among the selected eleven, but he was not surprised for the reasons given. The Californian University is to be designed on a magnificent scale. The ground on which it is to be built extends for one mile and a-half, with a breadth of half a mile. It rises from 200ft. to 700ft., and is well wooded and watered by two running streams. These natural features have been taken full advantage of by the architects. The buildings are to be detached, thus giving ample room for enlargement as the University grows. Broad corridors figure freely in the plans and spacious courtyards—courtyards big enough to take in St. Paul's Cathedral and leave ample space to drive round it. The competition had been held in the hopes of

DISCOVERING SOME ARCHITECTURAL GENIUS. In this it had failed. But the plans selected were remarkably clever. They were all without exception of the French school. While

admitting the excellence of this school, Mr. Shaw could not resist a feeling of regret that a University for an English-speaking race should not be modelled on English designs. The University towns of Oxford and Cambridge, St. Paul's, the Banqueting Hall, and the finest structures of Inigo Jones, might all suggest models for a University in thorough keeping with the genius of the Anglo-Saxon race. Architecture is more

THOROUGHLY TAUGHT IN FRANCE

than in England, said Mr. Shaw, and this, no doubt, accounts for its character being stamped on all the chosen plans. At the same time French teaching destroys individuality. It must also be remembered that English architects have always been weak in public buildings, but excel in private houses, churches, etc. The French are the reverse. "Allow me to say one word," concluded Mr. Shaw, "regarding the kindness and courtesy shown to the jury by the town of Antwerp. Every assistance was rendered to make our task lighter. The jury had no light task. The work of weeding out was done most carefully. The plans rejected were all finally examined after rejection in case any points had been overlooked." The final cost of California's University will be nearer twenty million pounds sterling than twenty million dollars.

THE TRAINING OF ENGLISH ARCHITECTS.

Mr. G. A. T. Middleton seeks to apply a lesson taught us by this competition. He writes:—"As one, possibly the only, Englishman who competed, I should like to say that the fact of my having been fairly beaten is no proof at all that there is no British architect capable of holding his own with foreign competitors. It only shows that the many who have higher reputations than myself were too busy to spend months in the solution of an exceedingly difficult problem on the mere chance of success, preferring rather to be contented with the certainties already in their hands. For myself, I should, of course, have liked to have been one of those selected to enter for the second competition, but at the same time shall feel amply rewarded for the trouble taken if my failure but serve to draw attention to the great need there is for the more systematic training of architects in England. In this I am heartily and entirely in agreement with Mr. Shaw, and like him, I see the danger of following too closely the Continental system, and so creating a dead level of mediocrity, levelling down the few men of brilliance while levelling up the majority. The remedy which I have now consistently advocated for many years is an entirely English one—to allow young architects to be trained by apprenticeship, as is usual now; but before permitting them to practice, to insist that they shall pass certain qualifying examinations, as is done in the professions of law and medicine, and so inducing study along proper lines. Two such examinations exist, for entrance into the Royal Institute of British Architects and the Society of Architects respectively; but they are greatly reduced in value and hampered in efficacy by the fact that they are not compulsory upon all intending members of the architectural Profession. To secure this, legislation must be invoked; and it is exceedingly difficult to obtain a hearing in Parliament for a non-party measure of this sort."

"A BEAUTIFUL DREAM."

Mr. T. J. Councell, of Bristol, commenting on Mr. Middleton's letter, says:—"Mr. Middleton's argument is an old one; and I fear that Parliamentary legislation on this subject is but a beautiful dream. But could not the legislature—while powerless to insist that all architects and surveyors shall be qualified by examination before practising publicly—lay down the law that no person shall be able to practise in the above Profession unless he has been articled to the Profession, or has had practical experience—for three years at least—in an architect's or surveyor's office? I do not know if this would solve the problem; but I am sure my brother professionals will hail the day when mere 'jerry' builders and such like will be powerless to call themselves architects, &c."

ARTS AND CRAFTS.

NOTES ON A NORTHERN EXHIBITION.

(Continued from page 148.)

BY A SPECIAL CORRESPONDENT.

CONTINUING our notes of last week, perhaps the work that attracts most attention is that of the honorary members of the Guild, who are few in number, and all of whom have had some influence either in its formation or have identified themselves with its aims. Mr. Walter Crane shows some exquisite black and white drawings, the originals for the illustrations to the Shepherd's Calendar; also the original drawings for his peacock and fig wall paper, together with one of the spectral printed versions of it by Messrs. Jeffrey and Co. The original is very refined and restrained in colour, with all the bloom and richness of a piece of good old tapestry, but the reproduction is in a printing that quite rearranges the designer's ideas, and is too assertive for anything but a public room. Some cartoons for glass by Mr. Crane are excellent examples of a good use of glass in drapery, but drawn as they are in coloured chalks, they fail to suggest in any degree the characteristics of glass colour or glass painting. Near to these are hung cartoons for glass by Mr. R. Anning Bell. These, drawn in charcoal, are open to the same criticism. Drawings that are intended for translation to a material so unlike paper as glass is should be capable of easy translation. The glass painter is mainly dependent for form on his leads and his solid traced lines, and in a secondary way only can rely on shading. Cartoons intended to be worked from should therefore be drawn in definite lines and are most likely to work out well in the glass, if the maximum use is made of the solid black, and the minimum amount of shading added to support and elucidate it. Few glass painters could be trusted to translate Mr. Bell's muggy and uncertain shading into glass painters' technique without losing much of the charm of the originals. Mr. Frederick Shields shows the cartoons of two rose lights for tracery, in which the style of drawing is such that the glass painter could absolutely reproduce his ideas. A set of autotype reproductions of glass cartoons by the same artist, by their masterly drawing and finished beauty, may be taken as expressing the ideal of a man who leaves nothing to chance, but faces all the difficulties of the craftsman and overcomes them. Such work is a good corrective to the modern impressionistic school, who not only leave much to the inartistic craftsmen, but a great deal to the fertile imagination.

Mr. Anning Bell shows two of his well-known plaster casts in low relief, which are less beautiful than his usual work in this direction.

Mr. Fred Jackson, of the Manchester Academy of Arts, exhibits a painted frieze. The advisability of using figures of almost life-size, in a room some 18ft. long, is questionable, and only possible by reducing the colour scheme to an unpleasantly low scale. Accepting the low scale of colour, the general effect is pleasing, and the painting, as might be expected, handled with skill and breadth. The frieze has been spoiled by the addition of gilded tablets on which are badly-lettered inscriptions.

A portion of a painted frieze by Miss Dacre, and some charming pastel studies for the same, are extremely clever; and her ability to understand and translate children to paper or canvas, is of an order all too uncommon. Miss Dacre takes the trouble to finish her work, and you can consequently understand precisely what she means.

One of the sweetest bits of colour in the exhibition, and the only really serious embroidery, is a piano front panel, by Mrs. E. E. Houghton and her sister. The subject is

"The Effect of Music on Different People." A fawn plays on pipes in the centre, while children, listening, assume attitudes of mirth, sadness, &c. The effect, as a whole, is very good, and the workmanship excellent; but there might have been less monotony in the stitches used, and the background and foreground lack repose.

Mr. Cadness shows some working drawings for woven fabrics, good in design and interesting as showing the working methods of the textile designer, and some good embroidery designed by himself and worked by Mrs. Cadness.

A few Manchester cotton prints are exhibited by Mr. Caspar Holding, which are more pleas-

the whole of the result is obtained without painting by the selection of shaded glasses and leads of varying thickness; a mosaic of coloured glass. The colour of much of the glass is very choice and unusual.

In an ante-room Mr. Pearce shows some glass for a Manchester church, which, being electrically illuminated at the back, is seen to full advantage. It has been worked by Messrs. Allan Hughes, A. L. Duthie, J. M. Brydone, and T. Twitchett. It is very brilliant in colour, and is remarkable for the bold and able use of opalescent, iridescent, and variegated glasses, in conjunction with antique glass of several hues in one piece.

The treatment is specially devised to



CHANCEL WINDOWS AT ST. GABRIEL'S CHURCH, HULME, MANCHESTER.
BY WALTER J. PEARCE AND J. A. HUGHES.

ing than the usual cheap cretonnes, and impress one with the idea that he is trying to raise the level of this class of work, while of necessity conforming to the demand of the purchaser in a general way.

Drawing for the daily press is illustrated by Mr. Wm. Palmer, who shows side by side the sketch, the photo on zinc, the stereotype, and the finished print.

Mr. Pearce sends a number of stained glass exhibits, which are characteristic of the class of work that he affects. In most of the panels

counteract the greyness and dimness of the light in the crowded district of a manufacturing city like Manchester, and the glitter and translucent beauty of the glass should do this.

Mr. A. L. Duthie sends some clever work on similar lines; his panel termed "Penance" is perhaps the best of these. A. McPherson exhibits some good simple glazing of much merit, and Mr. Bishop shows a leaded "fish-panel," which is noticeable.

Cotton prints are shown by Mr. Lewis F



PANEL OF LEADED GLASS FOR BILLIARD ROOM. BY WALTER J. PEARCE.

Day, also printed velvets and wall paper. Mr. Day's work is probably the most successful commercially and the most possible technically of any of our modern designers, and he stands out prominently as a healthy example to our younger men, as one who gives the merchant and the manufacturer what they want, and what they can sell, in his own way and of his own kind.

A case of printing by Mr. H. C. D. Chorlton, who is also responsible for the general printing of the Guild and for the catalogue, possesses many of the qualities of the work of the Kelmscott Press, but lacks personality. No. 217, "Designs for Printers' Ornaments," is sufficiently distinctive to show that if he would follow less he might very well lead.

A number of architectural drawings are shown, no less than three architects exhibiting drawings for their own residences. That by Mr. J. Gibbons Sankey, M.A., F.R.I.B.A., is distinctly fresh and characteristic of the author. He has frankly made and accepted his plan, and his elevation has grown out of it with the result that we have a most unconventional suburban house. The friezes of figures are a telling feature in the elevation. Mr. Sankey's recent work in Manchester constitutes the most noticeable contribution to its street architecture that it has seen in recent years.

Mr. Frank Mee's residence is of the thoroughly sensible and dignified type that we expect from him—a convenient, well-planned, and not ill-looking house—a good house to live in, and pleasing in its elevations.

Mr. Henry Goldsmith's house is not well shown in the drawing sent in. It is an interesting and comfortable-looking house on a good site and presents decidedly picturesque aspects. One can fancy it is well planned and has genuinely cosy corners.

Mr. Edgar Woods' architectural drawings are as drawings extremely artistic, and his choice of perspective points of view are well chosen to display the quaint features of his houses. There is a rugged elementariness of construction which one hardly associates with modern ideas of convenience and comfort, and a tendency to ignore the experience of the past.

Mr. Woods' houses are externally as picturesque as some old country cottages, but appearances imply that internally they may be quite as incommensurate and comfortless.

It is a pity that the better drawings are crowded up by a number of trifling scraps and sketches that usually remain in the portfolio, and are devoid of general interest.

Mr. Sidney C. Houghton contributes a bold pencil drawing of a Hall designed for Messrs. Waring and Gillow.

To sum up the results, we note in the whole exhibition the silent action of the wholesome leaven that Mr. Walter Crane left hidden in Manchester. The sooner it pervades the whole mass of Manchester designers the sooner Manchester will take her true place among the centres of industrial Art.

In our last issue we mentioned the catalogue and the essays published in it. A more lengthy survey in no way lessens our admiration for this very useful brochure.

The literary part of the work is distinctly praiseworthy. The essays are, on the whole, well-written; and, coming from a number of individuals, some of whom are probably unused to literary work, reflect considerable credit on the Editorial Committee.

Mr. Walter Crane and Mr. Lewis F. Day have, of course, the advantage of experience, and as both are lucid and telling technical writers, with something definite to tell us, their ideas are always worth listening to. Mr. Day's paper is a very much-needed contribution to the much discussed question of past ideals and present requirements, and every practical designer, of whatever craft, should read it.

Mr. Reginald Barber gives us his terse and logical views on an equally open subject of discussion—i.e., the relationship of the pictorial and the decorative in art.

Mr. Burton takes up the cudgels in favour of the utilisation of nineteenth century advantages for nineteenth century pots, pans, and tiles, and, like Mr. Day, has no sympathy with any attempt to put back the clock.

Mr. Cadness, whose beautiful headline block takes the highest place among some good efforts, discourses learnedly on the weaver's craft, and gives some valuable information to designers; and Mr. Walter Crane's paper on embroidery and needlework is a useful sequel to it, carrying the use of threads in pattern to its fuller and more expressive development.

Mr. Charlton's paper on printing is, perhaps, too much an echo of what we have heard from the late Mr. William Morris. Many of the ideas are excellent, and the maxims without reproach, but we somehow feel that the setting and printing of the papers are evidence that the writer does not practice what he preaches.

Mr. Foster contributes a paper on Architecture. Claiming much for Architecture, he dismisses the subject in a brief and superficially considered two pages, which might, perhaps, be spared.

Mr. Richard Glazier gives a chapter on the influence of material upon design in a manner one associates with his position as a teacher and as Head Master at the Manchester School of Art. Mr. Hilton's chapter on enamels gives some information on this rather abstruse subject to those who do not understand it.

Mr. Pearce, on the opening of his essay on painters' processes, displays much impatience at the slovenly and imperfect craftsmanship of the very modern art worker, and is outspoken upon the duty of the Guild. One drops with a sensible jerk from this tirade into a series of businesslike recipes of how to do better in at least one department of Art work.

Mr. James Smithies, on repoussé work, is instructive, and gives many "wrinkles" to the uninitiated.

Mr. Edgar Wood brings up the rear with a direct and well-expressed article upon Nature in design. Mr. Wood writes impulsively, but his views are based upon knowledge, and are well considered. He falls into serious error, however, when he says that the architect has furnished us in the past with our true designers and decorators. It is to the old trade guilds and craftsmen that we owe the best of our past work; to that day when each man gave his time and his very soul to the acquirement of one craft, and by tradition handed on his knowledge to be augmented by his successors.

PUBLIC BUILDINGS FOR EAST HAM.

NOTES ON THE COMPETITIVE DESIGNS.

[BY OUR OWN CRITIC.]

THIS competition was one of somewhat unusual interest, for it is not every day that the opportunity occurs of designing a whole group of public buildings; it is surprising, therefore, that so few competed. As it is, even with so small a number, the arbitrator can have had no easy task to determine their respective merits. In endeavouring to ascertain the general lines on which the award was made, a reference to the conditions show that certain sums were specified as the cost of certain blocks, and that while it was left to the competitors to consider whether it was advisable to have them detached or otherwise, yet the estimated cost of each building had to be stated, and the future enlargement of any of the buildings had to be provided for. Possibly the arbitrator might consider that these conditions would be best fulfilled by buildings that were separated, and this may have influenced him in some degree in his choice of designs whose superiority over one or two of the others is not at first apparent.

Why is it the usual thing—as here specified—to build a Public Library and Technical Institute combined? It is hardly necessary; it adds greatly to the difficulty of planning; it prevents either section being as perfect as it might otherwise have been; and makes the artistic expression of the character of the building quite an undertaking.

The conditions also specify that the large public hall shall be on the first floor. This is a pity. No doubt, in the centre of large towns, where space is restricted, it has become a necessity, and so regarded as a matter of course; but in a scheme like this, where there is more room, it would have been better to allow the competitors more discretion in the matter; for there are many advantages to be obtained by placing the hall on the ground floor. When it is on the first floor, unless it is over an open market, or some such arrangement, there is always a difficulty in lighting the space underneath and in obtaining a pleasing effect; and in this case, where this



PANEL OF LEADED GLASS. "PENANCE." BY A. LOUIS DUTHIE.



ROUGH SKETCH DESIGN FOR A HOUSE. J. GIBBONS SANKEY, M.A., F.R.I.B.A., ARCHITECT.

space is occupied by offices, most of the competitors have seen nothing else to do but to put a wide central corridor, with a light at each end.

On this point, the first premiated design, No. 7, by Messrs. Henry Cheers and Joseph Smith, is not so good as the second, by Messrs. Spalding and Cross, or as that submitted by Messrs. Lanchester, Stewart, and Rickards. Not content with having the length of the hall to deal with, the authors of No. 7 add an extra block on at either end, and so make it worse, the lighting of entrance hall and corridor being very inadequate. The second premiated design gets over this difficulty more successfully, but wastes space in doing so.

There are several arrangements in both these premiated designs to which exception might be taken. The main entrance to the public hall—in the first premiated—is not well placed, and has a most unhappy effect in the perspective, and the most important position in the whole group of buildings—the post of honour—is awarded to lavatories and retiring rooms. In the public baths—and this applies to both designs—no proper arrangements are made for getting the dirty linen to the laundry, though here the second premiated is better than the first, though, on the other hand, the second shows no box for attendant in the slipper baths; while in the library block he places the librarian in a most awkward position; and, in the office block, his town clerk is much too far from the Council chamber.

The design submitted by Messrs. Lanchester, Stewart, and Rickards, was certainly—as a plan—the most attractive of all. It showed an idea of setting out and grouping; but possibly the fact that the offices, hall, and library had been grouped together told against it; if, as before suggested, separate buildings were preferred. A design submitted by Messrs. F. Baggalay and Ashley and Armstrong, and one by Mr. J. Hatfield Smith, were both more on these lines, and both designs of interest, but time did not permit of more than a passing glance.

The inevitable humorist was a gentleman who back-lined his plans.

ON THE STUDY OF DESIGN.*

BY G. H. FELLOWES PRYNNE, F.R.I.B.A.

HOW much is comprised in those four words "the study of design," and how many times during the past century it had



A PANEL IN COLOURED GESSO. ST. AUGUSTINE.
BY H. GUSTAVE HILLER.

been thought that a sure foundation for principles of study had been found, and how many times this had been upset by the shifting sands

* An address delivered at the opening meeting of the session of the Architectural Association School of Design, held at 56, Great Marlborough Street, W., on Tuesday, the 11th inst.

of fashion and individual opinion. Putting aside for the present the individual faddists, or, as some unkind people might call them, "mad-dists," we come face to face with three schools of thought:—One that would prefer to accept the traditions and the fashions of the past ages as the most perfect, and adhere to absolute correctness of style—which for convenience we will call the "Stylographic" school. Another that, while accepting the traditions and fully appreciating the beauties of Classic, Gothic, and Renaissance work, etc., and using the study of the same as

THE FOUNDATION OF ALL GOOD WORK, yet aim at blending what they feel is best in past work, and so gradually developing something new and original, although built upon old foundations. This may be termed the "eclectic school." A third, that would discourage the acceptance of traditions, or study of the styles of the past, and try and again commence at the beginning of things; bring the building, in fact, back to a state of nudity, and commence again the process of creating new styles and fashions for its decoration, and, further, would tempt the architect away from much that has been considered necessary in the past, such as the sketching and measuring of old work, except only so far as it tends to make them ideal craftsmen, as well as architects. One is tempted to call this

THE "CRAFTY SCHOOL,"

but as this might be misunderstood, we will be content to call them by the good old name of the Arts and Crafts School. . . . Much that has been written and said of late years, the bitterness that has been at times mixed up with argument by certain men of extreme views, has done but little to advance the cause they would uphold. On the other hand, the plain, outspoken, honest opinions of men who are known to have knowledge, experience, and ability at their back have received, as they always will, the careful consideration of the best thinkers and hardest workers in the Profession, and undoubtedly these views, if not accepted as a whole, have had an invigorating and helpful effect in many ways upon the Profession generally. . . . We, as an Association,

accept as a fact that there is much good in all these schools of thought, and we do not hesitate to advise pupils to study well the early history and development of Architecture. We confine their studies to no particular date or style; we encourage them to appreciate

WHAT IS BEAUTIFUL

in form and ornament, and we leave them unrestricted opportunities, and encourage them in every way possible to show their own individuality in design. And, further, we wish to encourage them in the study of the craft side of their art, not, however, necessarily to become craftsmen themselves, but as a necessary accessory to perfect design. Time is far too short for me to enter upon even the fringe of such a subject of debate as the best manner of teaching and learning to design, but personally my strong advice to you is to follow the course laid out for you in our curriculum—a curriculum that is, as I have before said, both simple and comprehensive, and in no way exclusive. By no means neglect in any way the early study of the history and development of our art. Do not put yourself on the pedestal of a false god, and puff yourself up with the idea that you can create something out of nothing. All that is beautiful in man's architectural creation in the past is simply a gradual development of man's powers of design, which, however, is like all other evolution, of gradual growth, and built up upon what has gone before. The more careful the study, and the fuller the appreciation of all that is beautiful in old work of whatever style—the more large our capacity for grasping the best points in designs of the past—the more likely shall we be able to “design with beauty and build in truth.” I do not for a moment wish to assert my own opinion that this or that mode of learning to design, or this or that style of work is right or wrong, but all experience in Nature, history, literature, art, and science teaches one lesson that I dare not ignore in dealing with our own art of Architecture, and that is that, unless we build upon the foundations of past experience, unless we make use of the ladder that has been gradually raised for us by

THE GENIUS OF PAST ARTISTS,

the result in design will be chaos. In saying this, do not please imagine that I am advocating the slavish copying or repetition of styles. My sympathies are entirely in another direction. I should deprecate as strongly as anyone the idea of a long period of a student's valuable time being taken up by the study of Classic orders and Gothic styles. But my contention is that our early education should be based on all that is best in past work, whether in style, ornament, proportion, or construction, so that our future designs, however free and untrammelled by previous styles they may, at least, be free from the vulgarity and eccentricities that so often pass for cleverness, but are, in reality, only a thin cloak to hide ignorance, as in the case of the Impressionists' art in painting, which in the hands of a clever and expert painter can be made so beautiful, is often only adopted by an inferior painter to cover ignorance and bad draughtsmanship. So it may be, and so it often is with

ECCENTRICITY IN ARCHITECTURAL DESIGN.

Yet at the same time, if we ever want to get any originality and freshness in design, we must not be afraid of eclecticism and the free treatment in design. There is, perhaps, no man who scared and horrified the men of the stylistic school more than the late J. D. Sedding, by his boldness and freedom in design and clever eclecticism, and yet there is no man whose genius and architectural enthusiasm has had a greater influence upon our art during the latter part of the nineteenth century—and at the same time there is no man who entered more fully into the spirit of ancient work, none who was more saturated with the principles of mediæval work, or who sympathised more with the motives that inspired the Renaissance movement. It was a thorough knowledge of, and sympathy with, the exquisite proportions of Classic, the absorbing beauties and developments of Gothic, and a love for the freedom of

Renaissance work that made the blending of all, with his own artistic feeling and ideas, such a success. It is the want of such knowledge and sympathy with the past that so often leads

HIS WOULD-BE COPYISTS

to utter failure in design. Again, I must strongly advise you not to be drawn away by the theories of any school from the principle of making sketching an all-important part of your study. It seems almost incredible that any real artist should decry the necessity of sketching, and yet in the endeavour to press the hobby of craftsmanship amongst architects, the art of sketching, it has been stated, is an unnecessary qualification. Do not, I say, be led astray by such theories. If you think that actual craftsmanship is desirable, and undoubtedly to some extent it is, by all means make it part of your study, but on no account for this reason neglect your sketching. By sketching freely you will fill the storehouse of your mind with ideas, for sketching will leave a far more indelible impression than reading, notes, or even the most careful survey of work. It will help more than anything else in design, and it will enable you to illustrate your ideas to others with a rapidity and preciseness that you will find most valuable. Your first business should be to become a good draughtsman—and make it your special care to be correct in your drawing—as few things are more injurious to the architectural draughtsman than

SLOVENLY AND INCORRECT DRAWING.

Having suggested the line of early study, let us now consider for a few moments the best way of applying that study to design. When starting on a design, the first thing before putting pencil to paper is to endeavour to acquire the habit of seeing clearly in your mind's eye what you want to design. By picturing your design in your own mind before attempting to draw, you will not only save time, but prevent much confused work. It is necessary that you should see in your mind plan and elevation together, and train yourselves to realise the effect of a building in perspective from different points of view. To enable him to do this with greater ease, the student will find that it is a great help to continually sketch small portions of his proposed design, quite roughly with chalk on the blackboard, or a piece of charcoal, or soft pencil on paper. The great use of these

SMALL ROUGH PERSPECTIVE SKETCHES

will very soon become apparent, as by their aid you will soon find out many small oversights and weak points that might otherwise easily have escaped you. When designing a building, let the perfection of plan be your first and all-important aim—at the same time, whilst planning keep in mind, as far as possible, both internal and external effect of your plan arrangement. But remember that, however fine an exterior may be, it can never atone for a faulty internal plan. If you want your plan to give pleasure, whilst studying convenience in every way, avoid making your rooms merely a set of parallelograms or what I might call a T square and set square house of the common type. It is by a reasonable and harmonious variation of the plan, that charm and artistic effect will be obtained both internally and externally. Clients, as they sometimes do, insist on a design in a certain style; still the hand of the true artist will, while adhering to the principle of the style chosen, so adapt it and mould it to his own feelings that it will bear the undoubted

MARKS OF HIS INDIVIDUALITY

and originality. . . . As regards ornament, I cannot too strongly advise you in your earlier attempts in design to leave ornament alone. Try and get your effects by simplicity of treatment, by the masses and grouping. A building that is not good in itself and in its proportion can never be redeemed by ornament. The very practice of reserve necessary for simplicity of treatment is an excellent training. Many more buildings are ruined architecturally by the misapplication of ornament than by plainness of design. But with ornament remember

that nothing is a more sure test of a man's intelligence and refinement when it is properly used, and nothing stamps the ignorance and vulgarity of a man more than

BAD OR MISUSED ORNAMENT.

Ornament in design should never have the effect of being simply stuck on without definite reason. The task of the artist in the formation of the constructive parts of a work is so to shape and connect all the details as to cause the whole to develop itself, as it were, organically. Any creation is perfect in exact proportion to the perfectness of the parts of which it is composed. Any work of art is perfect by the perfection of its parts, and by the organic relation in which those parts stand towards one another, and towards the whole. By such formation of the constructive and ornamental parts of a design, correct in themselves, correct in their relation to each other, and correct in their union as a whole, there will be produced a work in harmony with the laws of style, which, being the free creation of the hand of man, will express the use and purpose of its existence in a clear and intelligible way, and, like speech itself, will be the expression of the intellect and genius of its originator.

A RUINED CHURCH IN SUFFOLK.

THE Church of Trimley St. Mary is best known in Suffolk for that it shares the same churchyard with the Church of Trimley St. Martin, a quaint distinction which has few parallels in England. Both these buildings are used for divine service, and have separate rectors. Externally St. Mary's is but a wreck of a once stately structure, and its incumbent has taken the opportunity, in his efforts to bring about a better state of things, to bring before the public some of the many points of interest of the ancient fabric; more ancient than the days of Thomas de Brotherton (1300—1338), its sometimes reputed founder, since portions of the building indicate a considerably earlier date. De Brotherton's arms are on the central of five quarterfoils over the fine Early Perpendicular doorway, but those of Roger and Hugh Bigod, Earls of Suffolk long before his time, are also to be seen lower down. The Earls of Suffolk and Dukes of Norfolk were, from what the Rector styles, with perhaps unavoidable vagueness, the

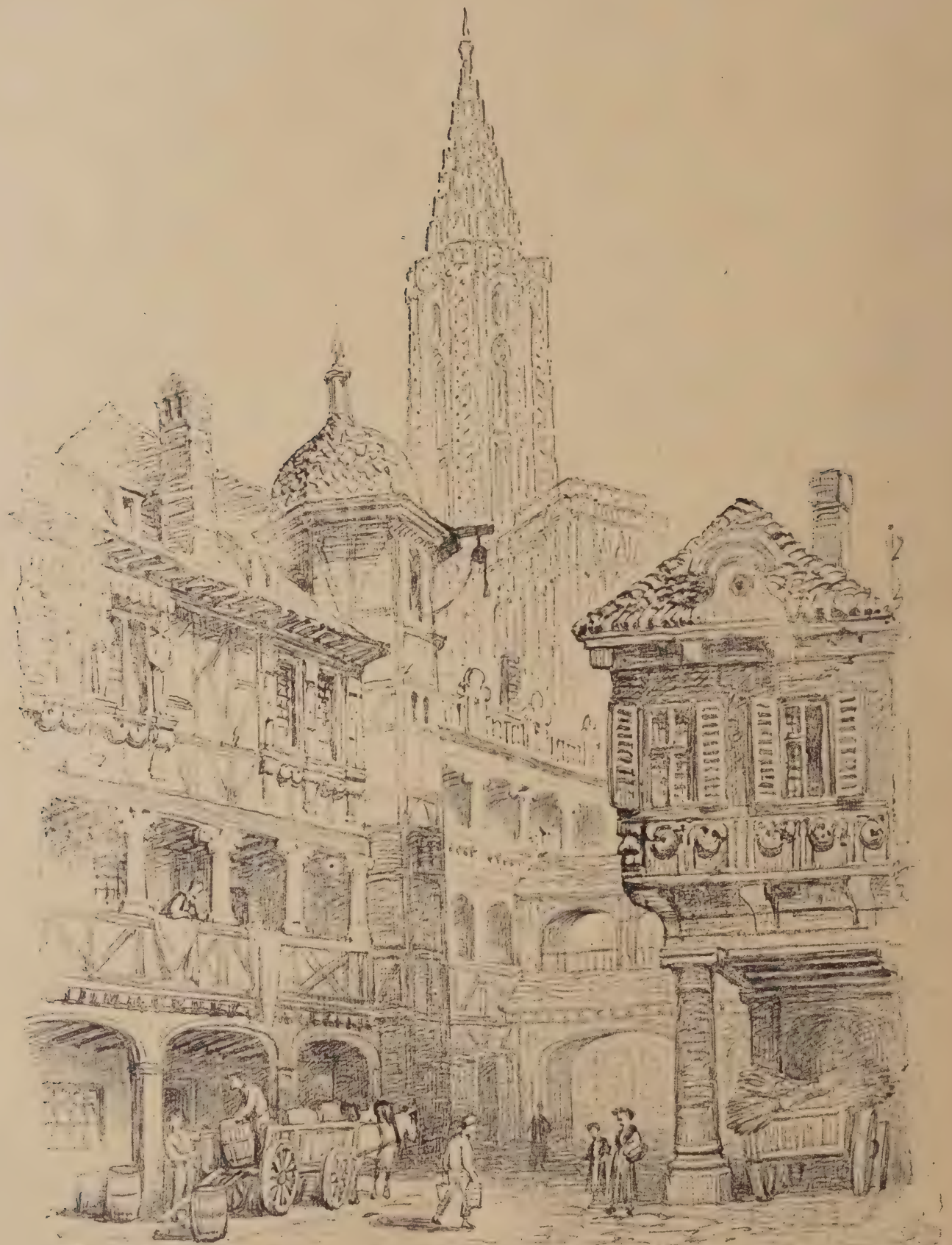
“EARLIEST TIMES”

patrons of the living, and remained such until 1545, when the Duke of Norfolk exchanged it with the manors of Walton and Falkenham, and the rectories of Walton and Felixstowe, for Castle Rising, with Henry VIII. Since then the patronage has been vested in the Lord Chancellor.

THE TOWER OF THE CHURCH

is now in picturesque ruins, and its crown is covered with ivy, but although the porch has been much mutilated, enough remains of this part to show how beautiful it must have been, “and,” adds the Rector significantly, “enough, happily, to guide an architect to a faithful restoration of it. The major part of the detail in the interior is of the Decorative period, and the great thickness of the walls indicates a still earlier origin, a fact illustrated by the Norman dog-toothed mouldings on some of the stones. The stately arch at the west end is now bricked up, and things would be much improved if it were thrown open, and the window glazed. The font was presented in 1856 by Earl Nelson, brother of the then rector, the Rev. J. Horatio Nelson, and in the previous year the church underwent a partial restoration, when, along with the good, some poor work was introduced. The beautiful features of the edifice are still, however, numerous, and the Rector thinks that an eminent architect, with £2000 or £3000 at his disposal could make it the most interesting in East Anglia. The restorations of more immediate necessity require at least £1000 to effect, and the urgent necessity of re-roofing the nave, re-flooring, and providing heating apparatus, is the chief claim which the Rector brings forward.

LIBRARY
OF THE
UNIVERSITY OF BATH



Old Inn yard
Strasburg

Strand Eng Co.

Strand Engⁿ

AT BRAUBACH ON THE RHINE. DRAWN BY EDWIN DOLBY.

LIBRARY
OF THE
UNIVERSITY OF ILLINOIS

THE ARCHITECTURAL ASSOCIATION.

PRESIDENTIAL ADDRESS.

(Continued from page 155.)

It may be objected that the cost of these models of wood, stone, and metal construction, and of plumber's work, with which, in my opinion, the Association should be furnished, would be very considerable. If they had all to be especially made, this would certainly be the case. But I would suggest the following method for the commencement of work in this new department. 1st. That the initial expense to the Association would be the necessary fittings, tools, and materials. When these were once obtained the

FEES FOR THE WORKSHOP COURSE

should be more than sufficient to pay the remaining expenses. 2nd. That the services of experts in each of the various trades should be obtained at a reasonable fee, and that the duties of such experts should consist of descriptive and practical lessons in setting out work on the board from scale drawings, and as to the best application of that setting out, to the actual materials, so as to obtain the best results and avoid unnecessary waste—to give

ACTUAL WORKING DEMONSTRATION

on the bench or otherwise, in preparing, and afterwards putting together, the model to be constructed. 3rd. To superintend the students' work in carrying out various portions of the same model or other work he may set them to do. 4th. That certain members should be invited to become visitors, and that they should from time to time set a subject for a model, or a problem, and give designs and details, say $\frac{1}{8}$ " and $\frac{1}{4}$ " scale, to be worked out in proper materials by students to $1\frac{1}{2}$ " scale, or larger, as the subject might allow. By this means it will be at once seen that in a few years the Architectural Association would have a most valuable set of models always ready for reference, made by the students themselves, under the supervision of an expert, and without any other than the ordinary running expenses being entailed. When

OUR COLLECTION OF MODELS

was large enough, no doubt the students who made future models would be glad to keep their own handiwork in memory of the happy hours spent in the demonstration workshops of the Architectural Association. I may here remark that the manual labour involved in working out these models and details to scale is a very different matter to working on large planks and heavy stones in a builder's yard, yet, for all practical purposes, the teaching would be the same, and that without injury to the hands for drawing purposes. Please forgive me if I seem to have dwelt on this subject at some length, but I feel so strongly that this addition to our curriculum would be such a popular and useful feature in our future work that I could not refrain from expressing my views plainly. There is one other class that I should like to see revived in connection with the studio, and that is drawing from the antique and from the life. I say revived, because as far back as 1864 a class was started for this end, but from lack of the method (such as we now have) it fell through. I cannot but think that such a class would be found very useful to many of our members of all ages. I sincerely trust that my picture of

WHAT WE HOPE FOR

in our new premises is not merely a fancy one or fated never to take substantial form, but that ere long we shall see it an accomplished fact, and that our long and patient waiting will only make us value the more our new home, wherever it may be. At the commencement of this paper I addressed you as fellow-students in Architecture. Believe me, I

meant this to be no mere form of words. I take it as a simple axiom that we are one and all students in our beloved art, and this is an axiom that cannot be too often repeated, for I fear that after passing through the first stages of studentship, and commencing practice, many are far too apt to agree with the sentiment of such an axiom without carrying forward their studies, and thus building up upon the foundation of their earlier Architectural education. It may safely be asserted that no profession or art needs more keeping up and continuous study than Architecture, and it is equally certain that an architect who ceases to study, not only by book-work, but by travelling and sketching, becomes sooner or later a more or less repeating machine. His ideas crystallise, and

HIS DESIGNS BECOME COLD AND LIFELESS.

It is for this reason that I hope one and all of our members will claim the honourable name of student in Architecture. We are only on different stages of the ladder. To those who are just commencing their climb let me say, look well before you start. Consider well what are your qualifications. Can you honestly say that you love art for art's sake, that you are prepared to work hard, and in a great measure to sacrifice your pleasure for your art, that you do not take up Architecture merely because it is a respectable profession—if so, then I think you may go forward with every confidence of future success—but if not, for the sake of your future happiness and welfare, you had far better turn back before it is too late. If you seek an easy-going and lucrative profession only, do not become an architect. The practice of Architecture is neither easy nor lucrative; on the contrary, it is one of the hardest working and most poorly paid of professions, as a large number of its members have, I am afraid, learnt from sad experience. On the other hand, the man who sincerely

ENTERS INTO THE TRUE ART

side of Architecture will experience great pleasure in his work, a pleasure that it would be hard to surpass, if indeed to equal, in any other profession or calling, and although wealth will be within the grasp of comparatively few architects, yet with a true love for his art as his main guide, with industry, ordinary business capacity, and last, but not least, absolute integrity in all business transactions, he will almost invariably be sufficiently successful to render his professional career a happy one. In speaking of Architecture as a poorly-paid profession, I am reminded of a somewhat amusing episode. A client of mine wrote a certain sanitary surveyor and auctioneer, &c., who she had previously employed on some sanitary work, complaining that his charges, which I may say amounted to over 15 per cent. on a total expenditure of some £1600, were greatly in excess of the charges of architects whom she had employed before on other house work. The answer of the sanitary surveyor and auctioneer, &c., was to the effect that of course his charges were quite a different matter to those of an ordinary architect.

HE WAS A SPECIALIST!

This, at least, indicates that there are some people who think that architects must be poor sort of things to charge so little, and in passing, I cannot help remarking that our system of charges does seem somewhat an anomaly. The Scott, Street, or Pearson, of his age, charging precisely on the same scale as Mr. Tom Brag, architect, auctioneer, and house agent. It is somewhat like a Millais or Leighton charging at the same rate per square foot of canvas as Mr. Daub, who once succeeded in getting one of his pictures marked with a big D, and hung in the Academy. The result is too often that the men who have made a name get more than they can possibly attend to properly, whilst the less-known men get little or nothing to do. I feel that, from an Art point of view, it is an utterly wrong system, but as the public, our patrons, would not be satisfied unless there was an equal schedule of charges, I acknowledge the difficulty of finding a remedy. Having, in the early part of my address, referred to some of our smaller weaknesses in working, I think I may now fairly congratulate the

Architectural Association on its otherwise prosperous position. Our roll of membership is the highest on record, and you will be glad to hear that our members have reached a total of more than 1220. This in itself is sufficient to show how widespread is the interest that is taken in our work, and how popular our Association has become in every branch of the Profession. Added to this, I am glad to say that, in spite of necessary extra expenditure, our financial position is still sound; and again, that our position from an educational point of view is equally sound, in that our many able instructors are content to remain with us, and to thus place us in a position of being able to offer students advantages in Architectural education far superior to that offered by any other institution of the kind. But these are not the only

SIGNS OF ENCOURAGEMENT

or success. The rejoining of several old members who had allowed their membership to lapse, and the joining of some new members whose names are well known in the Profession, has been quite a feature in the commencement of this session. Amongst the former I must mention our old friend Mr. Arthur Cates, who has been reinstated as a member on his own request, and has paid up his subscription for no less than thirty-four years, placing him now in the honoured position of the oldest living member of the Architectural Association, and amongst the latter are Mr. H. T. Hare and Mr. Edwin T. Hall. We extend to these gentlemen, and to all who have joined our ranks, in like manner, the hand of good-fellowship and warm welcome, and we hope that they will not be content with adding their names to our list of members, but will help us from time to time as occasion may require with their counsel and advice, or in such of the voluntary work that still happily remains a part of our system. It is here that I would venture to make an especial

APPEAL TO THE PROFESSION AT LARGE

to join our ranks, as by so doing they will not only help us morally by their sympathy, but by their annual subscriptions will help the educational work of the Architectural Association financially. We year by year gratefully acknowledge the valuable help and support given us by the Institute, without which we should find it difficult to keep up the standard of our work. Whilst I cannot but consider that the Institute, as the leading architectural society in the land, only do what is their bounden duty in helping forward the educational work of the Association, yet the help they give us is the more valued, because it is given freely, and without being trammelled with conditions, showing that the Council have faith in both our system and our officers. The generous financial help given by several leading architects, when the Association most needed it, at the commencement of our present scheme of education, will always be remembered with gratitude. We cannot, however, expect this kind of help except

ON VERY ESPECIAL OCCASIONS,

or for very exceptional purposes. Surely it is not too much to expect from other architects, who have been fortunate and successful in the practice of their art, and who have not previously helped our cause, that they should come forward and help to the best of their ability, the great work of education being carried out by the Architectural Association. Is this work to be left to a few hard-working architects, whose enthusiasm and love for the future welfare of their art urges them to give their time and talents ungrudgingly for the cause—can we allow it to be said that we, as a Profession, are so selfish, so warped in our ideas, so wrapped up in our own small centres of art, and petty personal interests, that we forget, or will not take the trouble to remember, there is a great cause to be worked for as well as that which more closely concerns ourselves? Surely not! If the helping of our younger brethren in their early architectural training tends to the good of that great cause and the advancement of our art, as I maintain it does, then, surely, it is the duty of all to do what they can for that end. Some

twenty-five years ago, when I was in the Western States of America, on the shores of Lake Superior, an American friend met an old priest, who was a most eloquent preacher, and asked him why it was he was content to stay in the, then, Wild West, on a poor income of 500 dollars a year, when, with his powers, he could get 5000 dollars in New York. His answer I have always remembered. He said; "What you say may be true—what is 5000 dollars to me compared with my duty to the great cause; I was sent to take charge of this district. I am doing my little best to fulfil my duties; when my work is done, my little best will go to strengthen the great whole, and so the work of the great Church advances." I only give this as an illustration of a noble example of self-abnegation, for the benefit of the whole body, and as it is applicable to any act of unselfishness, for the good of others. Although the great cause referred to in this simple anecdote is, of course,

INCOMPARABLY GREATER THAN OURS, yet the same principle applies. In common with that of the artist, our art of Architecture, which is itself noble and refining, calls into existence one touch of the Divine Faculty—creative genius. We have, in that art, a great cause to work for, and the more we can make our individual work tell, for the good of the cause as a great whole, and the more we can help others forward in working for that end, the better it will be for ourselves and for the advancement of our art. Amongst the other encouragements in our work it is satisfactory to notice the growing interest and increased attendance at our fortnightly meetings, and the success of the Discussion Section. It is often a cause of wonder to me how it is that the papers at these meetings keep up to such a high standard as they do. As a set of educational papers they are most valuable, and judging from the titles and well-known names of the readers of papers for the present session we may hope for excellent results. I do hope that members will

PROVE THEIR APPRECIATION

by a large attendance, and further that the younger members will try and join in the discussion after the papers. An excellent syllabus of papers has also been arranged by the energetic members of the Discussion Section. The papers of this section are often exceedingly good, as may be judged from some of those we have published in the Architectural Association Notes. I should strongly advise students to join, as the meetings are so arranged as not to clash with other class work, and it is here that they will be able to gain confidence in asking questions and speaking in public. There is another side of the Architectural Association work which is most useful, and is now as successful as it has ever been. I refer to

THE SOCIAL SIDE.

Now there are some to whom this side of our system is somewhat a stumbling-block. They think, and I have heard some say, that it seems a pity we should spend money on such frivolities as our annual soirée and members' smoking soirée. I must entirely disagree with those who would cavil with us on this point. Their objections arise either from an entire misconception of the objects of our social gatherings, or else from want of experience in the work of such a society as the Architectural Association. I can, of course, conceive that it would be easy to let the social side become a too prominent feature in our system, which would be distinctly injurious to its main objects. But under our present elective system, in which a very large body of men of tried experience have a voice, I believe there is no danger of such an evil happening. The social side of the Architectural Association is, and I trust always will be, one of its great features, contrasting as it does favourably with that

COLD RED TAPE SYSTEM

that would dub every kind of relaxation as undignified, and every penny that was spent on it as wasted. To speak more strongly, I would say that the social side of our work is one of our sheet anchors. Take away that social side and you will have a model in still life, perfect

perhaps in its form, but lifeless and without soul. Indeed, so strongly do I feel the great use of the social side of our work, that my great wish, as I have before stated, is to see a modified form of club life established in connection with our new premises. It is this social side that is one of the main wants of the Institute. It would give it a kind of life and soul that it does not now possess; it would make it more attractive to young and old. This to my mind is an exact case in point—few can find fault with the thorough and business-like way in which

THE GREAT AND EXCELLENT WORK OF THE INSTITUTE

is carried out; but no one will suggest that its social qualities as a body, almost exclusively confined as they are to a guinea-and-half annual dinner, are such as to inspire fraternal feelings in the bosom of the most warm-hearted artist. But in the Architectural Association one of our greatest aims is to encourage that social intercourse which is so valuable, and that strong feeling of fraternity that should exist among all true artists. In a limited way our annual excursion helps to create, extend, and foster that warm feeling of brotherly equality in art. One episode in the last excursion was the admiration called forth by Nesfield's work at Hampton-in-Arden, Warwickshire—and especially his careful

RESTORATION OF THE VILLAGE CHURCH.

Here I felt, and I think we all felt a touch of brotherly kinship for the artist, of whom it may truly be said, "though dead, he still speaketh." May the works that we carry out speak in the same language to future generations; and here I cannot help referring to the loss we in common with the whole art world have sustained by the death of Sir Edward Burne-Jones. If there was any one artist more than another who entered soul and spirit in the greatness of his art, where highest aims were purity, and poetic ideals, whose work has influenced the whole world of art, and the result of whose influence and example will live on for generations to come, that artist was Burne-Jones. Such a life and such art as his must mark him out as the artist among artists of the nineteenth century. In speaking of painters generally, one could wish that they, as a body, could enter more into the art side of Architecture than they do. Of course, there are many exceptions, but, as a body, I do not think it can be said that they really appreciate Architecture, and certainly very few take any trouble to learn the

GUIDING PRINCIPLES OF OUR ART.

The more they do so, the more will architects be able to enter into their feelings, with results that cannot help being mutually beneficial in case of decorative work. Undoubtedly we, as architects, have many bad art traditions to unlearn, and much more that is good to learn. We are much too apt to accept the shoddy decorator's bad copies of ill-drawn mediæval work, and seek to obtain quantity instead of quality. It is only the drawing together of architects, artists, and sculptors in mutual intercourse, and the exchange of ideas, that will help to break down the ignorance that exists on both sides, and bring about the harmonious results to be desired. This mutual understanding is equally, if not even more, necessary between the architect and the stained glass artist. On the one side, how many buildings have been

RUINED BY THE STAINED GLASS

put into the windows, owing to the entire want of sympathy on the part of the artist with architectural surroundings; and, on the other hand, it not unfrequently happens that the artist is trammelled by the requirements of an architect who knows little or nothing of the correct treatment of glass, and seeks rather to obtain a series of copies of pictures in glass than a glass picture. The employers are, of course, often to blame for these incongruous results. Their estimate of the duties and capabilities of architects is often, and not without cause, a very limited one. That the architect's artistic powers should extend beyond the limits of bricks and mortar, drains, and ventilation does not occur to many.

On the other hand, their views of an artist's power, simply from the fact that he is called an artist, is sometimes extensive, and they would deliver the work of decoration of a building or the stained windows into their hands without for a moment thinking whether such artist has any sympathy with Architecture, and without realising that the whole architectural proportions and effect may be simply ruined by

THE MISAPPLICATION OF COLOUR DECORATION

and ill-chosen glass. An amusing instance of how extensive the powers of an artist are considered to be occurred to my brother who, when considering the scheme for the mural decorations in one of my churches, was asked mysteriously by the churchwarden if he could consult him on a small matter of business. "The truth is," he said, "I have a friend who has a false nose, and he wants it painted. Will you kindly undertake the job?" But whatever our powers, be they limited or extensive, do let us as a body try our best to get in touch with artists and craftsmen of all kinds, and then I feel sure that those whose work is worth having will gladly meet us half way to our mutual benefit. In drawing to the close of an address of this kind, one feels how much there is that might be said with advantage on many points that there is no time even to touch upon, and how many things one ought to have said, that have been omitted. But please forgive such omissions, and although what I have said may at times have seemed, as before hinted, somewhat

SEVERELY PRACTICAL,

I trust you will believe that the sentiments therein expressed are sincere. Let my last words be to remind you that as architects our responsibilities are as great as our work is noble, and the growing appreciation of what is beautiful, and what is highest and truest in our art, within our ranks, if we are true to ourselves, cannot but make its influence felt in the outside world. Great as has been the advance in our art during the last 60 years, yet Architecture as an art is at the end of the 19th century only beginning to be recognised as such, by people at large. Officially, the best representatives of our art, the men who are entrusted with the building up of the nation's monuments of peace and posterity, remain unrecognised and unrewarded. A great, free, and enlightened daily press as yet treats Architecture with comparative indifference, and from simple want of appreciation of the work involved in the design for any great building, in many cases

CONSIGNS THE NAME OF AN ARCHITECT TO OBLIVION.

For some of this indifference, and want of public acknowledgment, we, as a Profession, have in a measure ourselves to blame. When people have forced upon them such buildings as have lately been allowed to disfigure such sites as the Embankment, near Somerset House, and Victoria Street, Westminster; and when buildings that have been erected at great cost have, from time to time, to be condemned as unsafe through structural defects, it is no wonder that they cry out:—Where is the art and science in Architecture? It is the object of improving matters that forms the very *raison d'être* of our Association. But we must also remember that however much we may value the appreciation of others, our art, as such, is in no way dependent upon public appreciation, which as all know is a fickle quantity. The highest art is the true reflex of the inner man. Let your work be truly your own work in every sense of the word,

STAMPED INDELIBLY WITH YOUR OWN INDIVIDUALITY.

It is by such work you will make your "little best" strengthen the great whole, and advance our art. We architects are the writers of a nation's history in stone, brick, mortar, and metal. It is our work that will speak of the nobility and greatness, or weakness and depravity, the richness or poverty of a nation. Think of the history that is recorded to us by the great architectural works of Egypt, India, Athens, or Rome—think again, how accurately the work of the early and mediæval times describes the character of men then living.

Surely an art such as this is worth living and working for. To us in a great measure is entrusted the comfort and health of the community, to us the raising of great municipal and national monuments, and last but not least, to us is given the honour of designing churches for the worship of the Great Architect of the Universe, buildings that will each in their own way, in the future, influence men for good or for ill, as the buildings of our forefathers have influenced our own. For students, let my last words be those of Bacon: "Our studies serve for delight, for ornament, and for ability."

Mr. H. H. Statham proposed a vote of thanks to the President for what he described as one of the best written and most comprehensive addresses delivered from the presidential chair of the A.A. Commenting on the transference of subjects from Division II. to Division I., Mr. Statham thought that the proper object of the first division should be the elementary instruction in the sciences which bore upon Architecture, and in the second division the instruction should deal with special problems upon construction—therefore, he approved of the re-arrangement. The general history lectures ought always to have been in the first division. Surveying, which had now been made an extra subject, ought never to have been in the first division; it was rightly placed as an extra subject, for it was not a necessary part of architectural practice. Nevertheless, he would urge young men not to exclude this subject, for its value was very considerable. The speaker also seconded the President in his view of the importance of demonstration classes and workshops. He thought the President was quite right in what he had said as to the undesirability of apprenticing young architects in a builder's yard. For an architect who was to use his pencil to a certain extent, apprenticeship in a builder's yard was too rough. He agreed *in toto* with the President when he said the examinations of the Institute were not an end in themselves. They had no doubt been of great use in encouraging architectural students in the pursuit of practical and scientific knowledge, and that, he thought, was their real and only proper object. The studio was the most important branch of the work of the Association. Architecture was an intellectual conception, and a man could not make a satisfactory intellectual conception of the whole building if he had to divide his thoughts between carving, moulding, and every little part, at the same time making himself a practical mason or carver. The speaker countenanced the social side of the work of the Association, but asked whether the music-hall element was necessary at the smoking concerts. Was it not possible for a company of artists to amuse themselves artistically in a refined way?—Mr. Beresford Pite, in seconding the vote of thanks, said that

THE INFLUENCE OF ASSOCIATION

amongst them upon their educational work must never be overlooked. He referred to the modifications which had been made in the examination scheme, and said he sincerely hoped that further modifications would yet be made. He hoped they would get away from their history books, and learn to look at Architecture for themselves. An architect could not design in a material the nature of which he is unacquainted with; but if it were necessary for a man, in order to design, say, fine iron work, to hammer it out with his own hands, that man must be content to die and be re-incarnated two centuries ago, where he would be brought up at the feet of that race of born smiths, who created the ironwork of the early and later Renaissance.—The vote of thanks was supported by Mr. Edwin T. Hall. He deprecated the proposal of students working in workshops. A young student's hand would soon become unfitted for pencil work if he used a mason's hammer or other tools. He very much doubted if any of the great artists of the past went through such a course of study at all. Besides, to do all this, a student needed to live two or three lives. He thoroughly agreed as to the value of the social side of the work of the Association, but he was with Mr. Statham in objecting to the

introduction of the music-hall element in the smoking concerts.—Some further comments were added by Mr. A. Cole Adams, Mr. Walter Millard, and Mr. Seth-Smith, after which the vote of thanks to the President was unanimously carried.—In responding, Mr. Prynne said that during his term of office he would do his "little best" for the advancement of their great Art.

Before the delivery of Mr. Fellowes Prynne's address at the inaugural meeting of the A.A., several business items were disposed of, including the adoption of the annual report and balance sheet. This was moved by Mr. Hampton W. Pratt, who mentioned that the membership of the Association at the end of the session was the largest they had ever had. The educational work of the Association had been well maintained during the last session, although there had been a slight falling off in the number of students. On the whole the work done was very good and encouraging. A source of great dissatisfaction to the committee was the fewness of the students who had passed into the advanced division, and alterations had been made in the curriculum which the committee trusted would have the effect of increasing the attendance in Division I., while causing no falling off in Division II. The studio and the school of design had been carried on successfully, and the speaker paid a tribute to Mr. Lewis, who he said had worked so ardently in advancing the interests of the studio. Coming to the balance sheet, a very satisfactory condition of affairs was revealed. There exceeded a balance on the right side of £150. The subscriptions were slightly in excess of the previous year in consequence of the larger membership, but, on the other hand, the arrears of membership were also larger.—Mr. W. W. Seth-Smith, in seconding the adoption of the annual report, said it was a sad fact that the attendances in the higher division of the curriculum were unsatisfactory. If the Profession realised more fully what Professor Roger Smith had recently pointed out, that the Association was founded and maintained to encourage the training of bonâ-fide architects—men who were able to afford the advantages of pupilage and go through a course of regular training—their classes would not suffer through lack of members. The Architectural Association did not pretend to compete in the matter of fees with the polytechnics or the

SO-CALLED SCHOOLS OF DESIGN,

in which a number of men of various trades, especially the building trades, went through what was called an architectural course. The Association was particularly for the architectural pupil, and if the principals would bear that in mind and urge that point upon students who could afford these privileges, he felt sure that even in the higher division of the curriculum they would not suffer from lack of members.—Mr. Owen Fleming put the following three questions, of which he had previously given notice to the President:—

1. Were the Committee yet in a position to make any definite statement as to the probable locality of the proposed new premises?

2. Were any, and, if so, what provisions to be made in the new premises for the adequate training of students in the scientific handling of materials?

3. Whether it was the intention of the Committee to obtain the approval of the general body before committing the Association to any particular scheme?

The President answered the first question in the negative, and said that Mr. Fleming's other questions were answered in the Presidential address.—The other business at the meeting included a vote of thanks to the hon. auditors, Messrs. H. P. G. Maule and G. W. Stonhold. A number of old-time members were reinstated, and a long list of nominations was read. Following these came the presentation of prizes, medals, and certificates gained during the last session, and afterwards the President's address.

At Cookham, near Maidenhead, a large working-men's institute has been opened.

AN ENORMOUS . . . AGGREGATION OF .

Architectural Articles.

Important Announcement

- - in regard to - -

"THE BUILDERS' JOURNAL."

"The Builders' Journal and Architectural Record" is admittedly the best and brightest weekly paper published for the Architectural Profession and the Building and Allied Trades.

Upon repeated occasions the bulk of the "Journal" has been increased.

It is now the intention of the Editor to enhance the authority, artistic quality, and literary and technical excellence of the "Journal."

The pages of "The Architectural Review" cannot adequately cope with the number of authoritative and excellent articles offered from time to time, and the Editor of "The Builders Journal" has now arranged to take a selection from such articles for insertion in the "Journal." Thus, while "The Architectural Review" will deal with Art subjects of enduring character and undoubted influence, "The Builders' Journal" will publish the more controversial and currently critical subjects offered for consideration.

Bricks and Mortar.

EFFINGHAM HOUSE, ARUNDEL STREET,

October 19th, 1898.

"I know what it is to live in a cottage with a deal floor and roof, and a hearth of mica slats; and I know it to be in many respects healthier and happier than living between a Turkey carpet and a gilded ceiling, beside a steel grate and a polished fender. I do not say that such things have not their place and propriety; but I say this, emphatically, that the tenth part of the expense which is sacrificed in domestic vanities, if not absolutely and meaninglessly lost in domestic discomforts and incumbrances, would, if collectively offered and wisely employed, build a marble church for every town in England; such a church as it should be a joy and a blessing ever to pass near in our daily ways and walks, as it would bring the light into the eyes to see from afar, lifting its fair height above the purple crowd of humble roofs."—JOHN RUSKIN.

ONE of the few remaining landmarks in Whitehall has just recently passed out of existence. This was Vanbrugh House in Whitehall Yard, which was built by Sir John Vanbrugh in 1796. Prior to 1831, it was the residence of Lord Stuart de Rothesay, but in that year it was taken over by the then recently established United Service Institution, which, together with its famous museum of naval and military relics, was housed there until 1895, when the Queen granted the use of the historic banqueting house of the Palace of Whitehall. The old building, which stands on the site of the quarters allotted to the officers of the Jewel House, has now been demolished to make room for the erection of the new War Office on ground formerly occupied by Carrington House.

THE universal rush of the present day did not always exist. Men used to take their time in completing any important undertaking they might be engaged in. This is especially true of the building of cathedrals. For example, the inauguration of Bristol Cathedral was due to Abbot Knowle, by whom its erection was begun in 1306; but it was 582 years later, in 1888, before it was out of the builders' hands. Gloucester witnessed in 1089 the laying of the foundations of its cathedral, but it was destined that sixteenth century eyes should be the first to gaze upon the completed pile, for it was finished in 1514, 425 years from its commencement. Just 535 years back, on July 19th, 1361, an interesting ceremony transpired in the City of York. Archbishop Thoresby then laid the foundation stone of the cathedral choir. The church itself occupied the time of the builders for 301 years, 1171 to 1472.

MR. F. HERBERT MANSFORD writes, in reference to City churches:—"Artists and architectural students would be grateful to be able more easily to use the buildings as subjects for sketching. At present, permission must almost always be obtained from the incumbent, who frequently lives at a distance, or who (if near) may be absent from home. Such permission is generally very courteously granted, but on entering one of the City churches on Saturday afternoon the verger informed me that the permits were only for a single occasion, and that mine was no longer valid. Sometimes a charge is made for a permit lasting one month. On one occasion I paid 2s. 6d. for such a privilege (including the use of the camera), but never found a second opportunity of utilising it. It would be a boon if some particulars as to sketching, &c., were placed on the notice-boards, whence they could be listed by such bodies as the Architectural Association and sketching clubs. Would it

not be practicable to allow sketching freely when no services are being conducted, and to grant permits only for measuring, brass-rubbing, and photography? Such a privilege would be widely appreciated, and clergymen would be less frequently troubled by applications. There are two or three churches, such as St. Bartholomew the Great, where the numbers of students might cause inconvenience, and in such cases the charge is a protection to all concerned, and a real source of revenue. Artists and architects often have some influence when the demolition of a church is under discussion, and it is much more likely to be used when the edifice has been fully appreciated by that intimate knowledge of its detail which is acquired by sketching."

SOME of the greatest buildings in the world derive their chief interest from the circumstance that they were never finished, or have become picturesque ruins, like the score or so of castles on the Rhine. Most people will be gratified to hear that the Watkin Tower in Wembley Park is to be added to the number. Silly emulation of the Eiffel Tower was responsible for the enterprise, which has cost £100,000, and has just been sold to the ground landlord for less than half that sum. The meaningless monstrosity will stop at the first floor, and, to that extent, will be a more trifling disfigurement than if it had shot up a thousand feet, which was the original intention.

RUMOURS that the dome of the Oratory, which overshadows Brompton, was about to subside, has caused alarm in the neighbourhood. Countenance to the truth of these rumours has been given by the appearance of scaffolding round the large gilt cross that surmounts the dome. The scaffold round the cross was due to the rod which bears it, and which is fastened into a beam, having bent slightly. The rod and its fixings are now being repaired and straightened. With the fabric itself there is nothing wrong. A fully qualified engineer had been deputed by the London County Council to examine it; he pronounced it absolutely secure. Seen from certain places in some lights the dome has the appearance of a leaning dome. This, however, is an optical illusion. The Oratory, is now, to all intents and purposes, finished. To complete the original design two large towers should be added to the façade. The platforms for them are already built. The erection of these towers will cost something like £15,000. There are many other works in connection with the Oratory far more pressing than the erection of the towers. Besides, it is held by not a few that they are not wanted. They will crowd the building too much and dwarf the beautiful dome.

"C. F. M." writes: "May I trespass upon your space to call attention to a very serious inconvenience that the riders in cabs and the drivers of vehicles are now suffering through the partial watering of the wooden pavements? At present the water carts only water each side of the roadway where it slopes down to the gutter. In consequence of the road being now very dusty, watering makes the surface into a greasy, slippery mud, upon which it is almost impossible for horses to keep their feet. If it is the object of the County Council to save water at the present time, it would be far better for the cab horses and the nerves of the passengers if the wood pavements were not watered at all."

PADDINGTON is the latest London district to resolve upon building a great town hall. The existing offices, which stand in the Harrow Road, near Paddington Green, have been found too small for modern requirements, and are consequently to be demolished. It is proposed to erect the new buildings as an exact copy of the Portsmouth Town Hall, an imposing edifice in a classic convention with a lofty colonnade and tall central tower, finished some ten years since. The Portsmouth Town Hall, however, it is curious to observe, was in its turn a replica of that of Bolton, Lancashire,

which can also claim to be the parent of the Town Hall of Leeds. There may possibly even be other copies of that evidently much-admired design, which opens up a prospect of a dreadful sameness among the municipal buildings of the land; just as Londoners, journeying over the length and breadth of the country, are pursued from town to town by the "Westminster chimes."

THE exhibition of Rembrandt etchings and drawings now in preparation at the British Museum will, it is hoped, be ready before the end of November. The present show of drawings by the old masters—of which the principal feature is the Malcolm collection—will be removed. The Museum contains what is, on the whole, the richest collection of Rembrandt's etchings in Europe, numbering about sixty or seventy examples. There are also nearly 400 original drawings. The whole will be arranged chronologically, as far as possible, for the benefit of students. None of these have found their way to Amsterdam, the Museum authorities having no statutory powers to remove the exhibits for loan purposes. In addition to the Rembrandts there will be a supplementary exhibition of other art works, the particulars of which are not yet known.

MR. CLAUDE HAYES, R.I., dubs the water-colour drawings on view at the Clifford Gallery, 21, Haymarket, as "of East Anglia." The majority are so, but here and there will be found a bit of Surrey, a Sussex haymaking, or even a fair bevy of Dutch maidens. Mr. Claude Hayes has never been wedded to a groove, but when he has used figure it has generally been incidental rather than of primary importance, and of such delicate finish as in "By the Stream." Perhaps the most noticeable point in his broadly but not sloppily touched landscapes, next to their weatherliness, is the extraordinary realisation of mileage. He differentiates class of ground well. How faithfully is the spongy nature of marsh land given in No. 9, and the rustling of the dead rushes. "In the Berkshire Meads," and the dry quality of heathered moor in more than one spacious landscape that is present. Neither David Cox, nor Thomas Collier, nor De Wint are imitated, and yet there are drawings present which call up memories of all three masters. Possibly De Wint is most seen in the skies, and this in clouds of a dun tone that is suggestive of faded pigments. These are less admirable than the skies of "A Storm near Beccles," with its fleeting cloud shadows, or the finely treated sky above leagues of level land bounded by low hill, "Near St. Olaves." It is a worthy little show, fresh and unaffected, although these are no new virtues, in the artistically rendered pure landscapes, landscape with animals or figure, and the more restricted compositions of picturesque mills, farms, bridges, &c.

OUR towns are always much concerned about street paving. There are many competing systems—wood, asphalt, concrete, and granite blocks. It is of interest, therefore, to record that granite sets, considered the most durable, as they are certainly the most noise-producing system of paving, have been renounced by the Granite City—Aberdeen. Up to now the city has stuck to its native stone and its local industry, but it was induced to try tar macadam. The result is that granite is given up, as tar macadam is found to be as firm as granite and does not cause noise and irritation. Since it has been adopted in Aberdeen it may perhaps also be taken for granted that tar macadam is cheaper.

ARCHBISHOP LAUD's connection with Gray's Inn has been fittingly commemorated by the addition to the chapel of a stained-glass window, which has just been dedicated by the Bishop of London. The memorial fills the south light of the east window, and in treatment harmonises well with that of the north, in which Thomas a Becket is the central figure. Laud is depicted in full episcopal robes, with an open book of prayer in one hand and the pastoral crozier in the other.

At the base is a small representation of the Archbishop upon the scaffold, with the Tower of London in the background.

TIME was—and that not so many years ago—when the streets of New York were unrivalled for their bad paving and dirt. Now they may stand as a pattern to London, and notably in their maintenance. Quite recently the authorities had to face the problem of providing ten miles of streets with the underground trolley system with as much rapidity and as little inconvenience to the public as possible. In a period of thirty days the most difficult part of the work was done. In order to achieve this result, however, labour was not employed in our piecemeal fashion, but a daily average of 7000 men was engaged. The work was continued day and night, and the ordinary traffic was not interrupted, while the cost will be no more than if the work had been done by small relays of men.

THE difficulties which the London County Council have experienced in arranging housing accommodation for the people who will be displaced by the Clare Market scheme and the proposed new street to Holborn have been lessened somewhat by the willingness of the Duke of Bedford to sell two sites in Drury Lane and a larger site fronting Herbrand Street, near Woburn Place. A joint report of the Housing of the Working Classes and the Improvements of the London County Council recommends that these sites be purchased at a cost of £118,740, the Duke in part consideration being allowed to purchase at £13 4s. per foot a strip of ground which will front a portion of the western horn of the crescent which it is proposed to form at the southern end of the new main street.

THE old Dutch masters found their motives and subjects at their front doors. Comparatively few of them went travelling beyond their own country, sometimes hardly beyond their own town. You do not hear of Rembrandt in Italy or Spain, nor of Franz Hals in England. The modern Dutch painters, as far as motives go, have accepted the old traditions, and have stayed at home and painted the landscape and Architecture and people they know best. And probably by not allowing themselves to be puzzled by unfamiliar problems of light and atmosphere and character, as well as by borrowing judiciously from the methods of the modern French masters, they have evolved a convention or style which makes their work always agreeable, even when it is not great. Monotony is the fault we have at times had to point out in the pictures of James Maris and Mauve; it takes a Rembrandt or a Velasquez to repeat the same theme with endless variety. It may therefore sound something like a contradiction if we say we wish there was greater monotony in the work of Tholen, who has just opened an exhibition of paintings and watercolours at the Goupil Gallery.

LIKE Maris and Mauve, he finds, as a rule, all that he wants to paint in Holland. There are one or two Bavarian motives in the collection; the others are all Dutch. But, unlike Maris and Mauve, he seems still uncertain of the formula by which he would express them. Some canvases are as full of detail as a photograph, some are treated with the breadth characteristic of the methods of the two painters we have just named. This uncertainty gives an effect of weakness to many of his pictures; they have little of the style or distinction we usually look for in modern Dutch work, though there are not many English landscape painters to-day who could make as interesting an exhibition. Tholen is really best when he is most like Maris, as in the watercolour at Enkhuizen, with its wet, cloud-swept sky, or suggestive of Mauve as in the colour scheme of the "Scheveningen: End of the Season," also a watercolour, the grey sands and grey skies and grey boats of Holland in her saddest mood. And there are paintings in which the subject alone has a charm that cannot easily be destroyed: for

example, the "Castle in Holland," the old brick mansion rising from its moat with beyond just a suggestion of the barren, rain-sodden plain, to which it gives colour and beauty and romance.

MR. CLAUDE HAYES, whose canvases are now to be seen at Clifford's Galleries, has been working in that part of England which is most like Holland—in the Norfolk Broads; where, too, you look across the wide plain to the low horizon, where you see the great sails of invisible boats gliding through the fields, and where windmills turn their giant arms above the marshes. In England, however, it is not so easy to be faithful to tradition as in Holland; there are so many and conflicting tendencies that the painter is lost in bewilderment, and unless he has in them that right instinct—we say nothing of genius—that sends him straight to what is really good and really great, to what, in a word, is Art, it is no wonder that he should spend years stumbling in his search of the one guide worth following. In Mr. Hayes' work we are a little too conscious of the tradition of the Institute, which no one can say has as yet led to the masterpiece. He usually chooses his subjects well; they are just those in which the Broads are richest. But his foregrounds are niggled, too full of meaningless detail; there is no movement and little modelling in the clouds that cover his sky; he looks at Nature with too literal eyes to see the pictures she may suggest. It is when he breaks loose from Institute ways and methods that he is really most pleasing. There are some little studies made near Walberswick and Dunwich—old haunts of Charles Keene—in which he seems to have forgotten the Institute formula, and been content, instead, to note simply the delightful colour scheme made by the grey sands, the red roofs, and blue water. And it is curious that in these studies, where he has just washed over his sky, he expresses space and air far better than in more elaborate drawings.

THE Battersea Vestry recently voted a sum of £400 for the erection of a refreshment kiosk in the parish cemetery. The building is being erected with all possible speed, and it will probably be ready for use in the early spring. Never before has such a novelty as a restaurant in a burial ground been attempted in England, and it is only the particular bleak and isolated position of this cemetery which has brought about the necessity for such an erection. This novel refreshment kiosk will consist of two rooms. In the outer room there will be a stove and five dining tables. Externally the building will be of red brick with stone dressings, and it will be roofed with red tiles, like a cottage. The aim of the builder will be to keep the whole building in harmony with the general Architecture of the two cemetery chapels which it faces. It will be situated upon a small mound in the centre of the grounds. The internal decorations will be carried out in stained deal.

THE City authorities have in contemplation an important street improvement which, if carried into effect, will revolutionise to some extent the traffic in St. Paul's Churchyard. The proposal is that the north side of the cathedral—a narrow and deceptive *cul-de-sac*—should be opened up for vehicular traffic. At the present moment, and for years past, this place has been known among drivers as the "spot barred," because, as a matter of fact, while it is a most desirable spot for entry and egress, it is religiously barred by an ancient gateway, over which the ecclesiastical authorities keep strict watch and ward. The scheme includes the setting back of the large shops facing the north side of the churchyard, the slicing off of a portion of the cathedral palings near the western entrance, and the removal of a piece of projecting property at the top of Ludgate Hill. The result would be a straight line of street from the top of Cheapside into Ludgate Hill; but the cathedral authorities are not disposed at present to open the obstructing gate, and it remains to be seen whether the City Corporation will find a key to open it.

THE OFFICE OF WORKS.

SOME BUILDING SCHEMES IT HAS LONG DEFERRED.

IN Pall Mall there are a lot of dilapidated-looking old houses. With passages made here, holes pierced in its worm-eaten walls there, and with a sentry-box near its front door, it became, some twenty years ago, the War Office. It has remained the War Office ever since, and is, as it then was, a disgrace to Her Majesty's Office of Works. It had, and has, no proper convenience for the conduct of the business of a great machine. A new War Office has been promised. When it will be ready is another matter. Not one brick has yet been laid upon the site selected for it opposite the Horse Guards. Yet several years have passed since the Office of Works pulled down the magnificent mansion of the Carrington family to make room for this new War Office of theirs. It need hardly be said that

CARRINGTON HOUSE

was a very commodious building, in most excellent condition. A few alterations at very slight cost would have made it a useful centre for the housing of the overflow of the many departments, to find places for which has for many years cost immense sums of money. If the Office of Works knew that ten years would elapse before the Carrington House site could be made use of, why was that house pulled down, and a mass of bricks left to disgrace and be an eyesore in what is one of our few fine thoroughfares? Again the Office of Works has acquired the Parliament Street and King Street sites for the purpose of erecting thereon a new building which is, it is believed, sometime or other, to house the Local Government Board, the Education Department, the Science and Art Department, and the Board of Trade. Three-fourths of the houses in Parliament Street, on its western side, have been pulled down for several months. The former occupants of them—civil engineers, surveyors, Parliamentary agents, and others—begged the Office of Works to be allowed to remain as monthly or even weekly tenants until the whole of the houses to be acquired could be pulled down straight off. But the Office of Works sternly refused to consider these proposals. They must, or should, have known that obstacles and delays would occur in the acquisition of all these houses. As matters stand the important corner building is still unacquired owing to

A QUESTION OF COMPENSATION,

and the King Street Post-office still stands supported by much shoring, while the clerks and telegraphists are wondering how much longer they have to live. While, then, these two places remain unacquired a large sum of money is being lost in rents, and many civil engineers, Parliamentary agents, and others have no places to go to. In short, says the Daily Mail, this Parliament Street business is almost the biggest blunder ever perpetrated by the Office of Works, and it will be more than a matter of surprise if, in the next session of Parliament, searching enquiries are not made into the history of it all. In fact, the time has, in the opinion of many, arrived for a Parliamentary inquiry into the work of the Office of Works. A flood of light might then be thrown on (1) the rents paid for "temporary" accommodation for the various Government offices in and about Whitehall; and (2) the loss which has accrued to the Treasury from the disuse of lands which have long been bought for public buildings. The site in Charles Street, behind King Street, was acquired upwards of thirty years ago at immense expense. On that part of it not occupied by the celebrated iron building there lies a congested heap of rubbish. How much longer will it remain there?

THE lectures at King's College on "The History of Architecture" take place on Wednesday evenings at seven o'clock punctually. We may mention that the lectures are treated with a view to explain the principles of design, and are not, therefore, merely historical.

Professional Items.

ABERCYNON.—Abercynon has just provided itself with a prettily situated church, known as St. Donat's, Abercynon. The building comprises a fine chancel, nave, south aisle, and western gallery. The church is lined throughout internally with red Cattybrook bricks. The external dressings are of red Cattybrook bricks, with the exception of the east and west windows and buttress weatherings, which are of hard Douling stone. The architect is Mr. G. E. Halliday, F.R.I.B.A., diocesan surveyor, and the contractor is Mr. Games, of Abercynon.

BARRY.—The Barry School Board has recently opened an infants' school on Barry Island. The school is built of red brick with Forest stone dressings, and consists of two school rooms divided by a movable partition, two class rooms, babies' room, and cloak room, &c., the accommodation being for 288. A special feature has been made of the arrangements for ventilation and heating, as the Board wished to secure the greatest possible hygienic results, and upon the recommendation of the architect they decided to adopt mechanical means on the plenum system as being the most efficacious to secure thorough ventilation throughout both summer and winter. The results have fully justified this decision. A brief description of the heating and ventilating apparatus may be given. The plant is fixed in a roomy basement under the cloak room, and comprises a powerful heater, fan, and a gas engine for driving the latter. The air is filtered before passing through the fan so as to remove all impurities; it is then forced over and around the heater, and then along glazed earthenware flues to the different points as required. The fresh, pure air which is heated in the winter and is cool in the summer is delivered through ornamental register gratings overhead into the various rooms, and after making a circuit of same, takes its exit through extractors near the floor; thus, any portion becoming vitiated is at once removed from the rooms. A series of exhaustive trials has shown that the results are highly successful, the air, after being admitted, being thoroughly diffused without any perceptible draught, although in some instances the entire volume in a room is changed once in about ten minutes. The installation, although exceedingly simple, is very complete in every respect, and provision has been made for its extension to the further block of school buildings which the Board contemplate erecting. A very noticeable feature is the agreeable nature and purity of the air, as, although ordinary fresh-air inlets and fanlights are provided, to be used in case of necessity, the teachers prefer to have them all closed, as they fully consider, after testing the system, that the filtered air as delivered by the fan is far more agreeable and pure than that coming in by the ordinary inlets. The whole of the work has been carried out under superintendence of the architect, Mr. G. A. Birkenhead, of Cardiff; the heating and ventilating apparatus has been laid down by Messrs. Musgrave and Co., of Belfast; and the contractor for the building was Mr. J. Lewis, of Cadoxton-Barry.

CARDIGAN.—The new buildings provided for the Joint County School at Cardigan are now in use. The site of the new school is two acres in extent, enabling the managers to provide excellent playgrounds and covered rooms for exercises, with the remainder for extending the accommodation whenever found necessary. The building, which has a commanding frontage, with a green in front, and standing back some distance from the main road, is constructed of fine brick, with Bath stone dressing. The building contains a spacious assembly hall, class-rooms, lecture-room, laboratory, cookery-room, laundry, workshop, lavatories, &c. The architects were Messrs. Morgan and Son, Carmarthen, and the contractors Messrs. J. Williams and Son, Felinunillo. The estimated cost of the buildings, irrespective of the site, is £3500.

DUNDEE.—The memorial stone of Park United Presbyterian Church, which is being built in Park Avenue, Dundee, was laid a few days ago. The church, in which accommodation will be provided for 750 persons, occupies a site at the junction of Park Avenue and Morgan Street. The contractors for the work are:—Builder, Mr. William Bennet; joiners, Messrs. J. F. Shaw and Son; plumbers, Messrs. Mitchell and Son, Dundee; slater, Mr. William Brand, Arbroath; plasterers, Messrs. Reoch and Kilgour, Dundee; glaziers, Messrs. Lindsay and Scott; and heating, Mr. David Keay. Mr. Charles Soutar, of Messrs. C. and L. Ower, is acting as assistant in charge of the work. The plans were prepared by Mr. Leslie Ower, of Messrs. C. and L. Ower, architects, Dundee. The estimated cost of the building is £3000.

MACCLESFIELD.—The Duke of Westminster has laid the foundation-stone of the restored Macclesfield parish church. The church was founded in 1278 by Queen Eleanor, wife of Edward I., who visited it on the occasion of its foundation. The church was rebuilt in 1470, and so it has remained up to the present time, with the exception of the addition of a chancel in 1813, and another chancel in 1863. The present restoration, which is an entire one, is being carried out at a cost of about £15,000. Sir Arthur Blomfield, A.R.A., is the architect, and the work is being carried out by Mr. J. Thompson, of Peterborough.

MANCHESTER.—The memorial-stone of the new Welsh church, dedicated to St. David, which is in course of erection in Lime Grove, Oxford Street, Manchester, has been laid recently. The plans have been prepared by Messrs. Preston and Vaughan, architects, Diocesan Chambers. The style of Architecture adopted is Early Perpendicular, and the materials employed are red brick, with Ruabon terra-cotta dressings. The plans include nave and aisles, with chancel and vestries on the south side. The church will accommodate some 400 persons. The builder is Mr. R. Carlyle, jun., Ardwick.

NEWCASTLE-ON-TYNE.—The Victoria Branch Library in the Heaton Park, Newcastle, was recently opened by Earl Grey. The general contractors have been Messrs. J. and W. Lowry; Mr. Mansfield Gibson, plumbing; Mr. John Hewitson, tiling; Mr. G. J. Baguley, lead glazing; Mr. N. F. Ramsey, locks and hardware; Messrs. Doulton and Co., sanitary fittings; Messrs. Ashwell and Nesbit, heating apparatus; and Mr. Robert Beall, carving and marble work. The Corlett Electrical Engineering Co. will carry out the electric light installation. The whole of the works have been carried out from the designs and under the superintendence of Mr. John W. Dyson, architect, Newcastle-on-Tyne.

ST. ANNES-ON-THE-SEA.—The work in connection with the new church has been let to Messrs. Smith Bros., Burnley; Messrs. J. Hatch and Sons, Lancaster; Messrs. T. Cross and Sons, Lancaster; Messrs. Braithwaite and Co., Leeds, as mason, joiner, tiler, and plumber and glazier, respectively. The church is to be built of brick, with red stone dressings, at a cost of about £5000. Messrs. Austin and Paley, of Lancaster, are the architects.

SMALL HEATH.—A new church has been erected at Waverley Road, Small Heath, under the auspices of the Unitarian community. The style of the edifice is simple Gothic. The surmounting of the building with a tower and spire, and the erection of schools, are portions of the scheme which for the present are deferred. The structure has involved an outlay of £2700, exclusive of the cost of the site. The new fabric was designed by Messrs. H. Eachus and J. A. Grew, and the contractor was Mr. B. Whitehouse.

SOWERBY BRIDGE.—The new Sunday school erected in connection with West End Congregational chapel, at a cost (including furnishing) of about £2750 exclusive of land, was opened on Saturday week. The accommoda-

tion provided includes an assembly hall with a balcony on three sides capable of seating 600 persons, with thirteen vestries, minister's vestry, and a kitchen divided from the children's class-room by Peace and Norquoy's patent folding partition. The architect for the school was Mr. S. Wilkinson, of Sowerby Bridge.

TUNBRIDGE WELLS.—New swimming baths have been opened at Tunbridge Wells. Briefly stated, the accommodation is as follows:—Ladies' department, two first and four second-class slipper baths. Gentlemen's department, four first and six second-class slipper baths. The baths are of porcelain, the bath-rooms and passages have mosaic floors, and pitch pine partitions, and will be warmed by means of steam radiators. They are lighted and ventilated by skylights and lanterns in the roof. The swimming bath has a water area of 90ft. by 35ft., and is 6ft. 6in. deep at the deep end, and 3ft. 6in. at the shallow end. The bath is formed entirely of concrete, with walls lined with white glazed bricks, and bottom paved with white marble mosaic. The walls, for a height of 8ft., are lined with cream glazed bricks, with chocolate bands, and above that level with red bricks. The footways are all of coloured marble mosaic. The roof, which is 55ft. span, and 40ft. high from floor to apex of lantern, was constructed by Messrs. Main, of Glasgow. The Borough Surveyor has been the architect of the new baths. A system of subways give access to all pipes and drains without breaking the floors for purposes of future inspection. The electric light from the borough works supply will be used in all departments of the baths, which have cost £10,000, and will rank with not a few of the best erections of the kind in England. Messrs. Longley and Co., of Crawley, are the contractors, and Messrs. Bradford, of Salford, have done the engineering work.

WEST HAM.—Mr. J. Passmore Edwards has just opened the new Technical Institute and Central Free Public Library erected by the West Ham Corporation. He also laid the foundation stone of a natural history museum which will be built close by. The new buildings, which stand at the corner of Romford Road and Water Lane, Stratford, are in the form of a large quadrangle. The Technical Institute has its main front and entrance in the Romford Road, its upper floor extending over the library premises in Water Lane. It is in a free Renaissance style, the exterior being of Portland stone and red brick. The design of the interior is throughout utilitarian. In the large hall lectures will be given and examinations held. The hall may be let for purposes which will not interfere with the work of the Institute. Every department is well equipped, special attention being paid to the chemical laboratories and the engineering workshops. The buildings have cost £450,000, and a further £15,000 has been spent on equipment and fittings. The new central library is wholly on the ground floor, and is fitted with all the modern appliances of such institutions. The reading room is 110ft. long by 30ft. wide. It is surrounded with a tiled dado embellished with literary maxims in an ornamental border. The cost of the building has been between £8000 and £9000, and about £4000 has been spent on the furniture and fittings. The whole of the buildings will be lighted by electricity supplied from the Corporation mains.

WREXHAM.—The new Penybryn Congregational chapel, Wrexham, has been opened for public worship. The new buildings, comprising a church and school accommodation, occupy a commanding site at the junction of Salisbury and Percy Roads. The schoolroom provides accommodation for 300 scholars, and adjoining are three convenient class rooms. The church seats about 500. An apse is provided at the end, in which will be placed the organ. The choir seats are arranged at the front of the pulpit. There are ministers' and deacons' vestries and a kitchen. The buildings are of simple Gothic design, faced with Ruabon brick and stone dressings. A staircase tower is provided in the west angle surmounted by a turret.

Enquiry Department.

THE INSTITUTE EXAMINATIONS AGAIN.

To the Editor of THE BUILDERS' JOURNAL.

DEAR SIR,—Will you kindly inform me, through your "Enquiry Column," the best books to study for the paper on elementary mechanics and physics for the Preliminary Examination of the R.I.B.A.?—Yours, Manchester. "ANTONY."

No special works are recommended. The 1st edition (1888) of Quilt's "Encyclopædia of Architecture," which every student should possess from the outset, gives all that is required of these subjects in the examination. You should get the R.I.B.A. Kalendar (price s. 6d.) from the secretary, 9, Conduit Street, W., where you will find examples of the papers set at this examination and much useful advice to students.

THE STUDY OF ARCHITECTURE.

To the Editor of THE BUILDERS' JOURNAL.

DEAR SIR,—I have lately entered an architect's and general draughtsman's office but not in an architectural capacity. I wish to thoroughly educate myself in practical Architecture. Elementary classes are advertised in Building Construction and Historical Architecture. As far as my experience extends, I am inclined to think systematic self-education, with proper literature and practice, to be as practical a means of training as a course of weekly lectures. I am sufficiently advanced in general draughtsmanship to dispense with elementary education in this particular. Will you kindly give me the best information on the subject, and also what publications on the Art and Science of the Profession you think would be best studied under the circumstances, or whether you think the technical lectures of more value; also what subjects must be taken up in order to qualify for the examination of the R.I.B.A.? I may say that the office routine brings me into touch with practical work, and as an additional means of education.—Yours faithfully, W. E. D.

You should most certainly supplement your private studies by attending from time to time a course of lectures or classes. It is difficult otherwise for the student to avoid expending time and energies upon unimportant matters which will be of small use or service to him, and he will be likely to occupy himself upon one or two subjects to the neglect of parallel subjects which are essential to a useful education. There are excellent architectural classes and lectures in connection with the Polytechnic Architectural School 307, Regent Street, W.) and the Architectural Association (56, Great Marlborough Street, W.), where books are also lent to students. Particulars of the classes and the books recommended may be had on application to the respective secretaries. Admission as Associate of the R.I.B.A. is now only granted to those applicants who have qualified in a series of three examinations within an interval of two years between each. The Preliminary test, general knowledge acquired at school, and examines in mechanics, physics, geometrical and freehand drawing and perspective. The intermediate test, a general knowledge; and the Final, the knowledge that should be possessed by an architect on entering upon a private practice. Full particulars of these examinations, with examples of the papers set, with lists of books, and much valuable advice to students, will be found in the R.I.B.A. Kalendar, to be obtained of the Secretary, 9, Conduit Street, W., price 2s. 6d. See also answer to "E. S."

FEVER HOSPITALS.

To the Editor of THE BUILDERS' JOURNAL.

DEAR SIR,—Could you kindly inform me through your JOURNAL the names of the best books to consult on the arrangements, &c., for fever hospitals?—Yours truly, September 9th, 1898. "STUDENT."

We cannot recommend any book upon this

subject. The men who are best qualified in these practical subjects do not write books. The best information will be found in the designs published in this and other professional journals during past few years. We may refer you to the competition for the Park Hospital, which was published about the end of 1894. The report of the successful architect, Mr. Edwin Hall, embodies all the soundest principles of the subject. It will be found in The Builder's issue of September 8th, 1894.

PERSPECTIVE DRAWING.

To the Editor of THE BUILDERS' JOURNAL.

SIR,—I wish to put a large site with about a dozen buildings (a workhouse) to perspective, or, in the alternative, to give a bird's-eye view. The buildings are on the side of a hill, consequently on different floor-levels. What scale drawing would be the best to work from? Would you kindly explain how I should start giving height from ground-plane to horizontal line, &c.? Thanking you in anticipation.—Yours faithfully, "KENTISH."

Dartford, September 28th, 1898.

The scale of the drawing you work from will not affect the size of your perspective, which will be decided by the distance of picture-plane from station point. One-eighth scale is usually quite big enough, but if you wish to introduce much detail, a larger scale might be used with advantage. When you have settled the height and position of your station point, which should be sufficiently high to show the relative positions of various buildings, you must draw a line at the same height across the sectional drawing or side elevation of your site. The vertical distances must be measured, throughout and in all cases, from this datum, and plotted down from a corresponding line drawn across your intended perspective. The vanishing points may be found, and the vertical heights produced into the picture in the usual way, and you will, of course, remember that all parallel lines in the whole group of buildings will vanish to the same point. If you place your station point above the building, you must allow for the perspective effect in the vertical lines, which will vanish in a point below the picture; but unless the perspective is sharp, this may be adjusted by the eye.

SCIENCE AND ART EXAMINATIONS.

To the Editor of THE BUILDERS' JOURNAL.

DEAR SIR,—I shall feel greatly obliged if you will be so kind as to inform me what books are necessary to read up for the "Honour Course" in "Building Construction," in connection with the Science and Art Examinations.—Yours faithfully, H. G. M.

Port Talbot, South Wales.

Before entering upon any of these courses, you should thoroughly understand what you are doing. Write to the Secretary, Department of Science and Art, London, S.W., and enclose threepence for Syllabuses No. 9 "Architecture," and No. 10 "Architectural Design." For 7d. you may also get, post free, "Art Examination Papers" for any year between 1890 and 1897. The papers in each subject are not published separately.

To the Editor of THE BUILDERS' JOURNAL.

DEAR SIR.—Will you kindly advise me as to what are the best books to study for the Examination in Architectural Design, as required by the Science and Art Department?—Yours truly, F. P.

Burton-on-Trent.

See answer to H. G. M.

A MYSTERIOUS and extensive underground fire was reported at the last meeting of the Sunderland Rural District Council. The sewers at Grangetown were in consequence of this fire in a very heated condition, and the mains in the roads were also affected so that the drinking water came warm from the taps. The surveyor has been instructed to examine and report upon the outbreak. Since the conflagration in July last, there has been quite an epidemic of fires in Sunderland.

Views and Reviews.

ELY CATHEDRAL.*

If we had not ideas of our own on the subject, there would be but little to say about what will appear at first sight to be merely a guide-book, but the name of Dean Stubbs gives us pause, and faced as we are by the fact that the booklet before us has appeared in twenty editions, we are convinced, without going further, that its merits must be extraordinary. One has only to read a few pages to be fully assured that this, although quite unpretentious, is better by far than most, for intimacy such as that of the Dean with these buildings can only be slowly acquired. Being based on the deepest feelings, it differs indeed from our own, and we would not have it rewritten. We have on our shelves the Rev. Canon Stewart's "Architectural History of Ely," to which the Dean has referred in his preface, and it is thought that a guide-book based surely on that can be wanting in little if anything. What it has in addition is the touch of the Dean's own hand and his ripest thoughts on the subject. It has, moreover, a "plan," without which a guide-book is naught—a "very careful and accurate plan of the cathedral church and the convent buildings," for which the heartiest thanks must be given.

E. R.

* "Handbook to the Cathedral Church of Ely." 20th edition. Revised. By Charles William Stubbs, D.D., Dean of Ely.

Under Discussion.

THE SHEFFIELD SOCIETY.

As an opening to the winter session, the members of the Sheffield Society of Architects and Surveyors dined together on Saturday evening week. A toast list was gone through after dinner.—The Vice-President proposed "The Royal Institute of British Architects."—Mr. C. J. Innocent replied, giving it as his opinion that the Institute could be made far more useful to the members by bringing itself more up-to-date.—The Town Clerk gave the toast of "The Sheffield Society of Architects and Surveyors."—The President, in the course of his reply, said the Society now possessed 115 members. He also paid a tribute to the new secretary, Mr. W. C. Fenton, and gave details of an attractive syllabus for the coming winter session.

SCOTTISH CHURCH PLANNING.

The Glasgow Architectural Association, at its last monthly meeting, had under consideration the subject of "Scottish Church Planning."—Mr. Blain, in describing the development of the Presbyterian Church, traced the alteration in plan which the introduction of choir and organ had entailed. He pointed out that the service of the church had of late years undergone great modifications. Nowadays the service might be considered in many cases suited more to the emotional than to the intellectual side of our nature. To plan a church for such service, the chancel might be more fully developed; its sacred character could be heightened by a careful disposition of the light, by proper placing of the choir, and by the use of sacred symbols and emblems. A feature should be made of the Communion table rather than of the pulpit.—Mr. Whitelash thought it a matter for congratulation that congregations were showing less of the dogmatic spirit which had hitherto prevented the church from being developed on the lines suggested by Mr. Blain.—Mr. Connor and Mr. Craigie maintained that the plan was developing on wrong lines. A church in which the preacher could be both seen and heard by his congregation still appealed to most Presbyterians as suited to their purpose. This, as Mr. Connor showed, did not militate against a church being also architecturally satisfying.—Mr. Hill, in concluding the discussion, pointed out that much that was good of the pre-Reformation times might fittingly be revived in our modern churches.

TENDERS.

Information from accredited sources should be sent to "The Editor." No results of tenders can be accepted unless they contain the name of the Architect or Surveyor for the Work.

BECKENHAM.—For widening Croydon and Elmers End-roads, for the Urban District Council. Mr. J. A. Angell, surveyor, Council's offices, Beckenham:—
W. G. Cloke & Co. £2,342 14 4 | Wm. Wadley ... £1,560 11 8
Edmund Iles ... 1,591 0 0 | J. Mowlem & Co., ... 1,403 0 0
Geo. Wilson ... 1,566 10 0 | Westminster* ... 1,403 0 0
* Recommended for acceptance.

EGHAM.—For erecting a villa residence, Rusham Park Estate, Egham, for Mr. T. W. Walford. Mr. J. W. Gades, architect, Egham:—
R. Rowland ... £280 0 0 | C. Buckeridge ... £260 0 0
W. Simpson ... 820 0 0 | W. Satchwell* ... 587 17 6
G. Gray ... 817 0 0 | * Accepted.

EGHAM.—For additions to Hillside Cottage, Egham, for Mr. R. Clarke. Mr. J. W. Oades, architect, Egham:—
C. Buckeridge ... £297 | G. Gray ... £275
A. Simpson ... 290 | R. Rontaud (accepted) ... 218

EGHAM.—For alterations and additions to premises, High-street, Egham, for Messrs. Weller and Farley. Mr. J. W. Oades, architect, Egham:—
W. Satchwell ... £260 10 | W. Watson ... £548 0
G. Gray ... 935 0 | C. Buckeridge* ... 510 0
* Accepted.

FARNHAM (Surrey).—Accepted for the erection of new infirmary, Farnham Union. Messrs. Friend and Lloyd, architects, Aldershot:—

W. Smith, Farnborough (amended tender) ... £12,510
HARTLEPOOL.—For the erection of a destructor house, &c., Clifton-street, for the Corporation. Mr. H. Crammoh, C.E., Town Hall, Hartlepool. Quantities by Borough Engineer:—
C. T. Watson ... £3,128 7 9 | J. J. Rennie ... £2,720 0 0
Jos. Howe & Co. ... 2,954 1 4 | R. J. Marshal, ...
Watt Brothers ... 2,896 0 0 | Hartlepool* ... 2,692 15 0
* Accepted.

HASTINGS.—Accepted for the construction of two covered reservoirs, Ore, for the Corporation. Mr. P. H. Palmer, C.E., Town Hall, Hastings:—

P. Jenkins, St. Leonards-on-Sea ... £17,140
HULL.—For the erection of an art gallery, &c., over the museum at the Royal Institution, Albion Street, Hull, for the Hull Literary and Philosophical Society. Mr. B. S. Jacobs, architect, Hull:—

Hockney & Lig. ... Colley & Levitt 23,298 0 0
gins ... W. G. Bray ... 3,269 0 0
M. Harper ... 3,509 0 0 | Executors of T. ...
T. Goates ... 3,483 0 0 | Southern ... 3,162 12 3
Blackburn & Son ... 3,475 0 0 | G. Jackson & Sons ... 3,144 0 0
E. Good & Son, Ltd. ... 3,400 0 0 | J. R. Woods, ... 2,710 0 0
[All of Hull.]
* Accepted.

HULL.—For alterations and extensions to the Beverley-road works of Messrs. Brundell, Spencer and Co. Limited, Hull. Mr. B. S. Jacobs, architect, Hull:—
G. Jackson & Sons £808 12 6 | M. Harper ... £765 12 0
Hockney & Liggins 790 9 0 | F. Blackburn & Sons 708 19 0
[All of Hull.]
* Accepted.

HULL.—For the erection of club premises, Carr-lane, for the Directors of the Hull Constitutional Club Company, Ltd. Mr. B. S. Jacobs, architect, Bowalley-lane, Hull:—
W. G. Bray ... £5,878 0 0 | Colley & Levitt ... £5,098 8 5
F. Blackburn & Son ... 5,468 17 0 | J. R. Wood ... 4,955 0 0
T. Goates ... 5,464 0 0 | E. Good, Ltd. ... 4,898 8 5
Hockney and ... * Accepted
Liggins ... 5,148 8 5
[All of Hull.]

KEIGHLEY.—Accepted for additions to house, Victoria-road. Mr. J. Haggas, architect, North-street, Keighley:—
Masonry.—Timothy Hird, King-street, Keighley:—
Joinery.—Joseph Hartley, Oakworth, near Keighley. ... £471
Slating.—Wm. Thornton, Bingley
Plastering.—Joseph King, Russell-street, Keighley.
Plumbing.—Wm. Bottomley, Bow-street, Keighley.

LEEDS.—Accepted for the extension of Kirkgate Market. Mr. Thomas Hewson, C.E., Municipal Buildings, Leeds:—
Ironfoundry.—Cross and Cross, Walsall ... £1,240 0 0
Carpentry and Joinery.—A. Braithwaite and Co., Leeds ... 1,744 17 10

Bricklaying.—Wm. Wilson and Sons, Leeds. 1,004 4 0
Masonry.—A. Braithwaite and Co., Leeds ... 528 3 1
Plumbing and Glazing.—W. & C. Barrand, Leeds ... 639 0 0

Slating.—James Season, Leeds. ... 324 16 0
Smithing.—Cross and Cross, Walsall ... 4,450 0 0
Excavating.—Wm. Wilson and Sons, Leeds. ... 276 15 0
Painting.—Jenkins, Tollerton, & Co., Leeds ... 189 11 3

LONDON.—For repairs and new drainage to the "Hat and Feathers" public-house, Summer-street, Southwark, for Messrs. Chandler and Co. Mr. Joseph G. Needham, architect, 18, Lower Clapton-road, N.E.:—
A. and T. Wilson ... £233 | R. Ridgeway and Sons, Hackney (accepted) ... £175

LONDON.—New drainage works for Messrs. W. Clarke and Sons, 163, Clerkenwell-road:—
Morland ... £184 | J. W. Heaps ... £157
Hawtrej ... 170

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17½ x 3 x 2	8 9	7 11	11 8	
17½ x 3 x 1½	6 9	6 0	9 1	



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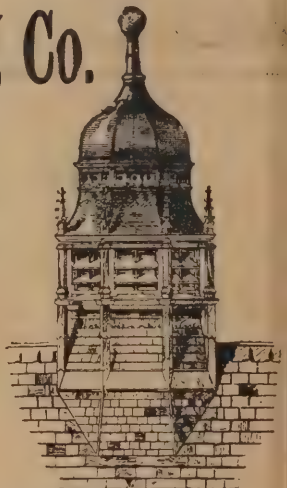
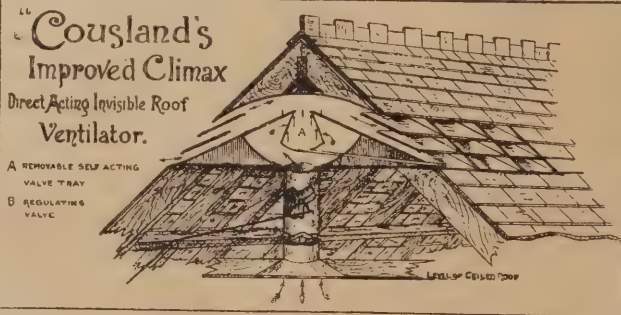
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LONDON.—Accepted for paving footpaths and metalling
Tilly-road, Forest Hill, for the Lewisham Board of
Works:—
W. H. Wheeler, 134, Sumner-street, S.E. ... £1,390
LONDON.—For the erection of the foundations of the
Daily Mail new premises, Tallis-street, E.C., for Messrs.
Harmsworth Bros. Mr. Herbert Ellis, architect:—
Patrick and Sons ... £2,754 | Lawrence and Son ... £2,259
Holloway Bros. ... 2,589 | Howell J. Williams ... 2,127
Groves and Sons ... 2,500 | Perry and Co. ... 2,115
Kirk and Randall ... 2,394 | Killby and Gayford ... 1,782

LONDON.—For the erection of a warehouse, Long-lane,
S.E., for Messrs. Boome and Sons. Messrs. Barnes-
Williams, Ford, and Griffen, architects:—
White and Co. ... 26,245 | Marsland ... 25,555
F. and H. F. Higgs ... 5,920 | Faulkner and Sons ... 5,487
Yerman ... 5,792 | Battley, Sons & Holmes ... 5,470
Goad ... 5,632 | W. Downes ... 5,395
Howell J. Williams ... 5,587 | Shepherd ... 5,159
J. Greenwood ... 5,509 | Parker ... 5,141
LONDON.—For the erection of infants' schools, &c.,
Cuckoo-lane, Hanwell, for the managers of the Central

London School District. Messrs. Newman and Jacques
architects, 2, Fen-court, E.C. Quantities by Messrs. R. S.
Curtis and Sons:—
W. J. Madden ... £6,545 | Nye ... £5,625
Lawrence and Son ... 6,315 | H. Flint, High ...
Simpson and Co. ... 6,054 | Wycombe* ... 5,041
Gregar and Son ... 5,919 |
LONDON.—For rebuilding Mr. Hugh Reed's drapery
premises, Powis-street, Woolwich:—
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LEEK.—For the erection of the Leek Municipal Science and Technical School and County School. Messrs. W. Sugden and Son, architects, Leek and Hanley. Quantities by the architects:—

T. Godwin	£5,535 0	J. Fielding	£4,948 0
Jas. Heath	5,300 0	S. Warburton	4,880 13
C. Cornes and Sons	5,150 0	S. Salt	4,783 0
Parnell and Sons	5,114 0	T. Grace, Leek*	4,650 0
<i>Woodwork only.</i>			
Heath and Lowe	£1,750	Matthews Bros	£1,340
<i>Plumbing, &c., only.</i>			
Stevenson	£4 17	M. Carding	£446 0
Phillips	482 0		

* Accepted.
† Reduced by change in estimate of plumbing, &c., to £1,613 8s.

MARGATE.—For the erection of a house at Lewis-crescent, Margate. Mr. T. Wilson, architect, 34, New Bridge-street, E.C.:—

Padget & Sons	£4,315	Paramor & Sons	£4,100
Chessum & Sons	4,287	Denne & Sons	4,000
Whitehead & Co., Ltd.	4,175	Martin	3,500
Brown & Son	4,140	Wall & Co. (accepted)	3,636
<i>MEXBOROUGH (Yorks).—For sewerage, &c., Simpson-place, for the Urban District Council. Mr. G. F. Carter C.E., Council Offices, Mexborough:—</i>			
W. Hobson	£515 8 6	G. Eyre, Sheffield*	£349 15 6
J. Rothery	389 10 0		

* Accepted.
MIDDLESBROUGH.—For alterations to chapel Brougham-street. Mr. W. G. Roberts, architect, 61, Albert-road, Middlesbrough:—

Allison Bros.	£295 0	W. A. King	£100 0
W. Thompson	202 5		
<i>Joinery.</i>			
W. A. King	£120	Hudson Bros., Middlesbrough (accepted)	£104
<i>Brickwork.</i>			
W. Pounder	£59 16	D. Doughty (accepted)	£43 2

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NEATH (Wales).—For the erection of retaining walls, for the Coodfranc School Board. Mr. J. Cook Rees, architect, Church-place, Neath:—

Thomas Watkins & Co.	£541	Snow Bros.	£155
David Jenkins	493	Elias Morgan, Landore*	420
Isaac Harris	488	M. Lawrence	364

* Accepted.
[Architect's estimate, £415.]

NORWICH.—For making up, etc., Mousehold, Anchor, Cavalry, Woodhouse streets and Stracey-road (Private-street Works). Mr. A. E. Collins, C.E., Guildhall, Norwich.

<i>Quantities by engineer:—</i>			
B. Glenny	£2,366 4 10	H. Woodham,	
W. A. Read	1,906 0 0	Blackheath	
R. Clarke	1,795 0 0	Hill, London*	£1,471 13 0
G. Rackham	1,669 15 11		

* Recommended for acceptance.

NOTTINGHAM.—For the construction of a sewer, Lenton Boulevard, for the City Council. Mr. A. Brown, C.E., Guildhall, Nottingham:—

Ford and Hudson	£43,732 18 1	J. Tomlinson	£26,636 10
J. F. Price	29,433 6	H. H. Barry	26,550 0
Brunton and Son	28,931 8	J. Ainscough & Son	26,000 0
Nowell and Sons	26,499 13	J. and J. Lee	24,730 10
F. Evans	26,910 0	Bentley & Loch, Friar	
Jas. Wright	26,710 0	Lane, Leicester*	£4,227 0 1

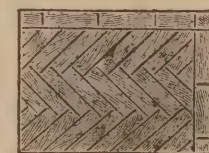
* Accepted.

OUNDE.—For the erection of the town hall. Mr. J. B. Corby, architect and surveyor, Stamford. Quantities by architect:—

J. Gutteridge	£2,246 13 11	G. F. Fisher	£2,000 0 0
J. Woolston	2,200 0 0	S. F. Halliday	1,993 10 0
G. Henson	2,064 0 0	Siddons and Free-	
Coates and Son	2,028 0 0	man, Oundle*	1,725 0 0

* Provisionally accepted.

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PLAS NANTYR (North Wales).—Accepted for extending the heating apparatus in the west wing, and warming the same from the kitchen fire, for Sir Thomas Storey. Messrs. Harrison, Hall, and Moore, architects:—

T. Potterton (No. 1 Estimate)	£425
(Addition)	60

ROTHERHAM.—For additions to warehouses, &c., Rother Works, for Messrs. Kenyon, Son, and Graven, Messrs. Hutchinson and Son, architects, 13, Howard-street, Rotherham:—

Jno. Bishop	£245	Joseph Earshan	£239
Wm. Thornton and Son	245	Richard Snell (accepted)	233

[All of Rotherham.]
SHEFFIELD.—For additions to St. John's Church, Chapeltown. Mr. W. J. Sykes, architect, Hoyland, near Barnsley. Quantities by architect:—

Masonry.—R. Marsden, Chapeltown, near Sheffield	£381 0 0
Joinery.—G. Cook, Hoyland Common, near Barnsley	291 12 0
Slating.—G. Calvert, Ecclesfield, near Sheffield	77 17 0
Plastering.—J. MacPartlain, Hoyland, near Sheffield	44 0 0
Painting, &c.—J. Snowden & Son, Market-street, Barnsley	133 10 0

Total... £1,482 19 0

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SOUTHEAD-ON-SEA.—For the erection of a small house in Preston-road, Westcliff, Southend-on-Sea, for Mr. J. Parker Ayers. Messrs. Clark and Hutchinson, architects, 23, John-street, Bedford-row, W.C. :—
 J. L. Scheffer ... £987 R. Gooch ... £840
STAINES.—For erecting four cottages, Billet Estate, Stains, for Mr. H. Kent. Mr. J. W. Oades, architect, Egham :—
 W. Angus ... £872 C. Buckridge* ... £750
 W. Jordan ... 842 W. Searle ... 710
 W. Jackson ... 835 * Accepted.

SWANAGE.—For the execution of sewerage works in the completion of the main drainage, for the Urban District Council. Messrs. Newman and Cocks, engineers, 5, St. Thomas-street, Ryde. Quantities by the engineers :—
 Contract No. 1.

T. and J. Binnes £8,838 19 5	B. Cooke & Co.,
W. L. Meredith 7,976 6 11	Westminster* £6,400 0 0
J. T. Whettam & Sons ... 6,690 0 0	H. and J. Hardy 5,928 10 6

Contract No. 2.
 W. L. Meredith £3,876 11 11 J. T. Whettam
 T. and J. Binnes 2,210 2 10 and Sons £2,190 0 0
 B. Cooke & Co. 2,200 0 0 H. & J. Hardy, Swanage* ... 1,777 4 8!
 *Accepted.

TAMWORTH.—For the supply of 3,500 tons broken granite, for the Rural District Council. Mr. H. J. Clarkson, C.E., 22, Church-street, Tamworth :—
 Average price per ton. s. d.

Barlow and Son, Glascoate, Tamworth*	6 0
Nugent and Sons, Tamworth*	8 2½
Mountsorrel Granite Co.,	9 0
C. Abel	6 6½
Narboro' and Enderby Granite Co.,	7 6
Rowley Hall Granite Co.,	7 7½
Ford and Hudson	7 5½
Ellis and Everard	8 3
W. H. Murray and Co.,	6 5½

*Accepted.

WALTON-ON-THE-NAZE.—For the execution of road works, Station-road, for the Urban District Council. Mr. H. W. Gladwell, surveyor, High-street, Walton-on-the-Naze. Quantities by the surveyor :—
 D. Mackenzie and Son... £851 B. Glenn, Colchester* £780
 *Accepted.

[Surveyor's estimate, £800.]
WATFORD.—For making up Liverpool-road, for the Watford Urban District Council. Mr. G. Waterhouse, engineer and surveyor :—
 Nowell ... £734 Hearn and Bailey ... £596
 Dupont, Watford* ... 623
 *Accepted.

WELLINGBOROUGH.—For the construction of a sewer, New-street, for the Irchester Parish Council. Messrs. Sharman and Archer, architects, Wellingborough :—
 E. Mitchell ... £129 15 0 J. and C. Berrill,
 G. and A. Young... 124 5 6 Irchester* ... £107 0 0
 W. G. Wilmott ... 108 0 0 *Accepted.

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THE HACKNEY VESTRY. TO BUILDERS.

TENDERS are invited for the CONSTRUCTION of a Public UNDERGROUND CONVENIENCE at the north-east corner of the Town Hall grounds.

Plans and specifications may be seen, and bills of quantities obtained, at the office of Mr. JAMES LOVEGROVE, Chief Surveyor to the Vestry, Town Hall, Hackney, on payment of One Guinea, which sum will be returned by the Vestry after it has been ascertained that a bona-fide Tender has been sent in.

The contractor whose Tender may be accepted will be required to pay wages at rates not less, and to observe hours of labour not greater, than the rates and hours

set out in the Vestry's schedule, and such schedule will form part of the contract, and penalties will be enforced for any breach thereof.

Tenders, sealed, and endorsed "Underground Convenience," to be delivered at the Town Hall, Hackney, not later than FIVE p.m. on WEDNESDAY, 26th inst.

The Vestry does not bind itself to accept the lowest or any Tender.

By order,
 GEO. GROCOTT,
 Vestry Clerk.

COUNTY BOROUGH of CROYDON. TEMPORARY PUMPING PLANT.

Notice is hereby given that the Council are prepared to receive TENDERS for the SUPPLY and FIXING of the TEMPORARY PUMPING PLANT necessary to raise water from a borehole.

Such plant consists of a deep well pump complete, with T bob, connecting rod, spur gearing, and semi-portable steam engine; also lining borehole, and supplying 12in. cast-iron pipes. Contractors may quote for any of the items, which, with the exception of the cast-iron pipes, need not necessarily be new.

Full particulars may be had upon application to the Borough and Water Engineer, Town Hall, Croydon.

Tenders to be sent to me by ELEVEN o'clock in the forenoon on WEDNESDAY, OCTOBER 26th, 1898, endorsed "Temporary Pumping Plant."

The Council will not be bound to accept the lowest or any Tender.

By order,
 E. MAWDESLEY,
 Town Clerk.

Town Hall,
 Croydon,
 October 11th, 1898.

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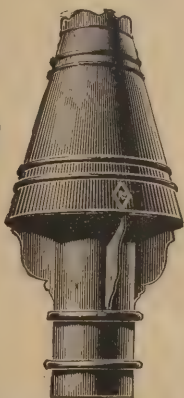
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 Review.

VOL. THREE.

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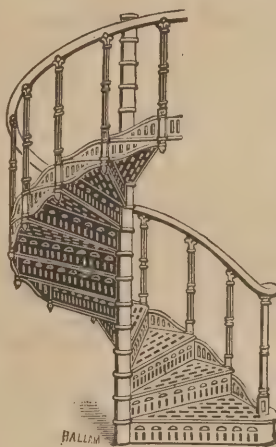
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WILTS COUNTY COUNCIL.**TO BUILDERS AND CONTRACTORS.**

Builders disposed to **CONTRACT** for the work of **BUILDING NEW COUNTY OFFICES**, at the back of Arlington House, Trowbridge, for the Wilts County Council, can see the plans and specification at the County Surveyor's Office, County Offices, Stallard-street, Trowbridge, between the hours of **NINE a.m.** and **FIVE p.m.** Copies of the bills of quantities and forms of Tender can be obtained from the County Surveyor, on written application, accompanied with a deposit of £1 ls., which will be returned on the receipt of a bona-fide Tender.

Sealed Tenders may be sent to the County Surveyor, on or before **OCTOBER 23rd, 1898**, but no pledge is given to accept the lowest or any Tender.

CHARLES S. ADYE,

County Offices, Trowbridge, County Surveyor for Wilts.
September 27th, 1898.

TO ROAD and SEWER CONTRACTORS.
HODDESDON URBAN DISTRICT COUNCIL.

The above Council invite **TENDERS** for the **MAKING-UP OF THREE STREETS** in their District, comprising a total length of **3400ft.**

The works include Carriageways, Footways, and Kerbs.

TENDERS are also invited for the Construction of Surface Water Sewers, comprising 44 yards of 15in. Cast-iron Pipe, 32 yards of 15in. Stoneware Pipe, 383 yards of 12in. Stoneware Pipe, 953 yards of 9in. Stoneware Pipe, and 131 yards of 6in. Stoneware Pipe, with the necessary Junctions, Manholes, Tumbling Bays, Ventilators, Catchpits, &c.

Plans and sections may be seen at the office of the undersigned, from whom the specifications, quantities, forms of Tender, and contract may be obtained on payment of Three Guineas, which sum will be returned to non-successful contractors on the receipt of a bona-fide Tender and the return of the specifications, quantities,

forms of Tender, and contract, and to the successful contractor on his executing his contract and bond.

Tenders must be on the forms supplied by the Council, and accompanied by the schedule of prices, and must be delivered at the office of the Council, addressed, The Chairman, Highways Committee, Council Offices, High-street, Hoddesdon, sealed, and endorsed "Tender for Works," by not later than **NOON on MONDAY, OCTOBER 24th instant.**

The Council do not bind themselves to accept the lowest or any Tender, and reserve the right of letting both contracts to one contractor or otherwise.

T. SALKIELD, Surveyor.

Briscoe-road, Hoddesdon,
October 1st, 1898.

HAMPTON WICK URBAN DISTRICT COUNCIL.

The above Council invite **TENDERS** for the Supply and Delivery on land adjoining their Wharf by the River Thames of

550yds. (in Two Lots) of **GUERNSEY GRANITE** or **QUENAST STONE**, broken to pass a 2in. ring.

Sealed Tenders, endorsed "Tender for Road Material," to be sent to the Chairman on or before **NOVEMBER 5th next.**

The Council do not bind themselves to accept the lowest or any Tender.

J. NIXON HORSFIELD, F.S.I.,

District Surveyor.

Hampton Wick,

October 11th, 1898.

1

TO BUILDERS and CONTRACTORS.

The Committee of the Croydon Hospital invite **TENDERS** for the **ERECTION of a NEW WING**, &c.

The drawings and specifications may be seen at the Office of the Architect, Mr. **CHARLES HENMAN**, 64, Cannon-street, E.C., and bills of quantities there obtained on payment of £3, which will be returned to those who send in a bona-fide Tender.

Tenders to be delivered at the Hospital, London-road, West Croydon, before **SEVEN p.m.** on **TUESDAY, OCTOBER 25th, 1898.**

The Committee do not pledge themselves to accept the lowest or any Tender.

By order,

JOHN JONES, Secretary.

Croydon, September 1898.

TO CONTRACTORS, SURVEYORS, ENGINEERS, ETC.**STANLEY BROS., LTD.,****NUNEATON,**

Having opened up New Blue Brick Works at Nuneaton, are in a position to execute contract orders for

BLUE PRESSED BRICKS,

BRINDLED AND BLUE WIRE CUT BRICKS
KERBING, CHANNEL BRICKS, ETC.

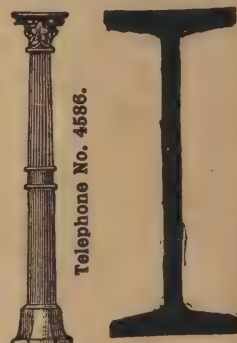
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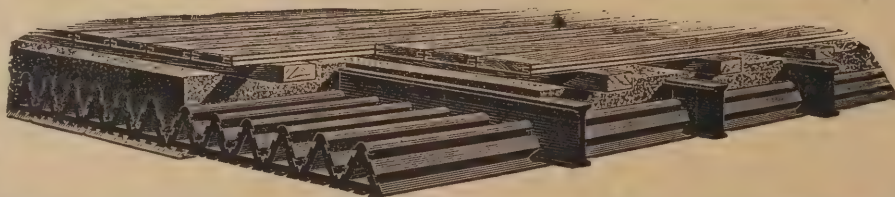
Have now in their Town Stock 6500 tons of **STEEL JOISTS**, 3in. to 20in. deep; also 1000 Tons of Iron Joists, Channels, Tees, Angles, Plates, &c. Riveted Girders, Fireproof Floors, Stanchions, Columns, Chequered Plates, Rails, Bolts, &c.

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Telephone No. 1026.

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{Works: WEST GORTON.

Telegraphic Address: "NAMOH, MANCHESTER."

Telephone No. 637.

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OCTOBER 19TH, 1898.

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THE LATEST PATENT HAS DOUBLE THE EXTRACTING POWER OF EARLIER FORMS AND IS ONE-HALF THE COST.
ROBT. BOYLE & SON, LTD., 64, Holborn Viaduct, LONDON; & 110, Bothwell St., GLASGOW.
See Large Advertisement, Back Page, Monthly.

INTRODUCTION OF NON-FLAMMABLE WOOD
INTO EUROPE.

The British Non-Flammable Wood Co. Ltd.

Beg to announce that their Works in London, the first erected in Europe, are now completed, and they are prepared to
Take Orders for the supply of "NON-FLAMMABLE WOOD" in large quantities.

"NON-FLAMMABLE WOOD," as produced by the Company's process, is now in use on the following
UNITED STATES WAR VESSELS:—
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GUNBOATS.—"HELENA," "WILMINGTON," "NASHVILLE," "ANNAPOLIS," "WHEELING," "MARIETTA," "NEWPORT," "VICKSBURG."
And is being used for the Battleships "KEARSAGE," "KENTUCKY," "ALABAMA," "WISCONSIN," and "ILLINOIS," now being built.
"NON-FLAMMABLE WOOD" has also been used for all the Carpentry and Joinery Work in the following well-known
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THE COMMERCIAL CABLE BUILDING, THE QUEEN'S INSURANCE BUILDING, and THE R.G. DUN BUILDING,
(each of which is over eighteen stories high).
"NON-FLAMMABLE WOOD" has been tested by H.M. Admiralty, and Large Orders have been given to the Company
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Quotations will be furnished on receipt of Specifications.

Address all applications to the General Manager,

BRITISH NON-FLAMMABLE WOOD CO. Limited,
2, Army and Navy Mansions, Victoria Street, London, S.W.

HEALTH EXHIBITION AT BIRMINGHAM.

SOME of the features of this big side-show of the Sanitary Congress have already been touched upon in these columns. There are many interesting exhibits only remotely associated with sanitation, but which are not unimportant factors in the general health of the community. The greatest and most important of the four divisions is that devoted to construction and sanitary apparatus. Of course, drain-pipes and their accessories form a large proportion of the general display. There are, in fact, drain-pipes everywhere, and of all sorts, sizes, and descriptions, but the exhibitors have, by the exercise of a little ingenuity, made them attractive by building them in bricks and mortar. Building construction prevails to a remarkable extent, not only for the exhibition of drain-pipes, but other sanitary apparatus, and in this respect variety is added to the display, which will materially increase the natural interest of the exhibition. At one stand—that occupied by the Pendleton Sanitary Engineering Company—an elaborate red-brick wall has been erected to illustrate the back of a dwelling-house for the purpose of displaying

A NEW SANITARY ASHBIN.

This is especially suitable in the case of houses approached at the rear by means of a passage common to a row, or even by a side entry. The bin is built to the wall, and can be emptied by the scavenger without it being necessary for him to actually intrude upon the privacy of the household. Another interesting stand is that of Mr. William Eggington, Smethwick, who shows a portable sewer-gas extractor and destroyer in conjunction with sewer disinfectors, the apparatus consisting of a fan which draws the gas from the sewer into a chamber, and thence through a breeze fire. Steam disinfectors, with automatic recording gauges controlling the duration and sufficiency of each operation, as well as filters and plans showing the application of Pasteur filters, are to be seen at the stand of Messrs. Defries and Sons, London. Just as there is an infinite variety of drain-pipes, there is a large assortment of lavatories, baths, traps, and gulleys. Messrs. Doulton and Co., London, make a feature of their shower, douche, spray, and plunge bath, the various processes being conveniently set in operation by means of one tap, while another attraction is the ceramic ware fireplace erected in terra-cotta, and fancifully glazed and decorated. A stand worthy of inspection is that occupied by the Septic Tank Syndicate, of Exeter, who are showing in working order a model which illustrates very clearly the Company's method of

PURIFYING SEWAGE BY NATURAL MEANS.

The installations are simple in construction and entirely automatic in action, consisting of septic tanks, in which all organic solids are liquefied and the formation of sludge avoided, and alternating filters. Another model which works on the same principle is for use in a private residence, and the experiments made with this are said to be highly satisfactory. Messrs. Farrer, Barber, and Co., Birmingham, make a speciality of their pneumatic lavatory. It is simple in construction, and the necessity of overflow pipe and grating is obviated, inasmuch as syphonic action is set up, and the water runs away without any overflow. An interesting model, set in masonry, by Messrs. Dibble and Sons, Birmingham, shows a sink and automatic waste water flush closet, complete in every respect. The merit of it is that the pan is flushed and cleansed by the water from the sink without the aid of a separate flushing apparatus. There are other flushing tanks and appliances at several stalls. The leading firms exhibiting include Twyford's Limited, of Hanley; Shanks and Co., Glasgow; George Jennings, London; T. Wragge and Sons, of Burton-on-Trent; W. Harriman and Co., of Newcastle-on-Tyne; Burn Bros., London; Major and Co., Hull; The Sanitary Appliance Company, Dublin; Duckett; Stock, Son, and Taylor, of Birmingham; Oates and Green, of

Halifax; Skey and Son, Limited; Sutton and Co.; Evered and Co., London; John Jones, of Chelsea; Gaskell, Chambers, and Foulkes, Birmingham; Martineau, Beames, and Madeley, Birmingham; Day's Waste Water Closet Company, Wolverhampton; and W. T. Allen, of Birmingham. Messrs. Callender and Montgomery, London, display samples and sections showing the value of bitumen as a protection in damp-courses. A tank lined with bitumen is seen in action. The section of the brickwork standing in the water is preserved by means of the bitumen, and a model of the reservoir is also shown to be equally impenetrable by the dampness. A new closet, peculiarly adapted for use in asylums, is exhibited by Messrs. Adams and Co., its chief characteristic being that there are no handles or projections by which patients might be able to hurt themselves. Messrs. Boydell and Sons, Leigh, are showing

THE ONLY SELF-FLUSHING GULLY

in the exhibition. This gully is for house drains, and, owing to its being sealed at the back, no smell can pass into the house. There is also a gully for the street, possessing an appliance for flushing from town mains, testing with smoke test, and ventilation. A curious new boiler-bath, the only one of its kind in the hall, is exhibited by Mould's Patent Boiler Bath Company, Birmingham. The bath is especially suitable for small villas and workmen's dwellings. It is of the orthodox size, and can be heated in a quarter of an hour by means of a small coal or slack fire, the fire-box being fixed under one end of the bath. It has a double flue, so that when the water is sufficiently hot the heat is cut off by closing a damper, which shuts one flue and opens the other. The ventilating section is another well-filled one, a notable stand being that of Messrs. Thomas Ash and Co., of Cannon Street Birmingham. The stand is constructed on a novel plan, entirely of zinc, "Cooper's Acme" and many other ventilators and chimney cowlings being arranged, and shown to the best advantage. Several firms have on view distributors of divers patterns for delivering sewage, refuse destructors, and smoke-consuming boiler furnaces, fans, new cooking ranges, grates, &c.; one of the largest exhibitors of ranges, &c., being Messrs. Parker, Winder, and Achurch, Birmingham. Messrs. A. R. Dean, Limited, Birmingham, are represented at two stalls. At the first they display a syphonic trap which may be fitted to any closet basin, a "well" fire which will burn for twenty-two hours without feeding, and which consumes its own ashes, a Priory range in action, the bottom grate being so designed that the burning embers may be raised or lowered at will, and appliances for heating by hot water or steam; while at the second stall modellers are at work demonstrating the process of

MODELLING IN FIBROUS PLASTER.

A new kind of cinder-sifter and dust-bin is exhibited by Messrs. Arkinstall Bros., Birmingham. The cinders are placed in a receptacle with a covered top and shaken, the best of the fuel being preserved, while the dust falls into the bin beneath. The firm claim that the method is not only more economical, but cleaner than existing systems of riddling. There are also stands at which are displayed water sterilizers, models of systems of water filtration, art pottery, cisterns, pneumatic ejectors for raising sewage, confectionery, disinfecting powders, soaps, &c., aerated waters, a steam tip-wagon for the collection of house refuse, ambulance vehicles for the conveyance of infectious or sick cases, and patent tipping vans and wagons, among the latter being an assortment shown by Messrs. Glover and Sons, Warwick. The Birmingham Municipal Technical School have a stall, at which is exhibited specimens of the students' work; and the Birmingham Fire Brigade are showing improved fire appliances, as well as models of different parts of the apparatus of the Brigade. In the galleries there are a good many stalls of general interest. Diagrams showing the vital statistics of the respective communities are exhibited by the public authorities of Birmingham, Cardiff, Huddersfield, Liverpool,

Newport, Nottingham, Norwich, Sheffield, and Sunderland; while plans have been sent from Liverpool, and drawings of artisans' dwellings, destructor works, electric light installations, &c., from Bristol. On Stand 49 Messrs. J. Duckett and Son, Limited, of Burnley, Lancashire, display an interesting collection of flushing tanks, water-closets, urinals, latrines, &c., among which we noticed in particular a set of isolated closets for four persons; these are of very novel construction. The four seats are flushed with an automatic syphon flushing tank, from which a pipe is connected with an air chamber in the latrines to promote syphonage, and to admit air automatically to stop syphonage, retaining at the proper moment a sufficient quantity of water to recharge the basins. A new form of slop-water closet, with many advantages, is also shown in working order. The tipper is situated in a box elevated above the yard level, and discharges through a trapped pipe into the side of the closet basin at the top, which ensures the back of the closet basin being thoroughly cleansed after each flush; the closet basin and trap are combined in one pedestal, the drain, therefore, is required only to be very shallow. A set of amber enamelled urinals of very highly glazed ware is also included in the display. Messrs. Duckett are awarded a bronze medal for these urinals. Various forms of street and yard gulleys, air bricks, automatic flushing tanks, with other varieties of closets other than those named, complete this display.

ILLUSTRATIONS OF HOSPITAL CONSTRUCTION

have been contributed by Mr. H. Greenway, of Plymouth; the British Institute of Preventive Medicine have sent a collection of various bacteriological culture, specimens of anti-toxins, and photographs from the laboratories of the Institute; the Director-General of the Ordnance Survey has supplied Ordnance maps of Birmingham and Lancashire. Sir Archibald Geikie (Director-General of the Geological Survey) has sent geological survey maps and sections; architectural drawings have been contributed by the Birmingham Architectural Association, and photographs and views of health resorts by the Midland and Great Western Railway Companies. Mr. Benjamin Gilbert, Birmingham, has on view a varied assortment of tents, tarpaulins, portable ballrooms, &c., and sanitary requisites are exhibited by Messrs. Southall Brothers and Barclay. At several stands may be seen hygienic clothing, and hospital, sick-room, and domestic appliances. Messrs. Gale and Sons, Birmingham, and Messrs. Whitfield and Co., Birmingham, are showing special bedsteads, designed by Mr. Lawson Tate, for use in hospitals, asylums, and for the benefit of invalids at home. A popular feature in the gallery will be the stall occupied by the Birmingham Midland Training Institution for Nurses, where practical demonstrations in nursing, by means of dummy patients, are to be given periodically by some of the nurses. Many stalls on the floor and in the gallery are devoted to exhibits which have no connection with sanitary science, but they add to the attractiveness of the general display. The following

LIST OF AWARDS

has been issued:—

Silver Medals.—Allport's, Birmingham, Jaeger woollen underclothing; Burroughs, Wellcome, and Co., London, case for water analysis, and chemicals in solids for water analysis; Burroughs, Wellcome, and Co., compressed chemical substances; Burt, Boulton, and Hayward, Limited, London, products of coal tar and ammoniacal liquid; Cadbury Brothers, cocoa; F. C. Calvert and Co., Bradford, Manchester, pure carbolic acid; the Cannon Hollow Ware Co., Bilston, Staffordshire, enamelled cast iron; J. Defries and Sons, Limited, London, Pasteur Chamberland filter; J. S. Fry and Sons, Limited, Bristol, pure cocoa; Wilson and Stockall, Bury, Lancashire, brougham ambulance; Wilson and Stockall, accident ambulance.

Bronze Medals.—Aerators Limited, London, method of aerating water by means of compressed carbon-dioxide; Arkinstall Brothers,

Birmingham, simplex cinder sifter; A. Boake Roberts and Co. Limited, London, liquid sulphur dioxide for disinfection; Brion, Pate, Burke, and Co., London, petanelle fabrics; Clark's "Optimus" Coffee Co. Limited, South Lambeth, S.W., Whitehead's automatic taps for drawing off liquids; Eclipse Brass and Copper Co. Limited, Halifax, Jackson's self-feeding water boiler; Farrer, Barber, and Co., Birmingham, the "Helliwell" system of glazing; Farrer, Barber, and Co., combined sink and lavatory; G. J. Hutchings, London, Hutchings' food steamers; Jeyes' Sanitary Compounds Co. Limited, London, Jeyes' fluid; Bernard Kuhn, London, chinosol; Mellin's Food Co., Peckham, London, Mellin's food for invalids; Oates and Green, Limited, Halifax, salt-glazed wash-tub and rubber combined; Pendleton Sanitary Engineering Co., Manchester, Dr. Quine's ashbin; W. W. Rolston, Birmingham, thermometer for hospital wards; Southall Bros. and Barclay, Birmingham, aerated waters prepared from distilled water; Twyford's Limited, Hanley, triple vegetable-sink; Twyford's Limited, "Ideal" sink in two compartments; United Alkali Co. Limited, Widnes, chloros; Vimbos Limited, London, concentrated vimbos.

THE Local Government Board has practically refused to sanction the application of the Cheltenham Corporation for permission to raise £13,410 for the purposes of sewerage and sewage disposal. The Corporation are the owners of sewage farms in villages to the west of the borough, and these farms have hitherto been let to farmers. The manner in which the sewage has been treated on the land has been the subject of loud and frequent complaint by the villagers of Staverton and Boddington, and it was with the object of meeting and remedying these complaints that much of the work was proposed to be done with the £13,410 the Corporation wished to borrow. At the inquiry held a few weeks ago by Colonel Marsh, on behalf of the Local Government Board, further expression was given to these complaints, with the result that, as appears from a letter now received by the Town Clerk of Cheltenham, the Local Government Board are "satisfied that the present arrangements for the treatment and disposal of the sewage are unsatisfactory." In particular the letter goes on to state, "it is observed by the inspector that there appears to be no proper supervision of the farms by the Town Council, that the system of irrigation adopted by the farmers is inefficient, and that there were indications of a great deal of the liquid sewage finding its way untreated into the ditches and water-course. The Board's experience shows that as a general rule the results which ensue upon a local authority divesting itself of the direct control of sewage lands by letting the lands for agricultural purposes are unsatisfactory, as it not infrequently happens that the farmers are more concerned to make a profit for themselves than to properly purify the sewage. The Board, therefore, consider it most desirable that the management of sewage farms should be entirely in the hands of the local authority, whose primary object would be to avoid creating a nuisance or infringing the provisions of the Rivers Pollution Prevention Acts." Accordingly the Local Government Board request that the Town Council will take this question into their immediate consideration, with the view of determining the present arrangement and taking the entire management of the sewage farms into their own hands. In any case the Town Council are advised to consider the expediency of applying some such remedy for the complaints referred to as the use of alumino ferrie or lime at the sewage works, before the sewage is taken to the farm. It is highly probable that the Corporation will adopt the suggestion of the Local Government Board, and, at the earliest possible moment, take over the management of the sewage farms, and introduce either the Exeter or some other system for effectually remedying the grievance complained of by the residents in the vicinity of the farms.

Surveying and Sanitary Notes.

THERE appears to be a great future for the Nile in other than a political sense. Splendid progress is being made with the tapping of the great river at its higher level above the cataracts. The water will then be conducted to vertical shafts, down which it will fall to drive turbines. The power thus generated will run dynamos, from which electricity in the form of alternating or continuous current will be transmitted to points near or remote. The water, after passing through the turbines, will be restored to the river at a lower level, or else used to irrigate the land. Electricity will be applied, not only in pumping for the irrigation, but in driving machinery for preparing the raw products of the soil, spinning cotton, weaving silk, and various other industries. But even this surprising scientific scheme is eclipsed by the later proposal, to raise water to an elevation by the sun's rays and use it to run a water wheel and dynamo—the water being contained in tanks within a structure of glass similar to a conservatory; the sun's heat, expanding the air in the first tank containing water, forces it into the tank above, the air being cooled by screening the tank, and the water then raised to the next tank. The sun's rays acting on a square mile will, it is calculated, furnish one million horsepower, and, with a temperature of 50deg. in the glass houses outside, the efficiency of the arrangement is believed to be practicable.

MR. UNDER-SHERIFF BURCHELL and a special jury, at Red Lion Square, Holborn, heard the case of "Hill's Trustees v. the School Board for London." This was a claim for compensation in respect of the freehold interest in premises, Nos. 70, 72, 74, and 74a, Tanner Street, and Nos. 1 to 8, Assembly Place, Bermondsey, the site being required for a Board School. Mr. Littler, Q.C., and Mr. Bartley Dennis appeared for the claimants; Sir William Marriott, Q.C., and Mr. A. J. Ram represented the School Board. Mr. Littler stated that the property had been in the possession of the claimants since 1874, and had steadily increased in value, especially since the opening of the Tower Bridge and the extensive clearance of property in the vicinity. He called Mr. E. H. Eason (Messrs. Reynolds and Eason), who stated that the area of the property in question was 14,730ft., which he valued at 4d. per foot per annum, or £245 10s., and capitalised at 25 years' purchase, £6137. From that he deducted £452 in respect of existing leases, making £5685, to which he added £933 for the buildings and 10 per cent. for compulsory sale, making a total claim of £7280.—Mr. James F. Field (Messrs. Field and Sons), ex-president of the Auctioneers' Institute, and Professor Banister Fletcher gave confirmatory evidence.—On behalf of the School Board, Sir William Marriott admitted that property in Bermondsey had been increasing in value owing to the erection of the Tower Bridge, but the fact that the property in question had not been included in the betterment area of the Tower Bridge (Approaches) Bill showed that it was not likely to be enhanced in value. He called Mr. Samuel Walker (Messrs. Walker and Sons), who valued a portion of the land at 4d. per foot, and the remainder, back land, at 2d. per foot, as a cleared site. His detailed valuation amounted to a total of £3948, to which he added 10 per cent., the customary allowance for compulsory sale, making £4340.—Mr. W. P. Goulding, Mr. David Burnett (Messrs. Bean, Burnett, and Eldridge), and Mr. J. R. Cooper (Messrs. Ventom, Bull, and Cooper) gave similar evidence as to value.—The jury awarded the claimants the sum of £6150, plus an allowance of 10 per cent. for compulsory sale, £615, making a total compensation of £6765.

WHEN a Board of Works spends £10,000 on the construction of a dust destructor, they naturally expect that it will be capable of

calcining the refuse put into it. But this is just the ground of complaint which the Poplar Board has against the contractor for the new erection. Instead of burning 100 tons of refuse a day, as stipulated, they complain that it will only consume 36 tons. The committee recommended that no further payment should be made to the contractors till they had furnished a reason for the small quantity of refuse burned. The contractors wrote laying the blame on the men, "who would not put their best work into the affair." The Board eventually agreed to refer the report back to the committee to ascertain the Board's position in the matter.

IN consequence of pressure from the West Riding Rivers Board, the Councils of the districts of Luddendenfoot, Midgley, and Warley agreed to form a joint sewage scheme, and at a special meeting of the Warley Council on Monday week Mr. G. B. Waugh explained the plans and estimates, which had been prepared by Mr. J. Waugh, C.E., of Bradford. The plans were approved, and it was decided that application be made to the Local Government Board for £12,700 to carry out the works. The only site available in the district for the joint outfall works is the Highroyd Farm, within the Luddendenfoot district. Parliamentary plans have been deposited, and a provisional order has been applied for in reference to the purchase of this land, 26 acres in extent. Mr. Waugh is strongly in favour of (1) purification by precipitation, (2) settling tanks of large capacity, and (3) land filtration.

THE Loughborough Town Council has decided to construct some important waterworks at Blackbrook, in order to impound the whole of the drainage of this extensive watershed of the Charnwood Forest and satisfy the present considerable and growing demand of the consumers. The principal structure will be a reservoir to contain 506,000,000 gallons, or 253 days' supply at the rate of 2,000,000 gallons a day. The reservoirs will be formed by a dam across the narrowest part of the gorge of the Blackbrook valley, and will form a lake nearly a mile long, and two and three-quarter miles round. The dam will be 85ft. high and 475ft. long. The estimated cost is £65,000.

CROYDON has long enjoyed a reputation as the healthiest town in England, and its sanitary arrangements have frequently been held up as models to other towns. But during the long drought this reputation has not been upheld, and while the roads have lain thick in dust the drains have emitted through the street gratings a most malignant odour. Why disinfectants are not used, or, if used, properly used, is a matter of surprise to Croydon residents.

REFERENCE was recently made to the attempt to resuscitate the old waterway between the Thames at Lechlade and the Severn. The surveyor writes to say that the work of renovation has been going on for about three years, and that it is now nearly finished. They have commenced pumping into the summit level, and when the canal is full it will be opened for traffic. The concern is now entirely out of the hands of the Great Western Railway Company, and indeed has been for the past three years. It was handed over to a Trust formed for the purpose of working the canal in September, 1895. The headquarters of the Trust are at Stroud, in Gloucestershire.

THE Duke of Cambridge has consented to open in December the new Kingston-on-Thames Jubilee Hospital, the site for which he presented to the borough.

At their last meeting the Sanitary Committee of the Bradford Corporation adopted a report from the Medical Officer of Health (Dr. Arnold Evans) in which he recommended that Longlands Street, Longcroft Place, and the streets immediately adjoining should be scheduled as insanitary areas with a view to the demolition of the property. The streets in question form absolutely the worst and lowest quarters of Bradford, being mainly occupied by the distinctly criminal classes.

VENTILATION.

By W. N. TWELVETREES, M.I.M.E., M.S.I.

(Continued from page xxxvii.)

II.

THE function of breathing or respiration may be regarded as constituting in itself a complete system of ventilation and heating, in which the blood is purified by combustion and the heat thereby generated serves to maintain the temperature necessary for life.

In the human frame the lungs contain cellular chambers through which the whole of the blood circulates, being separated from the spaces reserved for air by thin membranous partitions. The volume of air contained in the lungs during respiration is estimated at from 180 to 240 cubic inches, the average being 210 cubic inches, made up, as shown in Fig. 8, of breathing or tidal air, supplemental air and residual air. A further quantity may by effort be drawn in, and this is termed complementary air. Including this, it is possible the lungs may contain a total of from 200 to 300 cubic inches, the volume being affected mainly by the stature of the individual.

Purity of air in the lungs is maintained by the alternate operations of inspiration and expiration, and each is performed, in the adult, about 16 times per minute. In this manner from 30 to 40 cubic inches of air are drawn in at every inspiration and mixed with the store of residual air. At every expiration, a similar quantity of gases, consisting of air and the products of combustion, are discharged. The law of gaseous diffusion, to which reference has previously been made, not only assists in the mixing of the fresh with the residual air, but enables oxygen to penetrate the membranous partition, and thus to come into contact with the blood, where it facilitates the removal of such products as carbon dioxide, water and volatile albuminous compounds.

The weight of carbon exhaled by an ordinary man during 24 hours, varies from 0.44 to

instance will be $0.0003 \times 12,906 = 3.87$ units per minute. Vapour exhaled usually ranges from 0.375lb. to 1.625lb. in 24 hours, but in addition to water vapour there are included other volatile substances. It is therefore difficult to state precisely either the quantity

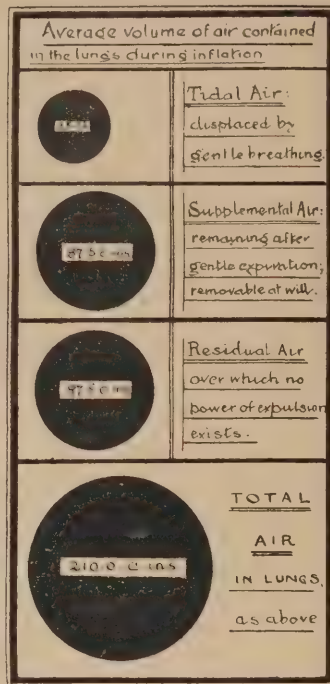


FIG. 8.

of oxygen consumed or the heat produced, but assuming hydrogen in the form of water to be 0.0003lb. per minute, there will be required for combination 0.00024lb. of oxygen, which will produce 0.00027lb. of vapour. The heat generated (1lb. of hydrogen = 62,535 units) will thus be $0.00003 \times 62,535 = 1.87$ units per minute.

TABLE VI.

CHEMICAL AND PHYSICAL CHANGES EFFECTED IN ONE CUBIC FOOT OF AIR BY RESPIRATION, &c.

Chief Constituents.	Air inhaled 62° Fahr. Weight 0.0755lb.	Gases exhaled 92° Fahr. Weight 0.0723lb.
Oxygen ...	0.01724lb.	0.0110lb.
Nitrogen ...	0.05740 "	0.0542 "
Vapour ...	0.00088 "	0.0022 "
Carbon dioxide	0.00005 "	0.0049 "

In addition to loss of oxygen due to the presence of carbonic acid and vapour in the breath, a further quantity is absorbed by the blood, being ultimately removed from the system in a state of combination through the excretory organs. The total effect produced upon air by the act of respiration must, therefore, include the latter consideration, and in Table VI. are shown approximately the chemical and physical differences existing in air before and after respiration. These changes are also represented in Fig. 9.

It will be observed that the human system, although perfect in its working, is constituted so as to prevent exhaustive utilisation of oxygen contained in the air. Therefore, the exquisite ventilating apparatus represented by the lungs always maintains a certain standard of purity in its internal air chambers. It follows that a much larger quantity of air is required for respiration than would otherwise be necessary, and the volume of pure air to be provided for this function must be governed by the mechanical effect of the lungs, considered in connection with other qualifying conditions. The volume of air drawn in and the relative proportions of the gases exhaled vary in accordance with the work performed by the body, with the time of the

day, and with climatic influences. Fig. 10 shows the results given by various experiments bearing on this subject. Taking the mean of numerous physiological tests, it is found that the average quantity of air breathed by an ordinary man when in a state of rest is 33.6 cubic inches at each respiration. The ordinary number of respirations in an adult being 16 per minute, 537.6 cubic inches become necessary for each person per minute. For reasons previously stated, air should not be re-breathed, and the above is therefore the minimum quantity which should be allowed for respiration separately considered, whilst in hospitals and workrooms a much larger volume is required.

Moisture passing through the skin and vapourised by the heat of the body, varies considerably according to circumstances, but it will probably be fair to assume the average quantity as 0.014lb. per minute. For the evaporation of this weight of moisture 1.56 heat units per minute would be taken from the body, thus exercising a cooling influence. The volume of air necessary for absorption of the vapour may be calculated by the aid of the Hygrometric Chart, previously given, but more accurately from Table VII.

Assuming the air available to be at 62deg. F. and with 62deg. of humidity, one cubic foot will contain $0.000881 \times 62 = 0.000546$ lb. of vapour. The difference between 0.000881 and 0.000546 = 0.000335lb., which is the effective capacity of each cubic foot, and the absorption of 0.0014lb. per minute will therefore require 4.18 cubic feet of air.

In practice the quantity varies from 3.5 cubic feet in winter to 5 or 10 cubic feet in summer, chiefly owing to hygrometrical differences, and it must further be borne in mind that air, although vitiated so as to be unsuitable for respiration, may be still capable of absorbing and carrying away vapour. To the latter point further attention will be directed.

For the purpose of arriving at the volume of air required to carry away animal heat further calculation becomes necessary.

Taking the heat generated by combustion of carbon and hydrogen as before, at 3.87 and 1.87 units per person per minute, we have a total of 5.74 units. Of this 1.56 units have already been used in vaporising moisture from the skin, and 3.18 units remain for dissipation.

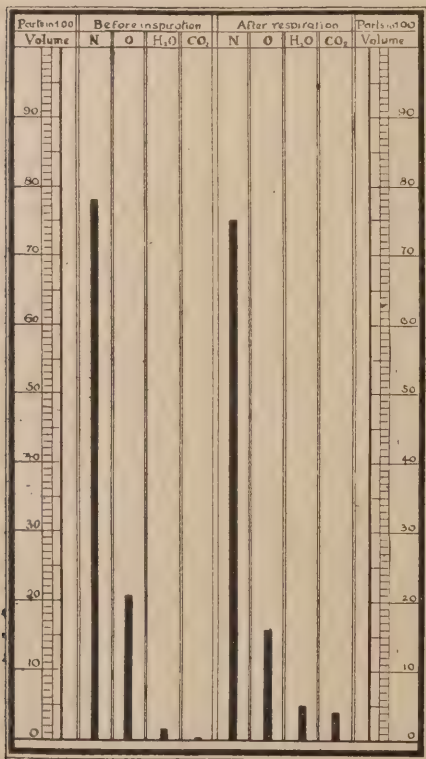


FIG. 9.

0.7lb. Taking the weight as 0.0603lb. per minute, 0.0008lb. of oxygen will be required for its conversion into carbonic acid. As the combustion of 1lb. of carbon evolves 12,906 heat units, the number produced in the present

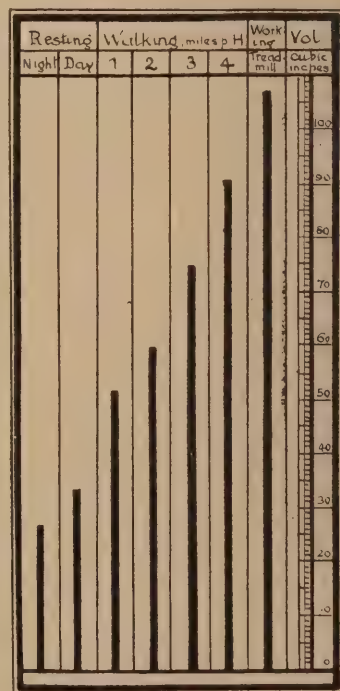


FIG. 10.

About .5 unit is probably already contained in breath exhaled, assuming it to be 30deg. higher in temperature than the air. As, however, it is undesirable that temperature should be increased more than 20deg., sufficient air must

be provided for dealing with the 3.18 units. If these are to be removed by air alone, the requisite volume will be found by the formula:

$$V = u \div (t \times s \times g)$$

Where V = cubic feet per person per minute, u = heat units, t = increase of temperature, s = specific heat of air, and g = weight of a cubic foot of air at the original temperature. In the present case the figures are:—

$$V = 3.18 \div (20 \times .238 \times .0761) = 8.78 \text{ cubic feet.}$$

Conditions entailing the removal of heat, entirely by air, exist only in crowded assemblies, where radiation from the person is

SANITARY MATTERS AT BIRMINGHAM.

AS the result of a conference between the Birmingham City Surveyor and the Engineer of the Midland Railway Company, it was arranged that a new sewer 6in. circular should be constructed upon a line almost parallel and close to the river Rea. The cost of constructing this new sewer, putting in the foundation and wall, was

Builders' Notes.

A SINGULAR strike of bricklayers has occurred in connection with the building of the electric light station for the St. Mary, Newington, Vestry, at Penrose Street, Walworth. It is stated by the contractor that 26 out of the 31 bricklayers engaged upon the work struck, because, as they acknowledged, one of the men was getting up his corner too quickly. The bricklayer referred to was at one end of the wall, and the other men had to level up to the work performed by him. The contractor further says that the men who ceased work demanded the discharge of the workman referred to, and refused to resume work until he was sent away. The places vacated by the bricklayers have not yet been filled up. The man objected to is a fully-qualified member of the Bricklayers' Union. The employer contends that the compromise between the Master Builders' Association and the Bricklayers' Union arrived at some two years ago has been broken, and he has lodged a complaint with the men's union.

THE first step in a practical direction towards the completion of the scheme for connecting Hammersmith with Hounslow by electric trams has been made. Large gangs of men have taken possession of the Chiswick High Road, between Young's Corner and Kew Bridge, and commenced to lay the concrete beds over which the electric trams will run. When completed, the scheme will embrace 20 miles of electric trams, for in addition to the Hammersmith-Hounslow service, there will be extensions to Hanwell and Uxbridge. It is hoped that the first section between Young's Corner and Kew Bridge will be open for traffic this side of Christmas. Some further arrangements have to be made with the London County Council before the full scheme can be carried out, but in view of the strong expressed opinion by the Parliamentary Committee when the Bill was before them, it is not anticipated that there will be any unnecessary delay.

THE building trade is now in a more flourishing state than has been the case for years past, and all the leading firms are so full of work that they cannot possibly undertake any more contracts. Proof of this was afforded at the last meeting of the London County Council. Not a single tender was received in reply to the Council's advertisement relating to the erection of two blocks of working-class buildings on the Boundary Street area and some cottage dwellings at Brook Street, Limehouse.

A SERIOUS accident occurred the other day to workmen employed on the new extensions of the London and North-Western Railway at Crewe. They were driving into a drift for tunnelling operations when a huge bank of timber, used as one of the struts, gave way. The men tumbled into the tunnel underneath. Many of them were seriously injured. An extensive fire, involving the destruction of a quantity of valuable property, occurred a few days ago at the yard and works of James Hyaulason, contractor, of Islington. The premises form a large square at the back of Liverpool Road, Islington. Owing to the inflammable material stored in the yard, the flames reached gigantic proportions. The warehouse of four stories adjoining the yard was completely destroyed.

TABLE VII.—WEIGHTS OF AIR, VAPOUR, AND MIXTURES OF AIR SATURATED WITH VAPOUR, AT DIFFERENT TEMPERATURES.

Temp. Fahr.	One cubic foot of dry air, in lbs.	Mixtures of air saturated with vapour.				
		Air in one cubic foot of mixture, in lbs.	Vapour in one cubic foot of mixture, in lbs.	Cubic foot of mixture, in lbs.	Vapour mixed with lb. of air, in lbs.	Dry air mixed with lb. of vapour, in lbs.
32°	0.0807	0.0802	0.000304	0.080504	0.00379	263.810
42	0.0791	0.0784	0.000440	0.078840	0.00561	178.180
52	0.0776	0.0776	0.000627	0.077227	0.00819	122.170
62	0.0761	0.0747	0.000881	0.075581	0.01179	84.790
72	0.0747	0.0727	0.001221	0.073921	0.01680	59.540
82	0.0733	0.0706	0.001667	0.072267	0.02361	42.350
92	0.0720	0.0684	0.002250	0.070717	0.03289	30.400
102	0.0707	0.0659	0.002997	0.068897	0.04547	21.980
112	0.0694	0.0631	0.003946	0.067046	0.06253	15.990
122	0.0682	0.0599	0.005142	0.065042	0.08584	11.650
132	0.0671	0.0564	0.006639	0.063039	0.11771	8.490
142	0.0660	0.0524	0.008473	0.060873	0.16170	6.180
152	0.0649	0.0477	0.010716	0.058416	0.22465	4.450
162	0.0638	0.0423	0.013415	0.055715	0.31713	3.150
172	0.0628	0.0360	0.016682	0.052682	0.46338	2.160
182	0.0618	0.0288	0.020536	0.049336	0.71300	1.402
192	0.0609	0.0205	0.025142	0.045642	1.22643	0.815
202	0.0600	0.0109	0.030545	0.041445	2.80230	0.357
212	0.0591	0.0000	0.036820	0.036820	0.00000	0.000

practically stopped. Under ordinary circumstances it is reasonable to assume that at least half the heat would be disposed by radiation. Consequently, the air apportioned for the present purpose may be between 4 cubic feet and 9 cubic feet per person per minute, according to circumstances.

(To be continued.)

FOR some little time it has been known that a scheme was in the course of formation for the construction of a pier at Lynmouth, and, as the want of such a structure has been keenly felt, considerable interest has been evinced in the progress of the negotiations. The initial difficulties having been overcome, the promoters consulted Mr. Frank Robinson, the pier engineer, and under his direction soundings have been taken and the foundation proved to be eminently suitable. The scheme is that the pier, a screw pile one, shall run out from the eastward—at Blacklands, near the Manor House—upwards of 1000ft., and the end will be of double face construction for the convenience of steamer traffic up and down the channel. At the end of the pier will be a bandstand and pavilion, and it is also intended to erect a few shops as well. Communication with the pier will be by a 16ft. wide roadway, which will come out at the Countisbury Road, a short distance from the Torrs Hotel. The cost of the scheme will be about £25,000, so that besides being useful, the structure should be ornamental as well.

estimated by the surveyor at £28,000, and towards that amount the Midland Railway Company were willing to contribute £8333, a third of the estimated cost. The Company also requested the Public Works Committee to divert and reconstruct that portion of the sewer between Lawley Street and Viaduct Street, and of the estimated cost of £2800 they agreed to contribute £2300. From the boundary of the Midland Railway Company's property the existing sewer ran through land of the Corporation Gas Department, and in connection with extensions going on there the Gas Committee thought that it would be very advantageous if the new Retort House could be built over the site of the existing sewer. The diversion and reconstruction of the sewer was suggested to the Public Works Committee, and the total cost of that portion of the work, providing for a 7in. circular sewer, was estimated at £21,000, towards which the Gas Company agreed to contribute £13,000. Smaller items brought the total expenditure involved up to £57,000 odd, and the contributions thereto amounted to £23,633, leaving £33,000 odd to be borrowed. The application for sanction to borrow, in respect of sewers, included a further item of £2260. The Town Clerk also called evidence before the inspector in support of the applications to borrow £7000 for extensions at the Saltley depot wharf, and £4730 for purposes of paving and other street improvements. In the latter connection £2800 was required in respect of the purchase of property and other matters.

COMPLETE LIST OF CONTRACTS OPEN.

DATE OF DELIVERY.		WORK TO BE EXECUTED.		FOR WHOM.		FROM WHOM FORMS OF TENDER MAY BE OBTAINED.	
BUILDINGS—							
Oct.	21	Carlisle—Caretaker's Lodge ... ..	...	Corporation ... ..	...	H. C. Marks, 36, Fisher-street, Carlisle.	
"	21	Workington—School additions ... ..	...	School Board ... ..	...	J. Eden, 53, Pow-street, Workington.	
"	21	Ovenden—Offices ... ..	...	J. Drake and Son ... ..	...	M. Hall, 29, Northgate, Halifax.	
"	22	Blackburn—Sale-room ... ..	...	Combe and Co. Limited ... ..	...	W. Stirrup, Richmond-terrace, Blackburn.	
"	22	Durham—Wash-house, &c. ... ..	...	.....	.....	Principal, Bede College, Durham.	
"	22	Tottenham—Schools ... ..	...	School Board ... ..	...	G. E. T. Lawrence, 181, Queen Victoria-street, E.C.	
"	23	Trowbridge—County Offices ... ..	...	Wilts. County Council ... ..	...	C. S. Adye, Stallard-street, Trowbridge.	
"	24	Llandudno—Public Hall and Offices ... ..	...	Urban District Council ... ..	...	Silcock and Reay, Octagon-chambers, Milson-street, Bath.	

COMPLETE LIST OF CONTRACTS OPEN—continued.

DATE OF DELIVERY.	WORK TO BE EXECUTED.	FOR WHOM.	FROM WHOM FORMS OF TENDER MAY BE OBTAINED.
BUILDINGS—Continued.			
Oct. 24	Bradford—Warehouse ... ..	.....	S. Jackson and Sons, Tanfield-chambers, Bradford.
" 24	Landon, E.—Baths ... ..	.....	G. E. Holman, 6, King's Bench-walk, Temple, E.C.
" 24	Norton-under-Cannock—School Enlargement	School Board	T. H. Fleeming, 102, Darlington-street, Wolverhampton.
" 25	Birmingham—Stabling, &c.	Public Works Committee	J. Price, Council House, Birmingham.
" 25	Boston—Engine and Boiler House	Dock Commissioners	W. H. Wheeler, Market-place, Boston.
" 25	Leaden, E.C.—Sanitary Convenience	St. Luke Vestry	Surveyor, St. Luke's Vestry, London, E.C.
" 25	Weston-super-Mare—School	School Board	S. J. Wilde, Weston-super-Mare.
" 26	London, N.E.—Underground Convenience	Hackney Vestry	G. Lovegrove, Town Hall, Hackney.
" 26	Wanstead—School and Caretaker's Cottage	School Board	J. T. Brassey, 70, Bishopsgate-street-within, E.C.
" 27	London, S.E.—Workhouse Repairs	Guardians St. Saviour's Union	G. D. Stevenson, 13 and 14, King-street, E.C.
" 28	Llangrwyne—Concrete Wall, &c.	Brecon County Council	H. E. Thomas, Brecon.
" 31	Spilsby—Drill Hall ... ..	.....	J. E. Butcher, Spilsby.
Nov. 1	Middlesex—Widening Bridges	County Council	E. J. Hammond, 111, High-street, New Brompton.
" 1	Dartford—Twenty-six Cottages ... ..	.....	Bailey and McConnel Bridge-street, Walsall.
" 7	Walsall—Caretaker's House	School Board	Commercial Department, Foreign Office.
" 9-21	Sophia (Bulgaria)—Public Offices	Bulgarian Ministry of Public Works	J. Mansergh, 5, Victoria-street, Westminster.
" 12	Coventry—Pumping Station Buildings	Corporation	County Surveyor, Shire Hall, Carmarthen.
" 18	Carmarthen—Stone Bridge	County Council	Borough Surveyor, Town Hall, Burnley.
No date.	Burnley—Lavatories ... ..	.....	J. Young and Co., 62, Market-street, Bradford.
"	Calverley—Alterations to Residence ... ..	.....	A. Young, 3, Idlesleigh-mansions, Westminster.
"	Cheadle—Villas ... ..	.....	Hollom and Fox, Westgate, Dewsbury.
"	Dewsbury—Store ... ..	.....	J. Hutton, Kendal.
"	Kendal—Houses	R. F. Thompson	J. Hutton, Kendal.
"	Kendal—Hotel	L. Chorley	W. Bakewell, 38, Park-square, Leeds.
"	Leeds—Hotel ... ..	.....	W. S. Braithwaite, School Board Offices, Leeds.
"	Leeds—Schools	School Board	W. Greenwood, 231, Hunslet-road, Leeds.
"	Leeds—Houses and Shop ... ..	.....	Manager, Llynvi Valley Colliery, Llangonoyd.
"	Llangonoyd—Forty Cottages ... ..	.....	Valance and Westwick, Mansfield.
"	Mansfield—Stores	R. L. Jones	Lawson, Roper, and Proctor, Lancaster.
"	Morecambe—Wing to Hotel	J. S. Ducksbury	H. Wells-Smith, 70, Queen-street, Sheffield.
"	Walkley—Nine Houses ... ..	.....	President of the Town of Warsaw.
"	Warsaw—Market Halls ... ..	.....	Hemsoll and Paterson, 18, Norfolk-row, Sheffield.
"	Fulwood—Convalescent Home ... ..	.....	Hemsoll and Paterson, 18, Norfolk-row, Sheffield.
"	Heysham—Sea Wall, &c. ... ..	.....	Lawson and Co., Lancaster.
"	Morecambe—Additions to Hotel	J. S. Ducksbury	E. M. B. Vaughan, Cardiff.
"	Ebbw Valley, Mon.—Church	Rev. W. C. Williams	C. H. Burstow, 6, West-street, Horsham.
"	Horsham—Infirmary, &c.	Horsham Union	Graham and Graham, Fowey, Cornwall.
"	Cornwall—Mansion ... ..	.....	H. H. Dyer, 1, Sheep-street, Northampton.
"	Northampton—Primitive Methodist Church and School ... ..	.....	.....
ENGINEERING—			
Oct. 21	Montrose—Buoys	Harbour Trustees	W. Ross, 10, Castle-street, Montrose.
" 21	Pentre—Gas Mains	Rhondda Urban District Council	C. Thomas, Gas and Water Works, Pentre.
" 22	Earlestown—Storm Overflow	Urban District Council	Surveyor, Town Hall, Earlestown.
" 22	Cowes—Cast-iron Tank	Urban District Council	Surveyor to the Council, Cowes.
" 22	Edinburgh—Boilers, &c.	Council	W. N. Colam, 1, Parliament-square, Edinburgh.
" 22	Farrington—Excavation Works	Rural District Council	G. Winship, Borough-buildings, Abingdon.
" 24	Manchester—Shafting, &c.	Rivers Committee	City Surveyor, Town Hall, Manchester.
" 24	Rugby—Pumping Mains	Urban District Council	D. G. Macdonald, Surveyor, Rugby.
" 25	Dover—Supply Pipes	Town Council	Borough Engineer, Town Hall, Dover.
" 25	London, S.W.—Gas Engines, &c.	London County Council	Engineer's Department, County Hall, Spring Gardens, S.W.
" 27	Sligo—Water Supply	Harbour Commissioners	T. J. Mercer, Town Hall, Sligo.
" 29	Kirkby-in-Ashfield—Well	Urban District Council	W. H. Radford, Angel-row, Nottingham.
Nov. 1	Cairo—Bridge	County Council	Inspector of Irrigation, 2nd Circle, Cairo.
" 1	Enfield and Isleworth—Bridge Works ... ..	.....	H. T. Wakelam, County Surveyor, Enfield.
" 3	Balcombe—Pumping Machinery, &c.	Rural District Council	J. Mansergh, 5, Victoria-street, Westminster.
" 10	Royston—Pumping Machinery	Urban District Council	T. S. McCallum, 4, Chapel-walks, Manchester.
" 10	Balem (Para, Brazil)—Water Supply	Government	Brazilian Consulate, England.
" 16	Knowle—Engines, &c. ... ..	.....	W. J. Taylor, The Castle, Winchester.
Jan. 6	Johannesburg—Carburetted Water Gas Plant	Town Council	B. Whyte and Co., 22, Bury-street, St. Mary Axe, E.C.
No date.	London, N.—Machinery ... ..	.....	A. Tewson, 30, Holborn, E.C.
IRON AND STEEL—			
Oct. 22	Cowes—Cast-iron Pipes	Urban District Council	Surveyor to the Council, Cowes.
ROADS—			
Oct. 21	Newhaven—Road Works	Urban District Council	Town Surveyor, Newhaven.
" 24	Shoreham—Supply Flints	Urban District Council	Town Surveyor, Shoreham.
" 24	Hoddesdon—Making-up Streets	Urban District Council	T. Solkield, Briscoe-road, Hoddesdon.
" 25	Harrow-on-the-Hill—Making-up Roads	Urban District Council	Council's Office, High-street, Harrow.
" 23	Wilmslow—Street Works	Urban District Council	Council Offices, Swan-street, Wilmslow.
No date.	Heysham—Street Works, &c. ... ..	.....	Walker and Collinson, Bradford.
"	Amble—Street Works	Urban District Council	W. Gibson, Surveyor, Amble.
"	Dewsbury—Paving, &c. ... ..	.....	Bentley's Yorkshire Breweries Ltd., Dewsbury.
"	Staines—Widening, &c.	Rural District Council	G. W. Manning, Surveyor, Ashford, Staines.
SANITARY—			
Oct. 21	Wilmslow—Sewers	Urban District Council	W. Cobbett, Swan-street, Wilmslow.
" 22	Lebury—Sewers, &c.	Urban District Council	R. E. W. Berrington, Bank-buildings, Wolverhampton.
" 24	Barnton—Sewer, &c.	County Council	Belfrage and Carfrae, 1, Erskine-place, Edinburgh.
" 25	Largs—Sewer Pipes	Police Commissioners	W. R. Copland, 146, West Regent-street, Glasgow.
" 27	Tavistock—Drainage Works	Rural District Council	G. D. Bellamy, 6A, Courtenay-street, Plymouth.
" 29	Kirkby-in-Ashfield—Sewerage Works	Urban District Council	H. Walker, Angel-row, Nottingham.
Nov. 2	Ewell—Scavenging	Parish Council	G. Hards, High-street, Ewell.
" 4	Deal—Sewerage Works	Corporation	B. Latham, 13, Victoria-street, Westminster.
PAINTING AND PLUMBING—			
Oct. 21	Carlisle—Painting	Corporation	H. C. Marks, 36, Fisher-street, Carlisle.
" 27	London, S.E.—Painting	Guardians St. Saviour's Union	G. D. Stevenson, 13 and 14, King-street, E.C.

COMPETITIONS.

DATE DESIGNS TO BE SENT IN.	DESIGNS REQUIRED.	AMOUNT OF PREMIUM.	BY WHOM ADVERTISED.
Oct. 15	Ardrossan—Hospital ... ..	.....	Committee of Saltoats and Ardrossan Joint Hospital.
" 23	Chertsey—Sewerage Schemes	£50, £30, £20	Chertsey Urban District Council.
" 29	Shrewsbury—School ... ..	.....	Borough Surveyor, The Square, Shrewsbury.
Nov. 18	Sheffield—Board School ... ..	.....	J. Moss, School Board Offices, Sheffield.
" 31	Stockholm—New Stations ... ..	.....	Secretary, Royal Administration Swedish State Railways.
Dec. 1	Aberavon—Extension of Market	£21	Aberavon Corporation.
Jan. 2	Harrogate—Pump Room	£50, £30, £20	Corporation of Harrogate.
No date.	Harrogate—Alterations to Old Pump Room	£30, £20, £10	Samuel Stead, Boro' Surveyor, Municipal Offices, Harrogate.
"	Maidstone—Electricity Supply Works and Refuse Destructor (Assessor)	£100	Herbert Monckton, Town Clerk, Maidstone.
"	Wibsey—Fountain ... ..	.....	Walter North, Wibsey.

Property and Land Sales.
HAMPTON AND SONS,
ESTATE AGENTS, AUCTIONEERS, AND VALUERS.

1898.
HAMPTON and SONS beg to announce that their AUCTIONS OF LANDED ESTATES, Town and Country RESIDENCES, INVESTMENTS, BUSINESS PREMISES, and other PROPERTIES are held MONTHLY at the Mart, Tokenhouse-yard, E.C.
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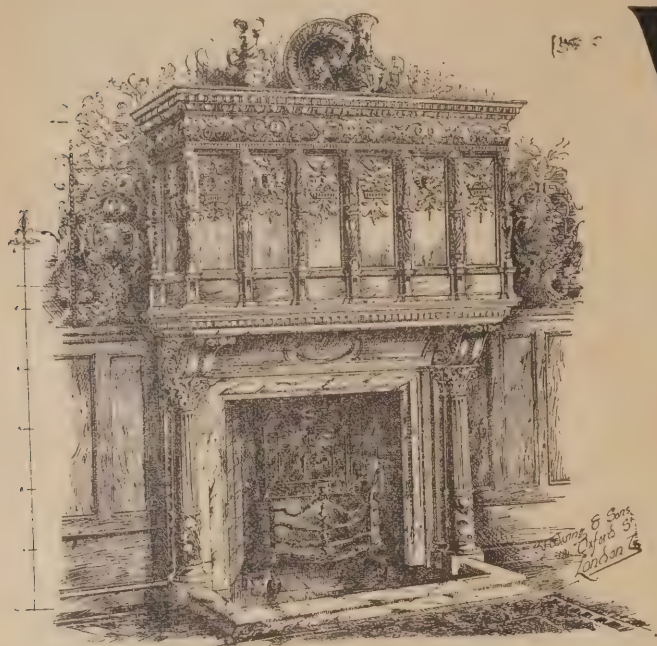
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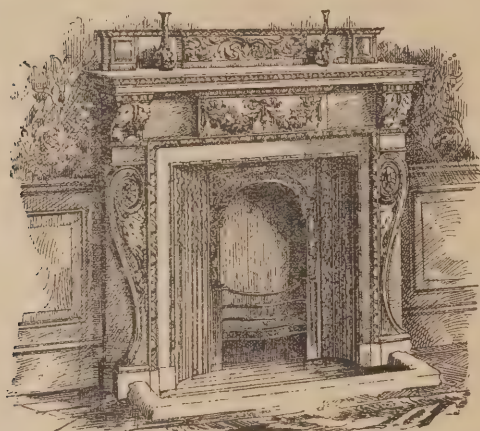
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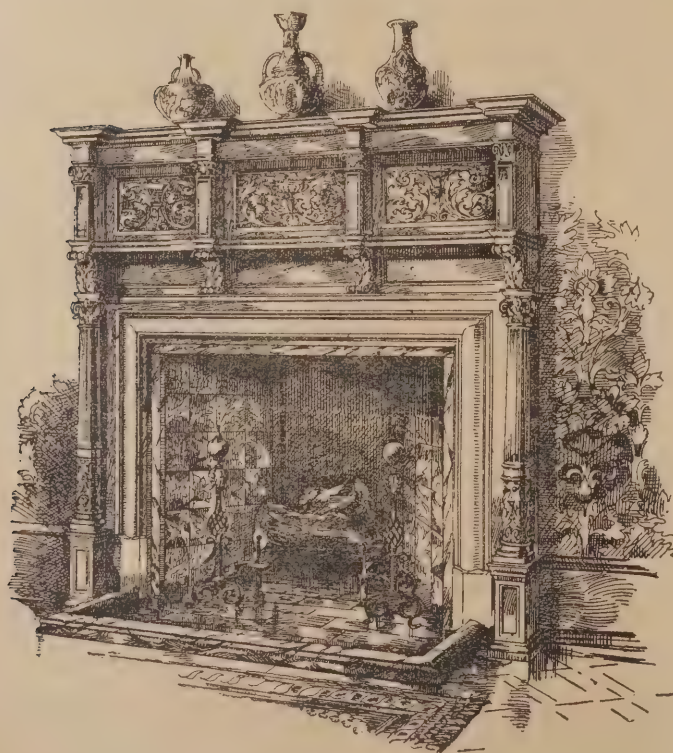
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An Architectural Causerie.

The Blue Bird at Manchester.

You will remember my perch in the middle of the Art Gallery?—

not that I have been able to do much roosting since the Arts and Crafts Exhibition began; but it is the privilege of a decorative bird to stand still and hear all that goes on around him even while he appears to be in full flight. Consequently I have been a good deal amused at what has been said about me and my companions in exile by the people of Manchester during the few weeks we have been on view. I have said "in exile," because, however carefully you may arrange me on the wall, I cannot possibly feel at home, or look natural, out of the place for which my creator designed me when he poured cobalt on my tail and wing-feathers and dubbed me *Panel in Leaded Glass*. The first day was called Press Day, by which was meant that the people who write newspapers might come and see us without having their judgment biased by other visitors who knew more than they. I learned this from the wild ducks at No. 71, to whose receptions the pressmen thronged, crying, "Hullo! Louis de Rougemont's wombats again!" This was the only remark I heard them make; for they did not trouble themselves much about the exhibits, being fully occupied with jokes of their own. I had always imagined a journalist to be someone with a searching eye and a long note-book in which he scribbled hurriedly all the time. But these persons were quite sociable and leisurely, and seemed to be enjoying themselves very much. I really thought they were laughing at us, and preparing witty comments on our appearance; when suddenly they all went out together with one accord, and when they came back they were more cheerful than ever. The visitors who took most notice of us afterwards were generally the young; especially one serious couple who plodded through the catalogue making a vain list of what they wished they could afford to buy. They were a good deal worried at No. 145. "Piccolomini!" exclaimed the man in a tone that made it sound like Italian profanity—"what a name for a wall-paper! Why the—why on earth can't they call it something like the pattern, and give you a name to remember it by?" The girl, however, was by this time sighing with delighted envy over a bedstead, not seeing at first the inscription on it—*Great men have ever loved repose*. When these words caught her attention she turned away, saying severely—"Now, I should like to know what time a man who has that written over his head gets down to break-

fast!" Then there came some of those careful souls who think all beautiful things ought to be kept for ornament and not for use—that it is better to have ugly things for daily wear, so that it doesn't matter about spoiling them. There was a lady from Oldham, for instance, who felt quite sorry that such a lovely grille as No. 65 should be used for cooking steaks. But the most amusing people who came to see us were the artists themselves. None of those whose work was exhibited ever betrayed any pleasure or surprise. Several who came were sad because their work was not on view; others

much for the Guild. Robinson, I gathered presently, was not exhibiting this year. Of course he had plenty of good work going, but he did not care to send it in. Anybody could see (he said as he passed me) that the whole show was simply got up for the glorification of Smith and Co.; it was in no way representative of the Manchester craftsmen. He himself had not come to see the exhibition; he merely looked in to see who was there. Then he sat down and counted Smith's exhibits, and multiplied them by something else, and divided the total by the number of members in the Guild, until he had got a kind of rule-of-three sum. I



The Moncada Tomb.
Cloister of Santa Cruz

SKETCH AT A SPANISH MONASTERY: BY F. HAMILTON JACKSON, R.B.A.

were equally sad because it was there. These latter gave the most curious reasons for their chagrin. A man named Brown said in a tone of aggrieved resignation that he wouldn't have minded his stuff being shoved away in a corner, but he really didn't think they need have hung him next to Jones. I felt rather sorry for Brown in being associated with such an inferior person, until Jones came round an hour later and explained quite clearly that Brown was not a craftsman at all, and had only got in because he was a friend of Robinson's and had done so

followed him as far as the question—"If Smith sends twenty-seven exhibits, what price the reputation of Jones?"—when I was disturbed by an old lady who nearly backed into me in trying to get a good view of a frieze representing the Garden of Eden on the other side of the room. She thought that, as portraits of Mr. and Mrs. Robinson, the figures of Adam and Eve were simply charming, only she could not help wishing they had been painted in fancy dress. As for me, I wondered whether the birds of Paradise ever grumbled because the whole creation was a cheap advertisement for Adam.

E. W.

AT THE A.A. CONVERSAZIONE.

BY A SPECIAL CORRESPONDENT.

ON Friday evening last the great King's Hall of the Holborn Restaurant and adjoining suites were given over to the members of the Architectural Association, who filled the large rooms, and the yearly *conversazione* was consummated with more brightness and *eclat*, and with a larger aggregate of the ladies, than usually marks these functions. The Hall was pleasantly furnished to form a most agreeable lounge, and besides the prize drawings produced in the Association classes during the past session, there was an exhibition of characteristic work by such well-known artists as Messrs. A. H. Haig, A. W. Weedon, and Wyke Bayliss. Besides the architectural drawings to enable members to talk shop with point and some show of gracefulness, there was an orchestra to provoke conversation, coffee to keep people awake, more solid refreshments to make them glad they were alive, and a smoking-room and lots of quiet corners for those who should wish to yawn. The *conversazione* justifies itself from year to year in many ways. It gives its twelve or fourteen hundred members an opportunity of making the personal acquaintance of their new president under the most graceful and propitious circumstances, and it forms a happy occasion upon which the members may meet old friends and compare notes before entering upon a new year of professional activity—for the architect's New Year's Day falls somewhere in the autumn, when he is newly refreshed by his holiday and swelled with energy and huge intentions for the next twelve months. It is, indeed, the occasion of a sort of social stocktaking, when a man may learn who has fallen down a crevasse in the Alps (if anyone has), and who, if any, has married a duchess.

At eight o'clock the new President, Mr. George H. Fellowes Prynne, accompanied by Mrs. Prynne, began to receive the members and the many guests, and by nine o'clock the hall was well filled, the music in full swing, and a hum of conversation, punctuated by the more strenuous "How d'ye do's?" of meeting friends, filled the air. From time to time these sounds ceased at the claims of Messrs. May, Ellis, Dixey, and Charrington, gleesingers of considerable attainments, who sang from the music gallery. It may have been owing to their high position under the roof that the curious, blatant notes of the alto singer, wandered about alone under the wide arched ceiling in a distressed manner, like captive, birds trying to get out. The King's Hall has, like many another building designed with a view to public occasions, refuted the acoustic theories of its designer, and has been strung with wires midway between floor and roof like a harp.

It was apparently upon the subject of the roof that the President long held the attention of Sir Edward Clarke, who was one of the guests of the evening, but whether or not he was discussing its acoustic properties did not seem clear. Personally, from the great interest which Sir Edward manifested in this topic, one is inclined to think that Mr Prynne was trying to formulate the ventilating principles of the King's Hall. It would have been satisfactory to have heard what he had to say upon a matter, which one had oneself puzzled over. The fact is that though the King's Hall has now been built several years, the air in it, although of necessity partly vitiated by the workmen who finished the interior, and the many who have visited it since, is still endurable and will sustain animal life for a few hours. This would incline to show that it is practically impossible to hermetically seal up a hall of the size and uses of this one in an efficient manner. The mere fact of the doors having to be left open for the ingress and egress of a number of people makes the exclusion of a certain small

quantity of fresh air, in spite of all the precautions taken by the management of the King's Hall to the contrary, well nigh impossible; and anyone who has noticed the speed with which the ordinary waiter walks, will realise that every time one of them whisks through a doorway, he must occasion an appreciable in or out current of air, and this alone is quite sufficient to stultify all the precautions that have been taken to preserve the original atmosphere of the building intact as at the time it was roofed in.

But although on Friday the reminiscences of dining and smoke rooms, and the heavy air was certainly unfortunate, it did not detract from the success of the evening. It is religiously the custom to designate the President of the Architectural Association upon all public occasions the "Genial President;" and this is unfortunate, for it has robbed the word of its full distinction, and it becomes hyperbolic when applied to Mr. Fellowes Prynne; for he is a genial president, and for hearty generosity of manner he is second in popularity to none of his predecessors. At the annual dinner of the A.A. in the early summer, Mr. Banister F. Fletcher, in an impromptu post-prandial speech, said: "For Prynne is a jolly good fellow," and everyone cried out, "Hear hear!" for he had hit upon one of the President's best appreciated characteristics. Thus the general briskness of Friday's *conversazione* was a thing that might have been foretold. A number of well-known men came to shake hands with the President and offer their congratulations. The late president and hon. treasurer, Mr. Hampden W. Pratt, was duly in attendance to see his successor safely ensconced in the office, and Mr. Brydon, Mr. Brooks, Mr. Mountford, and Mr. Edwin Hall all honoured the occasion, while Mr. Beresford Pite and Mr. Thomas Blashill might have been seen in absorbing converse—"a dragging together of the poles of the universe," to quote from one of Emerson's essays. Among others present were Messrs. Leonard Stokes, E. J. May, Goldsmith, F. W. Pomeroy (whose paper on "Modelling as applied to Architecture," which is to be read this session, is looked forward to with much interest), and Messrs. Millard, Baggallay, Searls Wood, and many others. The success of the evening endorsed the action of the Association in returning to the old *régime*, and withdrawing from the experiment of last year when the operetta by Mr. F. D. Clapham and Mr. Leonard Butler formed so popular a feature of the evening that the members and their friends had scant opportunity to renew old acquaintances or to cultivate that of their president. On Friday evening there was nothing to show that a fuller programme of entertainments would have been desirable, and the general brightness was praiseworthy in the extreme.

A late correspondent to the BUILDERS' JOURNAL remarked that Architecture must surely be the worst paid of all the professions, and it was a remarkable sight to see all these men, hard at work, professionally, to starve each other and competing among themselves by thirties and forties for the chance of earning a couple of hundred pounds, still conversing on easy and unconstrained terms of relationship.

THE contract for rebuilding the Seaborne Coal Wharf at Bermondsey Wall, S.E., from the designs of Mr. Henry Adams, M.Inst.C.E., has been let to Messrs. Holliday and Greenwood, of Loughborough Park Works, Brixton.

THE Wesleyan scheme for raising 1,000,000 guineas to advance evangelisation has for one of its objects the erection of a palatial pile of buildings near Charing Cross. In addition to a variety of offices and meeting houses, the new block will have a vast hall to seat three or four thousand persons.

A NEW British School has been erected in Vincent's Lane, Dorking. The building, which provides accommodation for 400 boys and girls—a number in excess of present attendance—has been erected by Messrs. Colls and Sons, of Dorking and London; from the plans of Messrs. Balfour and Turner, architects, Buckingham Street, W.C.

THE SOCIETY OF ARCHITECTS' EXAMINATION.

To the Editor of THE BUILDERS' JOURNAL.

SIR,—In his note under this heading in last week's issue, "G.A.T.M." has attempted to justify the "new and eminently useful phase of existence" entered upon by the Society of Architects, by stating that ever since the R.I.B.A. instituted its scheme of examination, &c., there has been a demand for a single qualifying examination, and truly states that there are many competent men, willing to study and anxious to possess an examination diploma, who have not the time at their disposal to go through the whole Institute course. It is just here, he declares, that "The Society" has come in, and without conflict with the older body, provides a diploma for those who are unable to give up several years to study.

It may be presumed that "G.A.T.M." is himself a member of the older body, as an A.R.I.B.A., and as such should have been well aware that the examination scheme of the Institute expressly provides, by a single examination, for the requirements of those for whose relief it is suggested that "The Society's" examination is so valuable.

If "G.A.T.M." will refer to the R.I.B.A. Kalendar, 1897-98, p. 270, he will find full particulars of "The Special Examination" to qualify for candidature as Associate R.I.B.A.—whereby architects in practice, not less than twenty-five years of age, and chief assistants over thirty years of age, can be exempted by the Council from passing "the preliminary and intermediate examinations," and from sending in "testimonies of study," and be admitted to the final examination, which is conducted with especial regard to the requirements of such architects, their professional work and position being duly taken into account by the Board of Examiners.

The special examination so completely meets all reasonable requirements of those who may not have had the opportunity of taking advantage of the full course of study involved in preparation for, and in passing the full series of the progressive examinations, that the new examination, started by the Society of Architects, appears to be entirely superfluous, and to be in direct conflict with that of the "older body."

The efforts made by the R.I.B.A. to raise the standard of architectural education have wrought so much good that the establishment of other examinations professing to aim at a like result cannot but be regretted, the more so when attempted to be justified by ignoring the special provision made by the Institute to meet admitted difficulties.—I am, Sir, yours faithfully,

ARTHUR CATES.

Oct. 20, 1898.

THE Church of St. Anne, Duddeston, which early in the present year was restored, has now been provided with a new organ.

SOME newly-completed business premises at Consett collapsed last week owing to the heavy rains. The structure was completely wrecked, but fortunately nobody was injured. The damage was considerable.

A FINE chancel screen has just been placed in the ancient and interesting old church at Bebbington. It is from the design of Mr. Charles E. Deacon, architect, of Liverpool, and is made of oak. The finely moulded pinnacled posts enclose a wealth of tracery and carving, consisting of five arcades, above which, in a boldly moulded cornice, are the crisply cut cornices of foliage, containing shields with emblems of the Passion and other sacred signs. A pierced ornamented cresting surmounts the cornice, above which rises a beautifully carved cross. The work has been carried out from Mr. Deacon's designs by Messrs. Harry Hems and Sons.

SPAIN: Its Picturesque Cities and Monasteries.

V.—THE MONASTERY OF SANTAS CREUS.

By F. HAMILTON JACKSON, R.B.A.

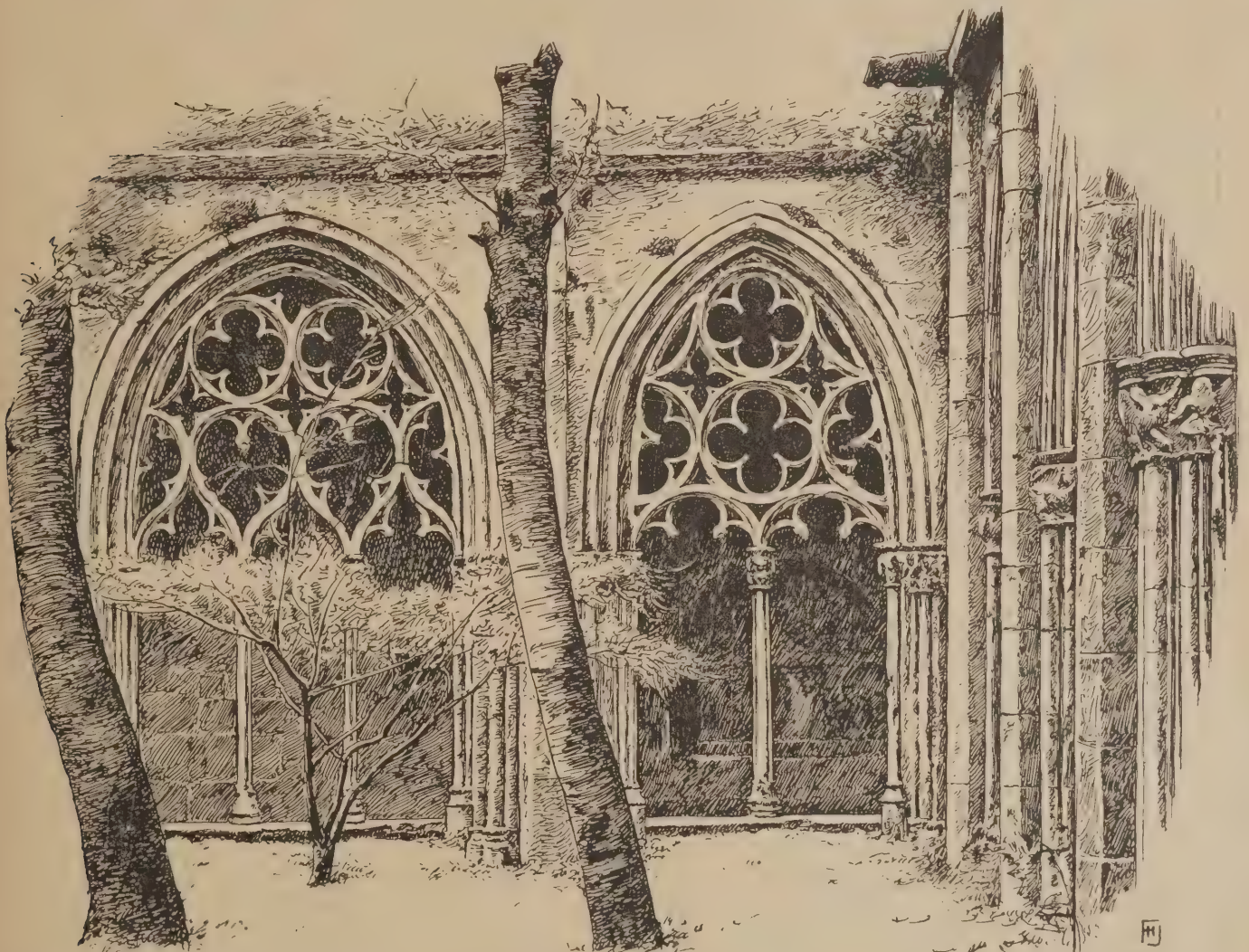
THE monastery of Santas Creus is situated in the municipal district of Aigua Murcia, and is 28 kilometers from Tarragona and 29 from Vendrell, being enclosed in an extensive and very fertile valley which, is covered with farms, and has at its extremities towns of some importance, such as Vilarrodona and Pont de Armentara. Placed upon a little hill, its lands are defined by the river Gayá, which flows from Santa Coloma through the

which ply for hire between that town and Vilarrodona, from which place it is best to go on foot; partly because the views are beautiful and it is pleasant to linger on the way to observe them, and partly because the road is scarcely practicable now for wheeled vehicles. Between Santas Creus and Pont de Armentara there is a fine bridge across the river Gayá, consisting of a single well-proportioned arch, which was built in 1549 by the then Abbot. It is therefore to be supposed that at that date most of the traffic to and from the monastery, which is one of the most celebrated of those belonging to the Cistercian order, was carried on from that direction.

The monastery consists, as is usual, of an external and internal cloister, the word being here used to denote the groups of buildings within the exterior and interior walls respectively. In the external cloister were the dwellings of the Abbot and of those monks who were exempt from the strict monastic life, either from their dignity or from their great services and their duties, such as the vicar and the porter, the treasurer, the doctor,

on one side, and smithy on the other, and is closed by two thick wooden door leaves which turn on pivots. On the east side of the plaza is a low wall, allowing the extensive panorama of the plain bounded by hills to be seen. Facing the entrance gateway is the Church of St. Lucia, the parish church of Aigua Murcia, which has been served by the monks for centuries. It is now, however, a building of baroque style, not calling for notice. At the left of it, facing the low wall, is the great gate which gives access to the second plaza. It also is baroque, and forming part of the same building is the house of the vicar of St. Lucia, who was always a monk in the old days. An octagonal watch tower rises close by. The rest of the buildings in the plaza consist of houses for farm labourers and servants, together with stables, cart hovels, and other agricultural offices.

Passing through the gateway we enter an avenue of large trees which runs down the centre of a long plaza, the houses surrounding which are for the most part three stories high. On the right we come first to the Abbot's



A Corner of the Cloister
Santas Creus

SKETCH AT A SPANISH MONASTERY: BY F. HAMILTON JACKSON, R.B.A.

plain to Altafulla, near which town it falls into the sea. The principal industry of the inhabitants of the plain is the cultivation of the vine, though many other agricultural products add to their wealth. Santas Creus is about equally distant from Pont de Armentara and Vilarrodona (about 4 kilometers), but it is with the latter that communication is now least difficult. To get there from either Tarragona or Barcelona one takes train to Valls and then one of the carriages

and the apothecary, the masons, and other workmen. In the internal cloister lived the monks and their servants whose acts were governed by the strict Cistercian rule. In the external cloister are two plazas, the first of which is immediately within the outermost gate. This gate is quite simple and plain in construction, and bears no ornament beyond a little shield with the arms of the monastery carved upon the keystone. It is flanked by two buildings which served as porter's lodge

palace, now occupied as the town hall of the municipal district of Aigua Murcia. It was constructed in 1562, but the courtyard with its central well may have belonged to another building, the low pointed arches and the shape of the capitals looking quite a century earlier. The rest of the palace is ordinary though spacious and well planned, and is occupied by the county court offices and the public schools for both boys and girls, together with the professor's rooms. The houses around



MONASTERY OF SANTAS CREUS: THE MOST ANCIENT CLOISTER.

this plaza have been occupied as private dwellings ever since the departure of the monks, and are not noteworthy. Beyond the Abbot's palace were the bursary, the guest house, the estate offices of the monastery, the houses of the doctor and the apothecary, and the dwellings of the freed monks on the left side. In the centre of the plaza, in front of the Abbot's palace, is a very good Renaissance fountain crowned with a mutilated statue of S. Bernard. It was erected by the monks, and still affords a good supply of drinking water to the inhabitants. The further side of the plaza is occupied by the church and the wall of the internal cloister. Facing down the Plaza Mayor, so that it may be seen through the gateway rising above a flight of seven broad steps which conducts to a terrace in front of it, is the church. It is a battlemented, castellated looking edifice, and in the nave wall are a large traceried window thrown back from the wall surface a good deal, with moulded jambs, and a round headed doorway, also richly moulded and shafted, the detail of which is Gothic of the 14th century. In the aisles are two little windows, and at each side of the doorway a few sunken panels with cusped heads, a form of enrichment which also appears in a sort of frieze which is placed below the battlements. The façade is about 68ft. high by 83ft. broad. The window and door are two centuries later than the rest of the façade. The two-leaved door itself is baroque, the panels are carved out of the solid and strengthened with iron nails and clamps. The general style of the church is Early Pointed of the 12th century, say rather "transitional." The plan is that of a Latin cross, the central nave being nearly 28ft. broad between the piers, and the aisles about 15ft. each. It is Romanesque up to the springing of the arches, above which point the arches and mouldings affect the Early Gothic forms, the vaulting being quadripartite with moulded ribs. The principal light comes from the great west window and from a fine Romanesque rose high up in the eastern wall, but there are also some narrow lateral windows of early date. The nave arcade consists of six rectangular piers. The length of the nave from the apse to the western wall is about 217ft., and the transepts are 120ft. across. As originally planned there

were but four chapels, but in later days the monks increased the number to twelve, utilizing the spaces between the nave piers behind the *trascoro*. The altars are horrible things, quite at variance with the severe design of the old work. The high altar, too, was put up in 1646. It is unnecessary to say more. In the end of the north transept is a door opening out into the monk's cemetery; in the south is the entrance to the spacious sacristy, a later addition. In one of its divisions, intended for a lavatory, is a decorated fountain which is worth noticing. In this transept is also a flight of stairs 7ft. 6in. wide, which formed a direct communication between the church and the dormitory of the younger monks. The choir occupied the three bays of the nave westward from the crossing. It contained a magnificent organ and finely carved stalls, which were destroyed in 1835, being wantonly set fire to by a French detachment which was on its way from Argol to destroy the castle of Querol. According to the chronicles of the monastery the foundations of the church were laid in the year 1174, and the building was completed in 1411.

Various kings and great people contributed largely to the funds, the greatest benefactors being the Queen Dona Petronilla of Aragon, and her descendants the Kings Don Alfonso, the Chaste, and Don Jaime II., the Just.

In 1211 enough was built and covered in to be consecrated and used, the rest of the work being proceeded with as funds came in, as is clearly shown by the differences of style between the apse and the western façade.

Between the door of the church and the Puerta Real, by which one enters the principal cloister, is an enclosure dedicated to the game of "Pelota," one side of which is formed by the cloister wall, while the wall of the church is used to strike the ball against. The monks of Poblet also had their enclosure for playing the same game (of which the Catalonians are passionately fond), but their court was quite in the interior of the buildings. It must have been a sight to see men in monk's garb playing a game which requires so much agility and skill! The Puerta Real is of the same date and character as that of the church, a round arch with mouldings of a later character with delicate shafting at the sides, and two

empty niches which once held statues of the founders Don James II. of Aragon and his wife Blanche of Anjou, standing upon a base of sunk panel with traceried heads which contain coats of arms. On the keystone and some of the vousoirs are cut the shield of James II. of Aragon with the Catalan bars, and that of his wife Blanche of Anjou with *fleurs-de-lis*. It still retains the ancient iron work. It is evident that it was intended that both these doors should be protected by porches, the first row of mouldings and other stones being still in position.

The cloister, which we enter through this door, is the most beautiful thing in the monastery. It is Gothic of the 14th century, having been built between the years 1313 and 1341, in which latter year it was blessed by the Abbot Francisco Miro. The cost of this cloister was borne by the king and queen, and the escutcheons of these monarchs appear, alternating with that of the Abbot Don Pedro Alegre, under whom the work was commenced, in many of the capitals and central bosses of the vaulting. It is in plan a rectangle, 120ft. long by 106ft. broad. The walks are 13ft. broad, and 20ft. high from the pavement to the lower portion of the keystone of the vaulting. The walls are 18in. thick. On the north and south sides there are eight bays, on the east and west but seven. The traceries are different in each of the ambulatories, all being of the Second Pointed period. The capitals are of two kinds, one of which, executed with the greatest dexterity, represents generally grapes and other fruits, leaves and flowering plants cut in very high relief, and almost as if the plants themselves were fastened to the stone. The other sort is not so well carved, and for the most part represents human beings and mythological creations. The columns are slender and well grouped, and the mouldings of excellent style. The stone used is a fine sort of sand stone, which is sufficiently hard and homogeneous to allow of the most delicate carving being executed in it. Yet it has weathered so much in some places that in the western side but three arches are perfectly preserved, while two of the others have lost their tracery altogether, the remaining two being much damaged. On the south there is one which is quite ruined,

while the other six are well enough preserved, but on the north and east the work was in such a bad state at the end of the last century that columns and traceries had to be taken down bit by bit. Within the cloister garth, and communicating with the southern walk, is an edifice called "El Templete," a Romanesque building, hexagonal in plan, with coupled round arches under others which are slightly pointed, which contains a marble fountain which pours water from a number of vents into a large stone basin with a pleasant murmur sounding through the surrounding stillness. There is no doubt that this interesting little building is contemporary with the church, and in the wall of the cloister on that side are to be seen indubitable signs that an older cloister once stood on the ground now occupied by that of the 14th century.

The priory was entered from a doorway, now closed, facing the entrance to the "templete." On the ground floor may be seen the commencement of a large refectory, which was never completed. In the centre of the east side of the cloister is the Chapter House. It is a chamber about 36ft. square, the vaulted roof of which is supported by four slender columns with carved capitals, and is lighted by two windows at the sides of the doorway, with which they group. They are much like the arches of the "templete" in shape, but are richly moulded, and the capitals more delicately carved. Round the walls are remains of a stone bench. In this eastern walk are four other archways, the one farthest from the church giving entrance to the chapel of St. Benedict—the next serving as "locutorio" (talking-place), for the young monks, and also as passage-way to the older cloister and various offices belonging to the monastery. It has stone seats running down its sides. The next arch leads to the monk's dormitory by way of a staircase in the wall, and the fourth, that nearest the church, gives entrance to a little chapel once dedicated to St. Martin, and afterwards to Our Lady of the Assumption, which is thought to have been the library at one time, books belonging to the Chapter being required by the Cistercian rule to be kept "between the church and the Chapter House." It is now used to store remains of sculpture found among the ruins. The cloister contains numbers of tombs which it will be most convenient to speak of when describing the monuments generally.

Through the "locutorio" one arrives at the Ancient Cloister, which is nearly 120ft. long by 80ft. broad. The arcades are very unusual in shape, the pointed arches springing practically from the ground. They have slightly moulded edges, and are five in number the short way, the longer sides having eight; they were constructed in 1163. Nothing remains of this early structure but the arcade, the vaults and the original roofs having perished. Turning sharply to the right on entering the cloister one comes to the cellar and winepress, which back on to the priory. The cellar is 50ft. long by 35ft. broad, and is late Romanesque in style, with two pillars in the centre line from which six bays of vaulting spring. It still contains two ancient cylindrical casks used by the monks. The winepress is entered from the cellar, and is roofed by nine pointed arches springing from corbels supporting a barrel vault; it is 75ft. by 35ft. In the same corner is the prison tower, which fills the space by the side of the cellar, making a rectangle with it and the winepress. The upper part of it was used as a watch tower. Following round the cloister are ruined buildings which were used as kitchens and the dwelling of the monk who was "universal provider" for the community; and next comes the refectory, which is 57ft. long and 23ft. broad. The walls of this room are covered with tiles almost as high as a man's head, and it is roofed with a great elliptical vault divided into four compartments by three cross arches. Tall windows light it, and it contains a modest pulpit for the reader. A small window communicates with the kitchen. The building of this refectory commenced in 1302, and was not ended till 1613, which accounts for the incongruous features which one finds in it.

(To be continued.)

The "Bitter Cry" of the Outcast Architectural Assistant.

To the Editor of THE BUILDERS' JOURNAL.

SIR,—The letter signed "A.R.I.B.A.," in your issue of the 19th inst., is, I presume, an appeal to the Profession and the world at large, inducing them to use their generous offices in bettering the lot of the unhappy architect's assistant.

What can be done to raise the status and remuneration of the much neglected draughtsman? While sympathising with the truth of "A.R.I.B.A.'s" remarks, no exposure of his wrongs and insufficiently recognised services will, I fear, do anything towards the mitigation of his lot.

While not admitting any bias towards registration, my opinion is that, were entry into the Profession made more stringent, as in the case of the legal profession, a large percentage of youthful aspirants would be saved the disappointments and altogether inadequate recognition which is the lot of ninety-nine out of a hundred assistants. If architects were more insistent on the elementary educational attainments of prospective pupils and their fitness for the work, they would do more towards removing the stigma than the talk of a lifetime. It is a fact that great numbers of pupils (I am sorry to say the provincial

members err most in this respect) on entering an office are incapable of ordinary elementary scholarship.

There is not one assistant in ten worthy of the name who possesses the natural bent, or talent, and perseverance essential to a modicum of success in this most hard-worked and brow-beaten of professions.

If parents and youthful aspirants to the Profession would only look before they leap, many badly-chosen careers would be arrested before it is too late.

Should the Registration of Architects Bill become law, one good result would ensue; a better and more suitable class of pupils would enter the ranks of the Profession when certain that the reward of their long and severe training would be the social status and universal recognition which should befit the Profession in all its ranks.

It is well known that a great many would-be architects, nowadays, are recruited from amongst the failures of the other professions; this, and the other facts stated, are almost entirely accountable for the congested and much despised lot of the architectural assistant.—I am, Sir, faithfully yours,

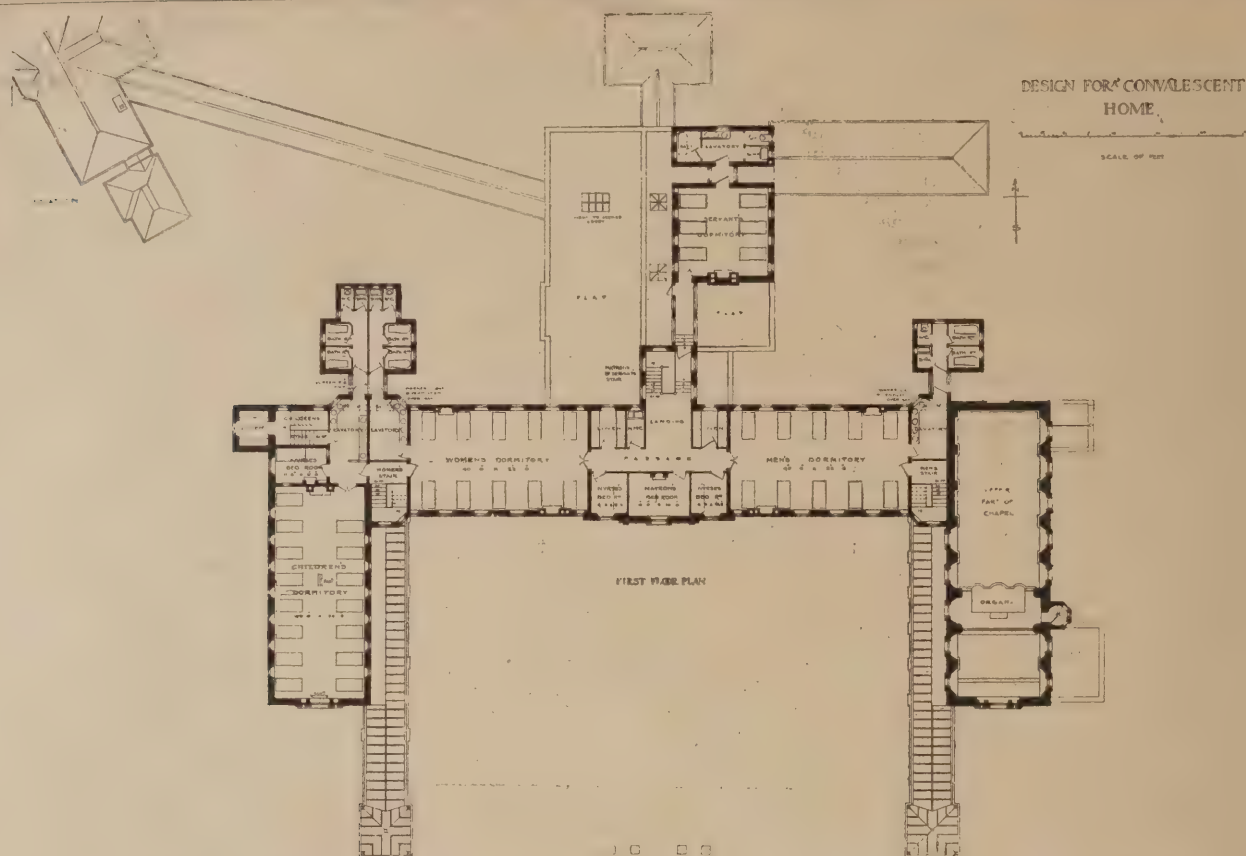
"ONE OF THEM."

October 21st, 1898.

LORD LONDONDEERRY has opened a Unionist Club at Willington Quay, Northumberland.



MONASTERY OF SANTAS CREUS! ENTRANCE TO THE CHAPTER HOUSE,



THE ARCHITECTURAL ASSOCIATION MEDAL: SECOND AWARD. PLAN OF CONVALESCENT HOME. BY T. TYRWHITT.

(See Inset Supplement for perspective view.)

Prize Designs and Drawings at the A.A.

BY OUR OWN CRITIC.

ON Friday, the 7th inst., that being the occasion of the inauguration meeting of the new session of the Architectural Association, and presidential address, the President, Mr. George H. Fellowes Prynne, presented the prize-winners of the past session with the medals, books, and certificates which are annually distributed to those students who distinguish themselves in the work of the classes and studio, or who succeed in those other special subjects for which prizes are awarded. It is a great pity that the excellence of these classes is not more widely known. Unlike other schools of Architecture in London, advertisement is no policy of the Architectural Association, which is content to let its educational curriculum remain supplementary to the social and professional advantages which have always constituted its chief claims to popularity, by introducing the would-be architect into the inner circle of professional life and affairs. At the same time, our attention is never called to the educational opportunities offered to its members by the Architectural Association, but we are struck by the excellent and thorough practical discipline of its methods throughout. The curriculum is concerned alone with the education of "architects," in the strictest sense of the word, and accordingly this end is accomplished with a more direct attention to the essential training of an architect than in institutions where the needs of the wider application of architectural knowledge in the trades, has also to be considered. It is, too, generally overlooked that the great activity in architectural education which has arisen in the last few years is in the main due to the initiative step taken by this Association when it instituted the curriculum of education which has become so popular with the Profession.

The prize which has called for the closest competition, and produced the soundest and most valuable work, is the Association medal,

which is each year given to the author of the best design for some building, the particulars and requirements of which are published at the beginning of each session. This prize, which is, perhaps, first favourite in popularity, and always attracts a great deal of attention, has this year produced nine sets of drawings of varying merit, and, in view of the somewhat technical nature of the subject, and the large number of drawings required, the exhibition must be considered a most satisfactory one. The subject, "A Convalescent Home on the South Coast," asked accommodation for ten men, ten women, and fifteen children, and the requirements included day rooms for each sex, play room and covered play shed for children, a small chapel with accommodation for twenty-five strangers, beside inmates and staff, and various other essentials of the plan were specified. The drawings required included eighth scale plans, elevation, and sections, a half-inch detail, and a perspective. Of the nine competitors the designs of two, as stated in a previous issue, are of such equal merit that the award has been divided; "Ægris Solatium," Mr F. D. Clapham gaining the silver medal, and dividing the ten guinea prize with "Leander," Mr T. Tyrwhitt, the author of the measured drawings of Clare College, Cambridge, for which the Institute medal was last year awarded. A comparison of these two designs shows that while that of the winner of the medal has recommended itself for its elevation, its rival has claimed recognition mainly for excellence of plan. Mr. Clapham has achieved a picturesque rugged group of stone buildings of a somewhat archaic description, altogether very forcible and unconventional, and he has shown this in a perspective drawing in sepia and colour, which is the best in the room, and which is drawn with a great deal of vigour, and reveals a strong individuality. These results, however, have been attained only by making certain sacrifices in the plan which are not lightly to be overlooked in a building which requires a rigidly scientific treatment, if it is to fulfil its various needs efficiently and well. We notice that Mr Clapham has only one staircase, and one entrance to and from the grounds, an oversight which is hardly excusable when the

separation of the sexes is demanded in the requirements, and otherwise fulfilled in the scheme of the planning. His isolation ward, in complying with the picturesque needs of his elevation, is too close to the rest of the building, and it should not have been made to flank upon the main entrance. The chapel and dining-hall, balancing each other on either side of the entrance, have been set off at a slight angle from the true frontage line, and this, although it greatly aids his design as far as externals are concerned, yet leads to inconvenience and extravagance in the plan, and scarcely seems justified in a building which is, above all, a place to restore sick people to health. If the style Mr. Clapham has adopted required such handling, he would be better advised to have chosen some other manner of design for his present subject. This plan also is at fault in having recourse to an area. The offices and servants' quarters are not sufficiently considered. There is a wealth of corridor as compared with the second award and other plans. There is no access on the first floor to the rest of the building from the servants' quarters, and the sanitary accommodation throughout is insufficient. The author has also overlooked the fact that the children would need a complete supervision; the nurse's bedroom is far removed from the children's dormitories. Mr. Tyrwhitt's plan, as we have said, is the better of the two. Its errors, such as they are, do not lie in essentials, and it has an excellence that would, we think, distinguish it in an open competition. It is eminently practical and economic, and the needs of such an institution have been admirably divined in their details, and for the most part aptly fulfilled. We notice, however, that the children's stair is reached upon the first floor through the lavatory lobby, and in order to complete the design of the main elevation to his taste, he has treated some flues in a summary manner that would hardly recommend itself in practice; for he has arched them over upon the front wall, and taken them along it and over a window before conducting them upward to the roof. His enthusiasm has also prompted him to elaborate his chapel in a manner which would rather befit a college building than a convalescent home.

Indeed, this design perhaps fails a little in that it is too collegiate in character in regard to its elevations. These are of brick with stone dressings, and show a delicate and true appreciation for the earlier Georgian methods. It has a reserve and a breadth which is very rarely met with in the work of a student. The extreme severity of the two pavilions is, however, to be regretted, more especially as the perspective view gives them an undue prominence. They do not quite succeed in the characteristic traditional key, which is otherwise maintained with such consistency throughout the drawings. The design, on the whole, shows a forethought in its particulars, and conformity to technical details, which is worthy of high praise, if only for the sound and conscientious work evinced therein, and this same quality is shown again in the minute and perhaps unnecessary elaborate drawings, and their simple and unassuming character. Mr. Tyrwhitt has been particularly happy in securing the right prospect for the several departments of his plan, his sanitary accommodation has been well thought out, the kitchen and offices are sufficient and well placed, and if his design was commissioned as it is here drawn, his client would have a thoroughly practical, economical, and convenient building.

The remaining seven designs vary a good deal, and none of them pretend to any serious rivalry with those of the successful competitors already described, but we particularly noticed the sheets submitted by "Sea Side" as showing a plan which seemed to be as good as any of those exhibited, excepting only Mr. Tyrwhitt's. The main requirements and essentials of the plan had been mastered, and the design would have probably been a favourite for first place if the elevations and the style of the drawing and perspective, had been commensurate with the merits of the plan. The drawings contributed under the motto "Rest" show a design which has some merits in the plan, but which lacks appropriateness in its elevation. The requirements of the subject have been well considered, and a lot of careful work in design and drawing is shown. It was, however, a mistake to put the chapel on the first floor in face of the requirements, which specified that accommodation should be made in the

seating for twenty-five strangers; and this objection becomes considerable through the absence of a central or main stair. The elevation has too much the air of a palace, and the row of dormer windows, though they look well, are quite unjustified by the requirements of the building. The perspective is one of the best sent in, but it would have gained a good deal if it had been more simply drawn. "Curlew's" drawing shows a most unusual mastery of his medium—lead pencil. Such effects, although no one can but admire them, are, however, unnecessary, and the error of paying such a fastidious attention to the style of presentment is in this case emphasised by a totally inappropriate elevation, and a plan which fails in nearly all particulars. If "Curlew" could have applied his knowledge to best advantage he might have done very well. "Sigurd" has submitted a perspective which shows the touch of a practised water-colourist, but otherwise we can only include his design with those of "Æolus," "X," and "Clio," who have not succeeded in at all grasping the essentials of their subject. "Clio" alone, of all the competitors, has worked upon the cubical principle. This was a mistake in itself; and he has not been successful in the difficult task of arranging them in a convenient plan.

The awards for the "Measured Drawings" and "Studio" prizes will be duly noticed in a subsequent issue.

ST. PETER'S parish, Accrington, is about to be provided with a new vicarage. Plans have been prepared by the architects, Messrs. Austin and Paley, of Lancaster.

The Council of the Society of Architects have appointed Mr. C. McArthur Butler, member, of Boscombe, to be the secretary of the Society in place of the late Mr. Montagu Baldwin, M.A.

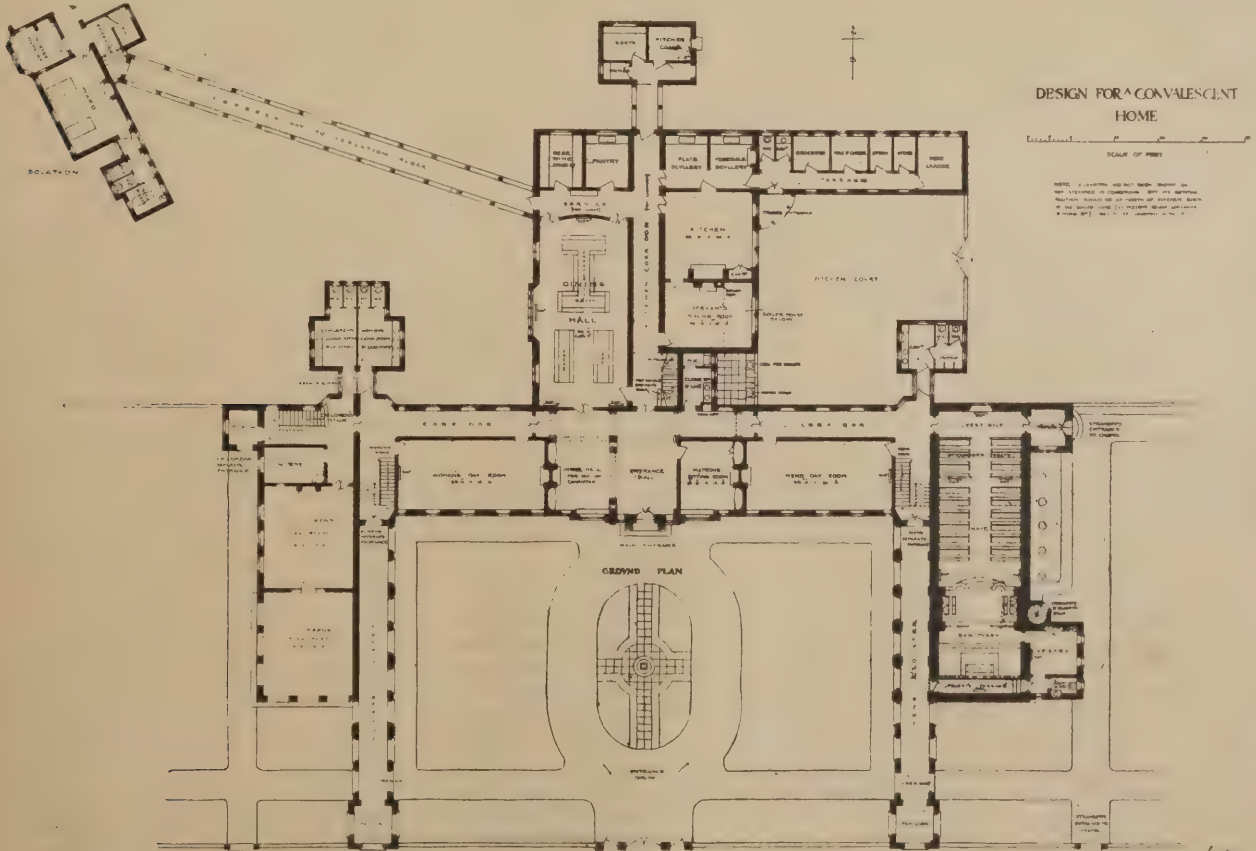
MEMORIAL stones of the new Baptist Chapel at Ford have now been laid. The situation of the new building is in continuation of the existing chapel and schools in Alfred Road, the cost of its erection will be £2522, and when completed will provide accommodation on the ground floor for 480, and if galleries are added, for 235 more.

PLANNING.

BY ASTON WEBB, F.R.I.B.A.

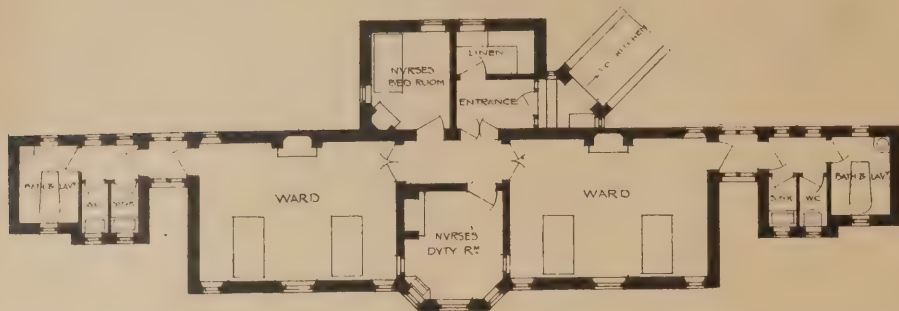
AN admirable address on planning was given by Mr. Aston Webb at the opening meeting of the session of the Architectural Association School of Design. At the same meeting Mr. G. H. Fellowes Prynne gave an address, reported in our last issue, on the study of design. Mr. Aston Webb had not prepared a paper; he gave simply a few ideas which had occurred to him from time to time, illustrating his points by diagrams on the blackboard. For definite ideas and carefully thought out statements on the subject of planning, Mr. Webb referred students to papers which Mr. McVicar Anderson and Mr. Alfred Waterhouse had read before the Royal Institute of British Architects, and which were, of course, to be found in the Institute's transactions. One of the first things about planning one naturally thought of, Mr. Webb proceeded, was the placing of the building, and he was really inclined to think this was very often neglected. Nothing was more important in the erection of a building than the way it was placed on its allotted site. Of course, in London and in other great cities the opportunities for securing an effective placing of the building were frequently very limited. Here they were governed—and very properly governed—by laws of frontage and by local authorities, and there was often nothing to do but to put down their building, and start away with the inside and outside without preliminary considerations as to position. And here he would like to say that the

FIRST THING IN SUCCESSFUL PLANNING and designing—and one could not separate the plan from the design—was before putting pencil to paper to have an idea or general principle as to what they were going to do. It had often happened that men who were preparing a design for a competition, had shown it to him and asked his opinion of it. Well, of course, he thought it was extremely good, but he had often been struck by the way men were led away by what were really the trivialities



THE ARCHITECTURAL ASSOCIATION MEDAL: SECOND AWARD. PLAN OF CONVALESCENT HOME. BY T. TYRWHITT.

THE ISOLATION BLOCK



ARCHITECTURAL ASSOCIATION MEDAL: SECOND AWARD. PLAN OF ISOLATION BLOCK OF CONVALESCENT HOME. BY T. TYRWHITT.

of the design, thinking nothing of the general idea. He suggested that it was no use starting a public building or a house or any building with any capacity for design, until they had some central idea which would be readily recognised in the completed scheme. And when they sat down to make their plan they should not attempt to do it to a large scale at first. They need not trouble much in their preliminary plans as to such things as the thickness of walls, which might be represented by lines; if they had a good building they could rest assured that these things would come out right in the end. Coming back to his first point,

THE PLACING OF THE BUILDING:

it was of immense advantage to place the building at right-angles to the line of approach. It could rarely be done in London, but in domestic work it could very often be done. They all knew how effective was a house at the end of an avenue. A house standing isolated in a field was rather a poor thing however good the Architecture might be, but a house approached by an avenue, whether the house was good or bad, had some sort of effect not easily spoiled. The site of the National Gallery was called, not without exaggeration, the finest site in Europe. It was fine because it was approached up Whitehall, and the ground rose at the end. Certainly very few sites in London had this advantage. It was to be regretted, although it could not be helped, the speaker noticed in passing, that the new Government building would be parallel instead of at right-angles with Whitehall. A great point of this was made in foreign towns. There was an instance in Prague, where a recently-erected museum had been placed across the widest street of the town. The structure was rather commonplace in character, but from its position and approach it had a very imposing effect, and added very greatly to the dignity of the town. Nearer home, the Mall and Buckingham Palace afforded another instance. He had often wondered how it was the Mall had so little effect until he discovered the building was not in true centralisation with the Mall; in order to get something in the way of a central view, a row of trees had been placed in the centre of the Mall, thus dividing the avenue into two and robbing the Palace of very much of

ITS GRANDEUR AND IMPORTANCE.

As another instance, they all knew the obelisk which Lord Leighton had described as standing between two streets, marking nothing, leading to nothing, emphasizing nothing, and by nothing emphasized. The Houses of Parliament was a magnificent group, but it was regrettable that the full length could not be seen from the main approaches. The older he grew the more symmetrical he became in the matter of the arrangement of public buildings. Picturesqueness had its place in buildings of a less important character, but in erecting public and monumental buildings the dominating idea ought to be that of symmetry and grandeur. This remark applied not only to public buildings, but also to the frontage lines of streets. Regent Street

was a case in point. They all admired Regent Street as a very well laid out thoroughfare, and were very much indebted to the Crown for this, the only well laid out street of the century, though the London County Council's new street promised well. One thing Regent Street needed, however, was somewhere to lead to. A great street leading nowhere was like an avenue without a house at the end of it. It was not absolutely necessary that buildings should be in line with the street. Of course, the local authorities would not permit a building to project, but they could not prevent the architect putting one end of his building back a little. Whitechapel Church was an illustration. The architect had placed the church

AT AN ANGLE WITH THE STREET,

and anyone walking down Whitechapel would be compelled to admit that this was a happy little inspiration in varying the monotony of the terrible rows of houses in this gloomy thoroughfare. The desirability of placing the buildings at right-angles to the street applied particularly to public buildings. It was impossible to make any system of planning applicable to both private and public buildings; the two objects were absolutely different. In the internal arrangement of a public building what was primarily needed was direct access and perfect simplicity of plan, and to those about to enter a competition he would advise them to spare no time in making the means of communication as simple and plain as possible. In planning a private house simplicity was not the great consideration. It was a pleasure to a hospitable man to show his friends over his house, but if they knew the arrangements beforehand, as they did in most London houses, that pleasure was impossible. Straight corridors were essential in the planning of public buildings, broad straight corridors from the entrance with branching corridors on either side. The corridors should, of course, be properly lighted. This question had been prominently raised with the competition for the new Admiralty and War Offices, and Mr. Christian, the architect advising the Government, said he would not recommend any design that had dark corridors. The Home Office building had been much condemned on account of its dark corridors, and, no doubt, the lighting of the corridors of a public building was one of the first things to consider, as it influenced the whole design. A way of lighting corridors which was more or less new was suggested in the selected design for the new Admiralty Office, and the scheme which had been carried out answered very well. There were two corridors with rooms down the sides, the corridors being lighted by courts in the centre 25ft. wide. The disadvantage of this arrangement was that it rendered the communication between rooms on opposite sides more inconvenient than on the old system. It was not well to light corridors all the way down exactly alike. The corridor could be divided into bays, each alternate bay being lighted. Proceeding, Mr. Webb said it was much better that halls in public buildings should be entered from the side than from the

end, and, where possible, they should always be planned so as to be entered at the end. Mystery was just as important in a public building as in a private one, but it must be gained in quite a different way. It could generally be obtained in the height and arrangement of the roof; anyone who went into Westminster Hall and looked at the roof could see that. He also recommended them to consider the advantage of the mystery of the open roof in large apartments, and the increased facilities for sound which it afforded. In vaulted churches and vaulted rooms it was far more difficult to hear than where open timber roofs existed, a plaster barrel ceiling being about the worst arrangement for sound. He was strongly against putting the kitchen at the top of the house in a private building, although he thought that was the place for it when it had to be provided in a public building. In public buildings

THE STAIRCASE

should be placed at the end of a corridor, at the end of a main approach. In private houses, where the staircase only led to bedrooms, it should be put rather out of the way. He thought it almost unnecessary to utter a warning against placing rooms so that they would get no sun. Mr. Webb proceeded to offer some suggestions as to the proper placing of doors and windows in private houses, and, in concluding, alluded to the benefit he himself had received from the Architectural Association School of Design. Rudyard Kipling, in one of his poems described a happy hunting ground for artists, and went on to say:—

And only the Master shall praise us, and only the Master shall blame;
And no one shall work for money, and no one shall work for fame;
But each for the joy of the working, and each, in his separate star,
Shall draw the thing as he sees it for the God of things as they are.

This was the spirit in which they should work. This was the spirit in which he had himself worked in his student days, and it was the recollection of those student days, of the benefits he had received from the School of Design, which had prompted him to accept the President's invitation to deliver that address.

At this meeting Mr. Cole A. Adams read a short paper on the use of colour in design, emphasising how essential a factor colour was in design, and painting word-pictures of its exquisite effects.

THE premises of Messrs. Sealy, Prysers, and Walker, publishers, Dublin, have been completely destroyed by fire, and the damage is estimated at £15,000.

MR. GOSCHEN recently visited Portsea to open the new Parish Institute building, a substantial structure, capable of holding 700 people, which has been erected in the Fratton Road.

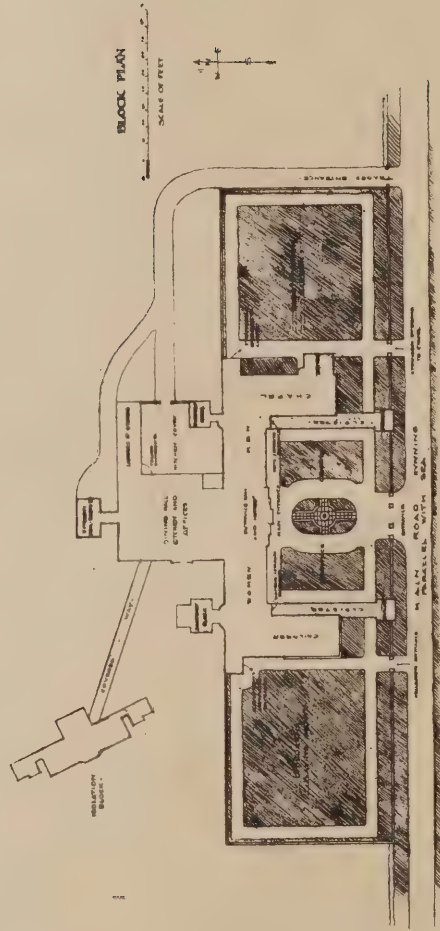
AT Rugby the Archbishop of Canterbury has unveiled a medallion portrait which has been erected in the school chapel as a memorial of the late Archbishop, who was an assistant master there at one period of his life. The medallion is the work of Mr. Bruce Joy.

THE London County Council has accepted the recommendation of the Highways Committee to consent to application being made by the London United Tramways Company to the Board of Trade for powers to reconstruct a portion of their tramway in Uxbridge Road, in accordance with the overhead trolley system, on condition that the Company also reconstruct another portion of their line on the underground system of electric traction.

SOME idea of the widespread interest which is felt by the art-loving public in the work of Sir Edward Burne-Jones may be obtained from the fact that Messrs. G. Bell and Sons have found it necessary to issue a fourth edition of the authoritative "Record and Review" of that artist's career written some few years ago by Mr. Malcolm Bell. Although the price of the volume has been reduced, the letterpress has been revised and brought up to date, and some new illustrations have been added.

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DESIGN FOR A CONVALESCENT HOME



SKETCH OF FRONT TOWARD SEA [SOUTH]





NOT A REVISED ALTERNATIVE TO
THE DESIGN OF THE JURY
CHURCH

SOUTH ELEVATION OF TOWN HALL.

COMPETITION DESIGN FOR CARDIFF TOWN HALL AND LAW COURTS. MESSRS. BREWILL AND BAILY, ARCHITECTS.

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Bricks and Mortar.

EFFINGHAM HOUSE, ARUNDEL STREET,
October 26th, 1898.

"I know what it is to live in a cottage with a deal floor and roof, and a hearth of mica slats; and I know it to be in many respects healthier and happier than living between a Turkey carpet and a gilded ceiling, beside a steel grate and a polished fender. I do not say that such things have not their place and propriety; but I say this, emphatically, that the tenth part of the expense which is sacrificed in domestic vanities, if not absolutely and meaninglessly lost in domestic discomforts and incumbrances, would, if collectively offered and wisely employed, build a marble church for every town in England; such a church as it should be a joy and a blessing ever to pass near in our daily ways and walks, as it would bring the light into the eyes to see from afar, lifting its fair height above the purple crowd of humble roofs."—JOHN RUSKIN.

COMBERMERE ABBEY, an old Cheshire mansion, has a peculiar interest just now, for it was nearly associated with the latest royal victim of the anarchists, the ill-fated Empress of Austria, whose hunting feats in Cheshire, when a resident in the historic home of the Cottons, are well remembered in that district. Combermere Abbey, in which is incorporated some portion of the ancient building erected by the Cistercians hard by that fine sheet of water which is the principal feature of the domain, has been in the possession of the Cotton family since the days of Henry VIII., from whom they received the estate. It contains many interesting momentos of ancient times.

At a time when architects are writing to the papers to complain of the difficulties that lie in the way of getting good work honestly done, it is refreshing to look once more at the vigorous pages in Mr. Ruskin's "Stones of Venice," which Mr. George Allen is now re-issuing in a cheaper form. The second volume has just appeared, and if any addition were needed to the vivid description of stone and brick construction given in the first volume, it will be found in the lessons of the next two. They are peculiarly applicable to the present day, for they emphasise the truth that the builder's art depends on the moral or immoral temper of the State, just as the workman's life has every possible effect upon his work. Mr. George Allen publishes these books, which are part of a large series of reprints, in a form that is at once handy and attractive, and they deserve the large sale which their timely teaching should command. The original illustrations have all been excellently reproduced by process cuts.

THE Guildhall set the year's note for French Art. It abounded at the International Exhibition, sufficed for Mr. Obach's show, in the *raison d'être* of the current display of the New Gallery, and it rules now at 157, New Bond Street. Certain pictures from the past season's Paris Salons are there, although these are not of the typically mundane or typically sensational class which stay-at-homes believe sum up the taste of France in figure subject pictures. Nothing of the startling order is included on this occasion, as it has been sometimes by the management, who are alive to the value of a "draw." On the other hand, it would be very unfair to our clever neighbours to take this collection as a standard for quality in modern French Art. If, however, it lacks importance as a whole, and contains no one great work, refinement is to be seen in

"Amidst the Roses," by M. Aublet, powerful character painted somewhat rigidly in M. Leempoels' rather involved symbolical picture, a sufficiently good marine painting by M. Tattégren, a picture that has something more than mere traces of "style" in sun-embrowned nudes placed amidst sombre landscapes, "Automne" (that won a medal for M. Lauth), and there are instances—not perhaps their best efforts—of M. M. Chaigneau, Rixens, Schuler, Sylvestre, Berthelon, Durst, Ivill, Girardot, and other men who have been medalled at some time or another.

MR. ALLAN J. HOOK, writing to The Times, says: "The enforcement in country districts of by-laws drawn up to regulate building in towns, is a very serious evil. From a case, in itself unimportant, the effect on larger interests may be judged. Therefore the following instance is worth notice. The members of a golf club proposed to erect, on private property in the open country, more than three miles from the nearest town, an iron pavilion. The Farnham District Council refused to pass the plans on the ground that the building was to be constructed in a manner not complying with the regulations for the construction of dwelling houses—regulations affecting any building 'adapted to be used wholly or principally for human habitation,' and therefore applicable to a golf pavilion. For a time the golfers felt themselves beaten, until some one studying the map luckily discovered that the proposed site was, by a few yards, outside the boundary of the Council's jurisdiction, instead of just inside it, as had been supposed. The adjoining district being a free one, the golfers are able to shelter themselves from the rain in such fashion as they think best. It is, on the face of it, absurd to apply identical building regulations to town and country alike; but the extent of the absurdity can be realised only after reading many pages of tedious details. Perhaps the greatest absurdity of all consists in supposing that any building regulations are needed in rural districts. The good effect of restriction exists only in fancy. The harm is immense. What is urgently needed is an Act of Parliament to exempt all rural districts from the operation of building laws; in short, to make a by-law apply only to the 'by,'—that is, to the town."

A SERIOUS accident occurred during the demolition of Mazas Prison. Owing to the fall of a wall through the operations of the pickaxes and crowbars, two labourers were terribly injured. Some other workmen employed in the place were hurt less severely. Mazas, by the way, is now practically obliterated, and the navvies have now attacked Sainte-Pélagie. This is the famous Press or political prison, and was also for a time the place of incarceration of Madame de B-augharnais before she became the Empress Josephine. Béranger, Paul Louis Courier, Lamennais, and Prudhon were among the famous inmates of the establishment which was often called the Great Tomb, and also Little Siberia. The gaol of the journalists is now only tenanted by two Municipal Guards and an old turnkey. By order of the Departmental authorities, three relics, namely, an antique gate from the destroyed Bastille, a group of Seraphim and Cherubim from the sculptured work in the chapel, and the door of M. Henri Rochefort's cell, are to be preserved from the ruins of Sainte-Pélagie, and to be kept in a museum for the benefit of the present and of future generations of old curiosity worshippers.

At a recent weekly meeting of the London County Council a report of the Technical Education Board was submitted dealing with the Central School of Arts and Crafts. The report stated that two years ago the Technical Education Board established a school of Arts and Crafts in premises at 318, Regent Street, and Little Portland Street. The number of students has increased so that the capacity of the temporary premises has been severely taxed, there having been 539 individual students in attendance during last

winter. Every room in the premises is now fully occupied, and there is no room for further extensions of the work which appears desirable. The attention of the Board has been called to a building, known as Oxford Mansions, within a few yards of the existing school, the lease of which is now in the market. The building forms a block 100ft. square. The premises are held on lease from the Portland Estate, with fifty-eight years to run, at a ground rent of £560 a year. The situation is admirably adapted for the work of the school, and the extent of the premises will meet all the school requirements as far as they can be foreseen for a long time to come. An offer of the premises has been received at the sum of £35,000, subject to the acceptance by the Council in October. The Council's valuer and solicitor have been instructed to make the necessary arrangements for acquiring the lease of Oxford Mansions for a sum not exceeding £35,500, which is within the estimate made by the Council's valuer, subject to the adoption by the Council of the Board's recommendation. When the necessary alterations have been made the building will comprise thirty-three rooms, each about 33ft. square, together with a basement story, a central hall, and a number of smaller rooms for the use of the staff and of smaller classes. The architects estimate for the necessary alterations, including the installation of the electric light, amounts to £5000; and the cost of these would be defrayed by the Technical Education Board out of sums already appropriated by the Council on the estimates for the current year. The committee recommend that an expenditure not exceeding £35,750, including stamp duty and expenses, for the purchase of the leasehold property should be approved.

Two more of the panels which encircle the great hall of the Royal Exchange have been filled. The panels are the work of Mr. Seymour Lucas, R.A., and Mr. Sigismund Goetze. These panels do not lend themselves very readily to decoration—in a picture—for the upper part of them furnishes a most awkward space to fill. Mr. Seymour Lucas's painting, which pictures William the Conqueror granting a charter to some dignified and very portly representatives of the City of London, makes a most gallant attempt to overcome this difficulty by introducing a Norman pillar with springing arches into his composition. The effect is successful in overcoming the difficulty, and the composition as a whole is bold and unstrained. The colouring is bold also, a necessity of the half light in which the picture finds itself.

MR. GOETZE's picture takes for its subject the offer of the crown to Richard Duke of Gloucester by the citizens at Baynard Castle, a mansion from which one of the wards of the City takes its name. Mr. Goetze's picture is not well lighted in a different sense from that in which the words were used in speaking of Mr. Seymour Lucas's work. The composition and the lighting together have the unfortunate effect of making the heraldic lion on the balustrade of the staircase where Richard stood to receive the crown nearly the principal object in the picture. One other thing ought to be mentioned in connection with the scheme of decoration which is being carried out, and it is that the work, when complete, will be very much disfigured if the marble advertisements of insurance companies are allowed to remain on the pillars between the panels.

ONE by one of the churches of the Norwich diocese are being rescued from the neglect of past generations and restored to the beauty and dignity with which they were originally endowed by the architects of bygone centuries. Thornage was one of those churches which retained in a very marked degree the deadening impress of the Georgian era. A west gallery, blocking up a fine window and arch, a three-decker pulpit, pews of the sheep-pen type, a false ceiling in nave, a miserably inadequate altar, and liberally whitewashed walls, did all that was possible for physical surroundings to do to counteract the spiritual

beauty of the church's liturgy. But now all this has become a thing of the past. By the energy of the rector, well supported by the patron, Lord Hastings, the greater part of the fabric and interior fittings of the church have been judiciously and substantially restored.

THE work so far completed consists in the re-roofing with Broseley tiles and new ridge, finishing with stone cross. Inside the roof has been clad with pitch pine, and all decayed rafters removed. Three new buttresses have been added to chancel walls. Inside these were found (on removing plaster) to be hollow, and have consequently been rebuilt. The cleaning of the walls of whitewash brought to light the outline of two small windows, probably Anglo Saxon. These have been restored, as well as a larger one. On the east wall even some remains of fresco work have been preserved. The piscina and sedilia have been opened. The tracery of the chancel windows on south side has been found in an excellent condition. The walls have been plastered and finished with stucco. In the tower what appears like an incense place or ancient fireplace has been found. All the windows have been reglazed and given by friends of the church. The porch door, a very old one with huge lock and bar, has been well cleaned and rehung, and now there has been fixed an appropriate frame with texts, instead of

is a single figure in alabaster, which has been placed in the wall. The only other old memorials that are to be seen are slabs to the memory of former rectors, but two new brasses have been placed on the walls. The church has been restored both inside and out. There is a new roof, the walls have been re-stuccoed, new lead has been placed on the outside, the stonework of the windows has been replaced, and foundation drainage has been supplied. A fine altar table of cedar and olive has been erected. The chancel fittings and a new pulpit were supplied by Mr. R. Chapman, of Hanworth, and the seating was put in by Messrs. Cornish and Gaymer, of North Walsham. The windows were glazed by Mr. W. R. Weyer, of Norwich, and the screen and the carved figures in the roof are the work of Mr. A. Sampson, of Starston.

THE curious way in which two parishes of the City run one into another is often the subject of remark. How many, however, are aware that one building alone—11, Queen Victoria Street—is in no fewer than six parishes. There are several instances of a building being in four parishes, and at least one house is half in the City and half beyond its borders. This house affords a singular instance of the involved state of municipal affairs in that crowded square mile ruled over by the City Corporation. In that small area

THE special feature of the shops illustrated on this page will be the particular care which is to be taken to have them erected in accordance with the latest methods of fireproof construction, having particular regard to the use of wood in every possible manner, and thus reducing the use of iron to the lowest possible degree. This will certainly put to a good test this particular form of fireproof construction, of which we have read so much of late. The architect is Mr. Edwin A. Somerville.

A VERY pleasing improvement is contemplated in Queen Victoria Street, where the Church of St. Andrew-by-the-Wardrobe faces that thoroughfare. The church, rebuilt by Sir Christopher Wren after the Great Fire of London, obtains its curious name from being situated near the ancient repository of the State robes of our kings and queens, which once existed here, and still gives a name to the adjacent "Wardrobe Place." St Andrew's did not face a main thoroughfare until Queen Victoria Street was driven through a network of surrounding lanes some thirty years ago. When that change took place, a portion of the churchyard was thrown into the roadway, and the remainder walled up, as seen at present. The proposed improvement consists in removing this blank wall and placing a light ornamental iron railing in its stead, so that the churchyard may be open to view. The ground



PROPOSED SHOPS AT KENNINGTON. EDWIN A. SOMERVILLE, ARCHITECT.

a multitude of secular notices. The priests' door in the chancel has been renewed in oak. Slight remains of rood stair have been shown. The five pillars and arches have been cleaned. New floors have been provided, and the aisles paved with tiles. A very elegant pulpit in English oak, with carved panels, a new lectern, altar rail, prayer desk, choir stalls, all in oak, with the old poppy heads, will furnish the spacious chancel. The most beautiful and costly gift is that of the altar, given by Sir Alfred Jodrell, and made by Mr. Chapman of Hanworth. The credence table has been made out of one of the few oak benches found. The church is lighted with cathedral lamps. The architect has been Mr. Lacey, diocesan surveyor, and builder, Mr. Blyth of Foulsham. The porch still remains to be done, the walls externally require considerable repair, also the tower, and a vestry is much needed.

ST. MARGARET'S CHURCH, Saxlingham, which had got into a state of considerable disrepair, has been completely restored. The church is a very old one, but there is little about it of interest to the antiquary. There was at one time an antique memorial here erected by Sir Christopher Heydon in memory of his wife, the Lady Mirabel, but all that now remains of it

there are over sixty parishes, none of them, as may well be supposed, of any great dimensions, but some of an almost inconceivably small size. The parish of St. Mary Mounthaw, for instance, which consists of six houses, and is the smallest parish in the City, may well be ranked as a prime curiosity. This odd parish stands at the corner of Queen Victoria and Friday Streets, and has not possessed a church since the Great Fire of London, when it was burnt down, with many more, never to be rebuilt. What we may well call the "surname" of the parish either derives from some forgotten benefactor whose name was attached to it, just as we find a neighbouring parish called "St. Margaret Moses," and another "St. Benet Fink," or from some geographical peculiarity, which accounts for the names of "All Hallows, Honey Lane," and "St. Mary, Old Fish Street Hill." The need of these rather cumbersome identifications is obvious when it is said that there were six or seven parishes of "St. Mary" in the City, together with other saints equally well represented. St. Mary Mounthaw was originally somewhat larger than now, but was reduced to its present tiny dimensions when the clearances of house property were made for the construction of Queen Victoria Street, some thirty years since.

slopes steeply upwards, and when planted with trees and laid out in lawns and flower-beds, according to the intention of the vicar and churchwardens, will form a pleasant relief to the monotony of soaring warehouses on either hand.

EXCAVATIONS are now going on at Gibraltar previous to the building of new premises at the corner of City Mill Lane in the main street, and only a few yards away from Commercial Square and the Main Guard, quite in the centre of the garrison. During the past few days some most interesting ancient coins, relics, and skeletons have been unearthed at a depth of from one to ten feet. A Roman wall, supposed to be an old entrance to the citadel, has had to be demolished, and coins of evident Phœnician and Roman date have been discovered. One Phœnician bronze coin has a head on one side and a ship on the other still discernible. There are numerous Roman and Moorish coins and pottery. Relics of a later date point to the Spanish possession. There is a neatly worked metal figure of our Saviour with outstretched hands, evidently belonging to some crucifix, also a medal of the Virgin Mary, suggestive of the 16th or 17th century. The most extraordinary

find of the whole is the unearthing of thousands of skeletons, which have been found in a huge layer, as if heaped together in a large ditch or moat. The skulls are in a fair state of preservation, and are of a decidedly Moorish or Arab type. This would suggest the carnage of one of the Hispano-Moorish battles, when Spain finally swept the Moor from Europe. Cart-loads of human bones mixed with the earth of the excavations have been taken away.

ALL readers of Charles Kingsley's masterpiece "Westward Ho!" will remember the meeting of Sir Amyas Leigh and Salvation Yeo at the Ship Inn, Bideford, and what resulted from that incident. This historic hostelry still stands where it did, and little the worse for wear, judging from a picture of it taken so long back as the seventeenth century. The only change is that it bears a different name, being now known to men as the Newfoundland Arms. But the local licensing magistrates, with Vandal-like indifference to historic claims, have in their sapience determined to effect a far more revolutionary change than that. At their last meeting they refused to renew the licence on the absurd ground that an inn which has for centuries supplied popular wants is no longer necessary "for the requirements of the neighbourhood." This supposition, which we believe to be purely arbitrary, makes no account, it will be seen, of national sentiment; as well might Stonehenge be obliterated because the monoliths do not serve any utilitarian purpose.

WHILE electricity has of late years been making great progress as an illuminant in our streets and shops, none the less important have been the advances made in regard to improving the illumination by gas, by means of the incandescent system. In Liverpool the progress has been marked in regard to gas; and that the incandescent system has gained favour with the Corporation committee responsible for the lighting of the city thoroughfares can hardly be wondered at when it is stated that while by means of the flat-flamed type of burners, now so largely in use, only four candle-power can be obtained per cubic foot of gas, under the incandescent system the maximum efficiency is 30 candle-power per foot of gas, although at present 20 candle-power is the standard. Already between 50 and 60 miles of principal streets have been dealt with by the double burners, and it has now been resolved to deal with ten miles, or 45 secondary streets, with a single burner, those thoroughfares running east and west being dealt with very liberally.

CONSTANTINE CHURCH, Plymouth, has been reopened after restoration. The church walls, covered with plaster, the accretion of a couple of centuries, have been stripped, and the stones cleaned and pointed with a sunk pointing under the direction of Mr. Edmund Sedding, architect, Plymouth. The result has proved most satisfactory, and has given to the church, which is one of the largest and finest in the diocese of Truro, an effective appearance, and many architectural beauties and curiosities hitherto hidden have been revealed.

THE Secretary of the Society for the Protection of Ancient Buildings writes to The Times as follows: "Through your courtesy, a letter from this Society, on the subject of Chichester Cathedral, appeared in The Times of November 6th, 1897, and at the same time this Society wrote to the Dean and Chapter and Restoration Committee pointing out what it considered to be the dangers of the proposed scheme for destroying the then existing work and erecting a new north-west tower. This Society has recently inspected the building, and it regrets to state that some of the evils which it foreshadowed have become accomplished facts, and are now exemplified in the building. The west wall of the nave has been cracked from top to bottom, and a visitor approaching the Cathedral by the western porch will see two fresh long cracks over the large doorway, one being apparently about an inch wide, and the other a quarter of an inch

wide, and on entering the building it will be seen that the cracks go through the full thickness of the wall and run right up to the groining.

SOME time ago the City Corporation asked the County Council to contribute towards the cost of widening Lothbury, between Old Jewry and Princes Street, to 60ft. This improvement was estimated to involve an expenditure of £74,125. The Council declined to co-operate in the matter in the absence of a proposal for continuing the 60ft. thoroughfare by widening Gresham Street throughout. An amended scheme has now been laid before the Council by the Corporation. The latter body seeks a contribution towards the cost (estimated at £42,000) of widening Lothbury to 50ft. The Improvements Committee of the Council recommend the Council to contribute one-third of the cost of the proposed improvement.

It appears from the English Illustrated Magazine that the earliest artist who adopted the street-flags as his canvas, and exhibited an *al fresco* Academy with subjects verging from sunset-effects to lurid salmons and sirloins, was a Paddy Keogh, who opened a picture-gallery of this sort in Ratcliff Highway some forty years ago. The new movement spread rapidly with, unfortunately, spurious developments. For instance, movable pictures, sometimes original, sometimes hired, have replaced the painted pavement. The genuine artists naturally regard this move as unprofessional.

ALTHOUGH the scheme suggested by Mr. G. F. Watts for establishing a memorial gallery in the churchyard of St. Botolph's, Aldersgate, has been readily adopted by the vicar and churchwardens of that parish, it appears that the idea cannot be fully developed until some adjoining ground needed for the extension of the churchyard has been acquired. So far, about half this land has been secured, but a sum of £3000 is needed for the purchase of the remainder, and the vicar of St. Botolph's is anxious to receive contributions towards the amount. As the realisation of Mr. Watts's scheme depends indirectly upon the generosity of the public, it is to be hoped that these necessary funds will soon be forthcoming.

MR. CLAUDE HAYES is showing at the Clifford Gallery a number of watercolour drawings of "East Anglia," a series of agreeable and unaffected landscape studies, which display pleasantly enough the merits of his broadly expressive style. He has not confined himself to the district which gives the show its title, for some typical bits of scenery in other parts of the country are included; but in all the drawings he has gathered together the excellent qualities of atmosphere and luminous colour make themselves felt. The whole collection is consistently earnest and thorough, a record of sound observation and skilled craftsmanship.

CARVILLE HALL, Wallsend, an antique building of historic interest, in course of demolition, has been partly destroyed by fire. A while back the structure was purchased by Mr. Geo. Dixon, builder, of Wallsend, his intention being to raze the place and erect on the site buildings of the same class as those occupying places on the west side of the Avenue. Up to Saturday week operations had so far progressed that fully a story had been taken off the top of the roomy, square-built, old-fashioned residence. Then at this stage the fire took the work of demolition in hand. Many interesting evidences were furnished of the old house's endurance, and of the out-of-date way in which it had been put together by workmen long since dead and gone. Particularly was this so as regarded the ceilings. A vast deal of material seemed to have filled the spaces between the ceilings and the upper floors. Mr. Dixon is a considerable loser by the accident, for the material he was getting out of the Hall was exceedingly valuable to him. Many massive beams of oak timber and much sheet lead were destroyed by the blaze. A fine old-time staircase was also damaged.

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Architectural Articles.

Important Announcement

- - in regard to - -

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"The Builders' Journal and Architectural Record" is admittedly the best and brightest weekly paper published for the Architectural Profession and the Building and Allied Trades.

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It is now the intention of the Editor to enhance the authority, artistic quality, and literary and technical excellence of the "Journal."

The pages of "The Architectural Review" cannot adequately cope with the number of authoritative and excellent articles offered from time to time, and the Editor of "The Builders' Journal" has now arranged to take a selection from such articles for insertion in the "Journal."

Among those early appearing will be found an interesting article on "Novelty in Art," by R. Shekleton Balfour; a fully illustrated article on the Birmingham School of Art, by the Headmaster, E. Preston Hytch; and another well-illustrated article on "The Influence of the Human Form on Architecture," by A. R. Jemmett. In preparation for the latter article, the Author made a special visit to Paris, where he secured drawings of exceptional interest.

While "The Architectural Review" will continue to deal with Art subjects of enduring character and undoubted influence, "The Builders' Journal" will publish the more controversial and currently critical subjects offered for consideration.

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containing a special article on the*

Rembrandts at Amsterdam

Written by Harold Rathbone.

A fine Reproduction of

*Rembrandt's famous Painting
"THE NIGHT WATCH"
adorns this Number.*

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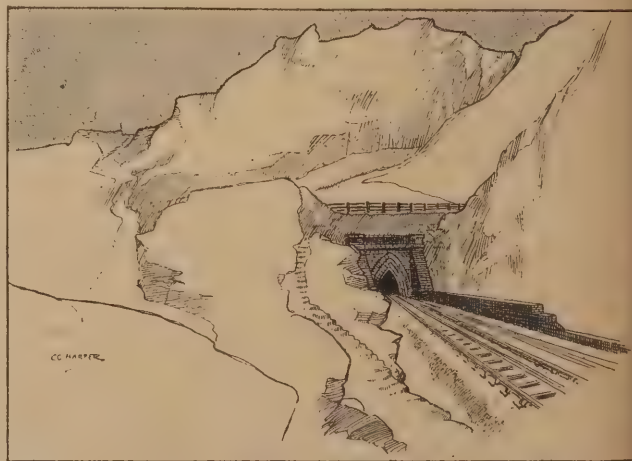
CONSIDERED BY THE DISCUSSION
SECTION OF THE A.A.

THE first meeting of the session of the Discussion Section of the Architectural Association was held at 56, Great Marlborough Street, on the 14th inst., Mr. H. J. Leaning, Chairman of the Section, in the chair. In opening the business of the session, the Chairman remarked upon the continued increasing success of the Section, and upon the interesting and useful set of papers which were to be read during the session.—Mr. C. E. Mallows then read a paper entitled "Church Restoration." The author thought that the term "restoration" was a misnomer, for no architect, however great and well versed in the styles of old work, could follow the individuality of the original artist. The misnamed practice had caused the destruction of a great number of our old Art treasures of all kinds, and of the historical associations attached to them. It was frequently quite unavoidable, even when the restorer was acting with the best intentions for the preservation of all that was of interest, to avoid sweeping away the old associations. Our old churches are the best text books for the education of the young architect. St. Alban's Abbey was a notorious example of the vandalism of the restorer, although perhaps in this case it was a rebuilding rather than a restoration. Our friends the painters would no doubt prefer that our old churches should be allowed to wear themselves away, but between this and actual rebuilding, there was a middle course which should be adopted. Every means available should be employed to preserve the old work, wherever possible; only repairs which are absolutely necessary should be executed. The roof should be repaired in sections, bay by bay, and carefully pieced together where necessary; an old thick wall, because it may be a few inches out of the perpendicular, should not be condemned, but if it is absolutely necessary, it should be repaired from the back, cutting out the defective portions and making good in slow setting cement, and every care should be taken to avoid disturbing the face work more than is necessary. If it is required to take up the old floor, gravestones, and tiling, for the purpose of putting a concrete bed under them, they should be carefully lifted one by one, and arranged side by side as they were in the floor, until the concrete work is completed. The earth outside, where it may be above the level of the floor, should be cut back to a slope, and a trench formed at the bottom, sunk low enough to prevent damp reaching the walls, and well drained. Wherever new work is required, it should be of the most unobtrusive character. In concluding, the author suggested the formation of a National Committee for the preservation of historical buildings, the members of which should be chosen from amongst the best and most conservative of our artists. The committee should be endowed with powers, absolute and without appeal, to give or withhold sanction for alterations and repairs. On their part, architects should report all instances of restorations they may discover to be in progress to the Society for the Preservation of Ancient Buildings.—Before inviting Mr. Millard to open the discussion, the Chairman expressed the regret of Mr. Joseph Pennell that he was not able to be present at the meeting as announced.—Mr. Millard said he did not think such an objection should be taken to the term "restoration." The men of old did not hesitate to alter an old building when necessary, and these alterations made the history of the building. The anti-restoration craze was a product of

this century. We must allow that the right to alter an old building rested with its owner. And the question is not whether we should alter, but how we should alter. With regard to Mr. Mallows' suggestion for a National Committee, he instanced that in France the restoration work is carried out under a government committee, and the results are execrable.—Mr. Selby proposed a vote of thanks, which was seconded by Mr. Lanchester, to Mr. Mallows for his interesting paper.—Mr. H. V. C. Smith concurred with Mr. Millard in considering the question from a common-sense point of view. Many old churches owed their only claim to beauty on account of the addition made at various times and to accidental circumstances.—Mr. Jemmett thought that the sentimental aspect received more consideration than the utilitarian. He was inclined to try and reproduce the idea of the original designs in its completeness, and would pull down all the later additions.—The discussion was continued by Messrs. W. B. Hopkins, G. Lucas, A. S. Tayler, and H. Rose.—In summing up the discussion, the Chairman said he agreed with Mr. Jemmett to a certain extent, and remarked that in some cases copying must of necessity be resorted to; but a new addition should be treated in a modern spirit.—A vote of thanks was passed with acclamation to Mr. Mallows, and he briefly replied.—The Chairman announced that the next meeting would be held on Nov. 4, when a debate on "Modern Architectural Tendencies as illustrated by Contemporary Work" would be opened by Messrs. Ellgood, Jemmett, and Lanchester.

THE MARTELLO TUNNEL.

AMONG other heavy works engaging the attention of the South Eastern Railway at present is the troublesome task of cutting down the chalk cliffs which tower up for a great height above the Martello tunnel, between Folkestone and Dover. The Martello tunnel—so called from one of those old coast defence towers being situated immediately over it—has always been, if not an anxiety to the Company, at least a cause for constant vigilance, on account of the frequent landslips which have threatened the stability of it. The chalk rests here on a stratum of blue gault, and the landsprings percolating through cause constant slides and fissures. The tunnel has been consequently watched for some years past, and works have been for some time in progress which have for their object, not actually the opening of it into a cutting, but the reduction of the crushing weight above. Only 10ft. thickness of chalk will be retained above the crown of the arch, which will then be relieved of the downward pressure, and will serve the very necessary purpose here of resisting the strong lateral thrust exercised by the seaward lie of the chalk and gault formations. It will then be not so much a tunnel as arched over retaining walls. It should be added that the Martello tunnel is 766yds. long, and that some 300 men are engaged on the works.



MARTELLO TUNNEL.

A SERIOUS INDICTMENT.

THE ALLEGED IDLENESS OF BUILDING TRADE OPERATIVES.

CONTROVERSY still rages around the allegations of idleness in the building trades. This week something is said in defence of the maligned workmen. Mr. H. R. Taylor, L.C.C., of the Operative Bricklayers Society, writes:—"A London architect charges the building trade operatives in general, and the bricklayers and plasterers in particular, with idleness, incompetence, intemperance, and blackballing, but anyone reading between the lines of his effusion will observe that the 'independence' of the workmen is the chief burden of his complaint. With regard to the charge of idleness I feel proud to say that the average workmen have the most supreme contempt for the idler of every class and station, and I would further remind the writer and all those whom it may concern that the proportionate number of idlers among the working classes are infinitesimal as compared with the idlers belonging to the same class as 'A London Architect.' As to incompetence, I am bound to admit there are bricklayers and bricklayers, just as there are architects and architects, a truism your correspondent will readily appreciate. An indifferent bricklayer would, in all probability, make an excellent architect, but an indifferent architect could never become an excellent bricklayer, and indeed the out-of-work tramcar men he refers to would find it much easier to become professional architects than skilled bricklayers. The sober, industrious, and best workmen can only be found on the best jobs, leaving those jobs where the materials are inferior and the work shoddy to be manned by the indifferent and less thrifty workmen, evidently the class of work and the class of workmen 'A London Architect' is most conversant with. Bricklayers, like architects, are not 'paragons of virtue,' and why bricklayers should be condemned for blackballing a man when they are only following the example set them by the medical, legal, architectural, and other professions, I am at a loss to know. Again to charge the increased cost of building to labour only is manifestly unfair, the increase being chiefly due to the rise in prices of building materials, bricks and cement alone having risen in price between 50 per cent. and 60 per cent., a point on which the writer is discreetly silent, presumably because the workers do not get the benefit. But when the writer sighs for 'the good old days of Queen Anne' the murder is out, because in these 'good old days' the wages paid, the hours worked, and the conditions of labour generally were fixed by the employers, and if necessary enforced by law from which the workmen had no appeal. The organisation of labour has changed all that, and to-day the workmen can meet employers and architects on something like equal terms which apparently gives umbrage to 'A London Architect.' Hence these tears. The few careless and indifferent workmen who exist to-day are the results of the conditions of labour which obtained a few years ago, and for which unscrupulous employers, indifferent architects, and a thoughtless and shortsighted public were to blame, and if 'A London Architect' thinks I am wrong I am prepared to meet him and debate the matter in public."

A FOREMAN'S REPLY.

"A Foreman Mason with Forty Years' Experience" also replies to "A London Architect" "This individual," he says, "makes a very serious mistake in writing as he does, and I think it is a shame to bring such an infamous charge against the workmen employed on buildings, as it is far from being correct. He seems to be under the impression that all workmen are drunkards (I, myself, am an abstainer). It is true there are a few who indulge rather too freely, but it is most unfair to class all of them the same, and as regards 'a large proportion' not being at work on Monday mornings, this must be considerably

reduced to a few, whom he seems to base his letter on. But he must remember that no matter where you may go there are black sheep in every flock. It is a gross injustice to say that the men do not do a fair day's work, as it is certainly untrue, and to prove this, how is it that builders amass such a large amount of money in a short time? There are, I am very sorry to say, some people who would like to force men to work all day and night for a mere pittance, and sweat them by not giving them time to do their work properly, which is the cause of a good many of these accidents. I should like to make these individuals change places with the men and see how they would like it. It is not very laborious to visit the different jobs and find fault with the men and try to drive them, but let them change places—I am perfectly sure the men would not be averse to this. I do not know whether this architect is an Englishman or a foreigner, but by the tone of his letter I should say he had more than an ordinary interest in the use of this so-called fibrous plaster. If he is an Englishman I do not think he has much respect for his fellow countrymen, and surely we see now more than enough of inferior workmanship labelled 'Made in Germany.' At the present date we go in for modern sanitary buildings, not old-fashioned 'Queen Anne's' style of encouraging infectious diseases by the re-introduction of wooden mouldings and canvas hangings for walls, which would be more liable to cause fire and destruction than plastering would do. You might as well bring into fashion the old original velocipede and do away with the up-to-date pneumatic bicycle. What is more ridiculous? And as to doing away with the plasterers altogether he would have to deal with all the other building trades. It is simply absurd to write such rubbish. He writes: 'A man of ordinary physique and intelligence' can lay bricks in a fortnight. I ask, Can he? It is not so easy as it looks, and he would find it out if he had a try. A good many architects don't know the difference between 'A' and a bull's foot as regards the different articles used for building."

THE ATTACK RESUMED.

Another correspondent—"A Contractor"—resumes the attack:—"I agree with every word and statement 'A London Architect' makes. Things have now come to such a pass that something must be done to put a stop to this disgraceful state. Only the other day the bricklayers on one of my contracts objected to the general foreman spending so much of his time on the scaffold looking after them. They will next object to the architect and builder going on the works at all. Brickwork, which a few years ago cost £3 to £3 10s. a rod for labour, now costs anything from £7 to £10. It is impossible for a contractor to make a profit under such conditions, and it is equally impossible for the general public to have their buildings executed at anything like a reasonable figure. My firm do work in the country as well as in London, and I can assure you that the same serious state of affairs which exists in town exists in the provinces. 'A London Architect's' suggestion for getting over the plasterer's difficulty is a good one, and I only hope other architects will do as he suggests; but his method of dealing with the bricklayers is, I fear, impracticable. The moment a contractor puts on tramcar men, &c., to do bricklayer's work, the bricklayers, and probably all the other trades, would strike, and the last state of that builder would be worse than the first. What I suggest is that if the bricklayers will not do a fair day's work (and it is a very easy matter to have a standard of work arranged) the master builder shall federate, and simply close their works in London and the provinces until such time as the men will agree to do a fair day's work. I am convinced that if the builders, backed up by the architects, would do this the present scandalous state of things would soon cease to exist."

BUILDING IN THE WESTERN STATES.

"H.P.G.B." writes: "How is it that in America and Canada, especially in the Western parts,

where labour costs most, the builder can get so much better value for money out of his men? I speak from experience, as I worked in Manitoba and British Columbia for several years. There they have their trade unions, as strong or stronger than we have, but somehow the workman takes a pride in being a rapid as well as a good worker. He is ashamed to see the next man on the job getting over more ground than himself. Moreover, foremen over there are not afraid to speak to their men, even to the length of downright bullying. These men are for the most part from the Old Country, enticed abroad by tales of high wages, and forgetful or ignorant of the fact that in Manitoba, on account of frost, and in British Columbia on account of rain, building operations are practically suspended for five months in the year—November, December, January, February, and March. Two-thirds of them, especially the married ones, if they felt sure of a job, would be glad to return to England, and pay their own expenses. I feel perfectly certain that in a week in November I could pick up in Vancouver alone fifty first-grade operatives in any branch of the building trade, who would be only too glad to come home to a guaranteed job, sign an agreement not to join the union, and pay their own expenses. These would be men who had been long enough in the Colonies to have shaken off the traditional crawl of the ordinary British workman; and I would commend a trial to some enterprising firm, who can spare a representative to make the trip, and try what I suggest."

WHAT IS A FAIR DAY'S BRICKLAYING?

Mr. Harry Hems writes to us as follows: "In your article headed 'A Serious Indictment' in this week's issue occurs the following: 'One of your correspondents says he can remember when a man would lay 800 to 1000 bricks per day. On first-class work this was a recognised day's work of ten hours. Three or four years ago I could only get from 400 to 500 laid in the day of nine hours, but now the average number does not exceed 200 on precisely similar work.' In the Society of Arts 'Artizan' reports on the Paris Universal Exhibition of 1878 (page 350), occurs the following, from the pen of Mr. George M. Berry: 'In Paris I understand a bricklayer will execute about 2 metres cube of brick work a day. That would be equal to laying 990 bricks in eleven hours. This number is less by about 300 to 400 in eleven hours on similar work as compared with the day's work of an Englishman.' According to this statement a London bricklayer (if Mr. Berry's report be true) lays about 125 bricks an hour. How can this statement be reconciled with the present imputation that he only lays 200 a day?"

A SUGGESTION.

"Architect" writes to us: "As an architect in practice since 1865 I can thoroughly endorse all you state in your article of the 19th inst., though there are exceptions. Some houses are building in my road by a well-known firm of builders. It is a pleasure to see the men work. They are all paid day work and are total abstainers. My scheme of a remedy for the present state of things is to raise the status of the skilled manual workman. I suggest the formation of a guild of the constructive workers, whose members would be well educated, and pledged to good behaviour, and to do the best work in their several trades, and a fair and honest amount of it, as ruled by a committee of the members. They would dress for work appropriately as they would for athletic sports, and insist upon proper dressing room with appliances for washing, &c., on every job. If such a society can be practically worked, and I believe it can, they would never want for employment, and at good wages. Parents had better put their sons as apprentices to such, than as clerks. They would earn more and with shorter hours. I should abolish the wasteful practice of working before breakfast. Let the men come at eight o'clock, having had their breakfast; their dinner twelve to one, and go home at five p.m. That would be eight hours a day, and quite enough for honest work."

Professional Items.

BALLYSHANNON.—The new church of Cashelard, at Ballyshannon, which has just recently been dedicated, is situated on the site of the old chapel. The contract was placed with Mr. David Funston, Brookboro'. The building was designed by Mr. E. J. Toye, Derry, and is of blue limestone, the roof being covered with Bangor slates.

BIRMINGHAM.—Another arcade is to be built in Birmingham, between New Street and High Street, independently of the one already projected by the City Arcades Company in connection with their scheme for erecting an arcade between Corporation Street and High Street. The plans, prepared by Messrs. Essex, Nicol, and Goodman, provide for the construction of an arcade from New Street to the Louvre, in High Street, and joining at right angles the arcade about to be commenced by the City Arcades Company, between High Street and Corporation Street. Under the new scheme there will be three shops fronting New Street, with entrance to professional and other offices above, and fourteen shops in the arcade, over which are to be ranges of offices and showrooms. Provision has been made for a large café underneath the whole of the front block of buildings, with imposing entrance from the arcade, and a staircase down from one of the New Street shops. The arcade is to be three stories in height, and the passage will be covered with an ornamental glass roof. The interior elevation is to be faced with ornamental glazed faience ware, while the elevation to New Street will be similar in style to the Louvre buildings. The first section of the City Arcades contract is only from High Street to about half way towards Union Passage, but as the Louvre Arcade is expected to be constructed at the same time, there will be a complete arcade joining New Street with High Street in the shape of the letter L. The total cost of the new arcade is roughly estimated at £25,000.

BELFAST.—The new electric supply station at Belfast is at present almost finished. The principal façade, which is toward East Bridge Street, along which it extends for about 225ft., is treated in red brick and Giffnock stone in the style of the English Renaissance. The chimney stack, a novelty in tall chimney construction, is of quite an ornamental character, the red brick being judiciously relieved with courses of artificial stone, while a cornice and mouldings of the same material has been introduced, the whole being surmounted by a cast-iron cap, to which four lightning conductors have been fixed. The height of the structure is 175ft., and diameter at base 25ft. The contractors for the buildings are Messrs. J. and W. Stewart, the architects being Messrs. Graeme-Watt and Tulloch.

BRADFORD.—The new St. Catherine's Home, Bradford, has been formally dedicated. The building is situated in St. Mary's Road, Manningham, adjoining Salem Chapel, and opposite to the Children's Hospital. The building, which has been constructed from designs prepared by Mr. James Ledingham, architect, is built of local stone, and the exterior is in a modified Queen Anne style, without much ornament, but what ornamentation there is is concentrated upon the entrance and several principal features of the building. The most prominent characteristic of the new building, both in its architectural form and internal arrangement, is the absence of many features of uniformity and regulation usually associated with hospital life. The following are the principal contractors:—Masons and joiners, John Moulson and Son; plumbers, Wearden and Co.; slater, Thomas Nelson; heating apparatus, Joseph Thorp; painters, S. Lupton and Sons; electric light, G. A. Steintal; wrought-iron work, Walker and Co.; furnishing, Alfred Speight.

A new Board school has just been opened at Clayton, Bradford. The school is built on the

central hall principle, and consists of two sections, divided by a partition, which can be removed, when the requirements of the school demand it, without destroying the unity of the plan. Accommodation is provided for 600 children—400 in the mixed department and 200 in the infants' department. The plans of the building, which have been prepared by Mr. Abraham Sharp, of Bradford, were accepted in open competition. The work has been performed by the following contractors:—Mason, Ephraim Balmforth, Queensbury; joiner, Ineson Taylor, Keighley; plumber, A. Walton, Clayton; slaters, J. Smithies and Sons, Bradford; plasterer, S. Sunderland; heating apparatus, Hargreaves and Dewhurst, Bradford; painter, W. Sharp; ironfounders, Taylor and Parsons, Bradford.

The new school which has been erected at Sandy Lane by the Bradford School Board is built facing the main street of the village of Sandy Lane, and the area of the site is 5539 square yards. The cost of the school is:—Site, £830 17s.; buildings, £3176 12s. 3d.; furniture, &c., £128 13s.; other expenses, £443 17s. 9d.; total, £4580. This amount includes asphaltting and other work yet to be done. The school has been erected from plans prepared by Mr. E. P. Peterson, and the following were the contractors:—Masons, Messrs. C. Booth and Son; joiner, Mr. C. Helliwell; plumbers, Messrs. T. and K. Pratt; plasterers, Messrs. J. Black and Son; slaters, Messrs. Nelson and Son; painter, Mr. S. Cockroft; ironwork, Mr. W. Longbottom; heating apparatus, Mr. T. Mears.

CHESTERFIELD.—A Diamond Jubilee Drill Hall has been erected at Chesterfield on a site presented by the Corporation in Ashgate Road. The hall is constructed from competitive designs prepared by Mr. W. Cecil Jackson, Chesterfield. It has a frontage of 165ft. on Ashgate Road, and the total cost is put at £2500. The building is comparatively plain in style. The elevations are of brick, with stone dressings, and relieved with strong buttresses with ornamental stone terminals. The main entrance is in the centre of the front, facing Ashgate Road. This takes the form of a vestibule, 12ft. square, and elaborately ornamented in stone. On the front face are carved the arms of the Derbyshire Regiment and the Borough Arms, surmounted by a lion's head. On a scroll are the words "Diamond Jubilee Drill Hall," and oak and laurel leaf work is tastefully interwrought. A turret and a flagstaff surmount the roof. The greater portion of the interior is devoted to drill purposes, forming a room 156ft. long by 55ft. in width. At the eastern end of the hall a portion has been partitioned off and apportioned to the headquarters' staff, comprising officers', sergeants', quartermaster's, adjutant's, and clerks' rooms, and armoury. In the basement is a room which can, if necessary, be converted into a rifle range. The roof is iron girdered—a clear span of 50ft. At the western end of the hall is a very neatly designed band gallery, approached by a double stairway. Mr. John Wright, of Chesterfield, is the contractor.

COMPTON (Devonshire).—At Compton village a new Baptist chapel and school has just been opened. The new building has been erected by Mr. Samuel Blatchford, contractor, Torquay, from drawings prepared by the architects, Messrs. Bridgman and Bridgman, of Torquay and Paignton. The contract sum was £360. The walls have been built with local limestone, dressed for the front, and are relieved with red brick. Bath stone has been used in the front façade for strings, lintels, arches, window tablets, and parapet copings, &c.

DORCHESTER.—The steady improvement of South Street, the main artery of the town, has been carried a step further by the erection of a new shop. The plans were prepared by Mr. A. L. T. Tilley, architect, Dorchester, and the work has been carried out by Mr. J. Selby, builder, of Broadmayne. The shop front is

made the chief feature, and is constructed of glazed faience ware, whilst the inner walls are lined with glazed tiling in similar style. This faience ware and tiling is real Dorset, having been manufactured at Messrs. Carter and Co.'s potteries at Poole.

GATESHEAD.—The new parish house erected in connection with St. Bede's Church, Sunderland Road, Gateshead, was opened a week ago. The new building is of stone, the roof is solidly framed, and cleaded, then covered with felt and slated. The inside part is worked in a pretty and effective style.

HOLMFIRTH.—A new working men's club has been built at Scholes, near Holmfirth. Mr. G. H. Birch, F.S.A., of London, prepared the plans, which are being carried out by the following contractors:—Masons, Messrs. Marsden and Sons, Holmfirth; joiner, Mr. Jonas Battye, Scholes; plumber and glazier, Mr. Joah Tolson, Holmfirth; painter, Mr. Eli Quarmby, Holmfirth; plasterer, Mr. Haigh, Holmfirth; and hot water heating apparatus, Messrs. Thornton, Huddersfield. The building will be a substantial stone structure.

HULL.—New baths were opened recently in the eastern division of Hull. The building is a brick structure, and adjoins the Reckitt Library, in Holderness Road. The front elevation is an artistic treatment of red brick and terra-cotta, which harmonises with the architecture of the adjoining library. The plans of the building were prepared by the City Engineer (Mr. A. White) and the Assistant Engineer (Mr. Bricknell), and under their supervision the work has been carried out. The premises have cost about £15,000.

KENDAL.—The new Zion Chapel at Kendal, which has been in course of erection about two years, has recently been dedicated. The general shape of the building is oblong; it is 106ft. by 54ft., and accommodation is provided for 700 people. The building comprises spacious vestibules, lofty nave, north and south aisles, and a chancel 20ft. in depth, with semi-circular apse, and contains organ and pulpit. The exterior is faced with cut freestone in the Gothic style. The contractors, who have done their work in a first-class manner, were:—Masonry and slating, Mr. Wm. Thomas; carpenter and joiner's work, Mr. Wm. Hutchinson; plasterer's work, Mr. Benjamin Davis; plumbing and gasfitting, Mr. Jacob R. Tanner; and painting and glazing, Mr. Jas. Hine. The total cost, exclusive of site, is about £4500. The building is from the designs and supervision of Mr. Stephen Shaw, architect, Kendal.

LANCASTER.—Sir Thomas Storey, of Lancaster, has just presented to the trustees of the Royal Albert Asylum for Idiots from the North of England a handsome building, which is to be used particularly as a home for feeble-minded girls. The architect was Mr. E. Howard Dawson, who unfortunately has not lived to see the completion of the work.

LEEDS.—The contracts for the extension of works for Messrs. Harding, Richardson, Rhodes, and Co. Limited, have been let to the following firms:—Excavator, bricklayer, and mason, Wade Bros.; terra-cotta work, A. Whitehead; carpenter and joiner, Wm. Nicholson and Son; slater, J. Season; plumber, E. Tattersall; ironfounder, Bagshaw and Son, Batley; painter, T. Heptonstall. The total amount of the contract is £15,462. The work will be proceeded with immediately from the plans and under the supervision of Mr. William Bakewell, F.R.I.B.A., Leeds.

WOODBIDGE.—The fine parish church of St. Mary, at Woodbridge, in which a "Jubilee" window was placed some few weeks ago, has been further adorned by the insertion in the north wall of the north side of a memorial in similar form of the late Mr. Thomas Carthew. The new window was executed by Mr. A. L. Moore, of Southampton Row, London.

Enquiry Department.

"STUDENT."—Will you please forward your address? A letter addressed to you lies in this office.—Ed. B.J.

THE SOCIETY OF ARCHITECTS' EXAMINATION.

To the Editor of THE BUILDERS' JOURNAL.

DEAR SIR,—Where can I get particulars of questions set at the examination held by the Society of Architects a fortnight ago?—Yours truly,
M. P. L. R.
Swindon, Wilts.

Write to the Secretary of the Society, St. James's Hall, Piccadilly, W.

GIRDERS.

To the Editor of THE BUILDERS' JOURNAL.

DEAR SIR,—Will you kindly oblige by explaining the best method to find the weight upon the girder marked 1, 2, 3, and 4 upon the accompanying sketch, and also the sizes of girders required? Thanking you in anticipation.—Yours faithfully,
"NISBET,"
Newport.

Each girder, of course, carries the entire weight of the wall resting on it, but, in addition to this, girders 2 and 4, as the joists run across the building, carry easily ascertained proportions of the loads on the floors and roof, a fair allowance being $1\frac{1}{4}$ cwt. per foot super for floors, and 60 lb. per foot super for roof, to include weight of structure and ordinary live loads. These are all borne as evenly distributed loads. Then half the load borne by girder 4 is conveyed to girder 3 at the point of

A. E. H. is not entitled to do anything which will interfere with the right of his neighbour to cause the sewage from his premises to flow under A. E. H.'s house. I do not think that if he leaves the existing drain as it is, and constructs a new one for the drainage of his own house exclusively, his neighbour will have any cause of complaint, or be able to insist on connecting his own drain to it. But if A. E. H. replaces the existing drain by a new one, his neighbour will be entitled to the benefit of it. All this is irrespective of the question whether the so-called "drain" is or is not a "sewer," and therefore to be replaced by and at the cost of the Vestry, and also of the question whether his neighbour is or is not bound to contribute to the expense.

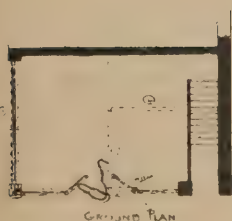
FLOOR CONSTRUCTION.

To the Editor of THE BUILDERS' JOURNAL.

DEAR SIR,—I have to construct a yard floor covering some cellaring. The floor must support a movable weight of three tons (a loaded dray and two or three horses). Would you be so kind as to give me some idea as to the thickness of concrete at the crown and the springing, and also the rise? Would it be safe if it were less than 10 in., as I want the floor to take up as little room as possible? I should feel much obliged if you would give me the name and price of some up-to-date and practical book on this sort of construction and ironwork generally.—Yours faithfully,
"COMPASSES."

Sheffield.

A 10 ft. 6 in. square slab of concrete is much too large to trust with such a load unless steel joists be bedded in it at not more than 2 ft.



junction, and a certain amount of this, according to the law of inverse proportions, again conveyed to the point of junction with girder 2, as is also half the distributed load on girder 3. For more detailed information we would refer our correspondent to "Stresses and Thrusts," by G. A. T. Middleton, published by B. T. Batsford.

HOUSE DRAINAGE.

To the Editor of THE BUILDERS' JOURNAL.

DEAR SIR,—I should be much obliged if you can give me legal advice on the following matter. I have the under-lease of a dwelling-house, and the Vestry has ordered me to reconstruct the drains. The house next to mine belongs to the leaseholder of the two houses, and the drains for both houses run under my house. Am I compelled to have the drainage of the next house passed into my new drain, or can I have a separate drain for my house, and have the other house pipes disconnected?—I am, Sir, yours truly,
A. E. H.

Our legal adviser's opinion is as follows:—

centres, and in any case the arched form of soffit should be avoided, and the concrete be not less than 8 in. thick—this for spans of 2 ft. only—when subject to severe moving loads. It would be better even then to embed in it some form of expanded metal lathing, while a better floor still for the purpose would be one formed of steel decking, such as is supplied by Messrs. Lindsay. Needless to say the ironwork should be carefully calculated. See Middleton's "Stresses and Thrusts," Adams' "Strains in Ironwork," or the fourth volume of "Building Construction" (Longmans).

THE Bishop of Rochester has opened new schools connected with St. Andrew's Church, Leeds.

THE Brighton Town Council have adopted a scheme for clearing a condemned area in the eastern part of the borough. Over 700 persons will be displaced, but accommodation for 400 will be provided on the site when a better class of houses have been erected. Making allowance for the value of the land, this improvement will cost nearly £25,000.

Under Discussion.

A LECTURE ON ENGLISH ARCHITECTURE.

In the Lecture Theatre of the Durham College of Science, Newcastle, Mr. Arnold Mitchell, F.R.I.B.A., recently lectured upon "English Architecture." Mr. Mitchell devoted his remarks to the first period in English Architecture—the Norman period. Referring to the cathedrals, he said the impression one got on visiting one of these great Norman structures was the extraordinary massiveness and strength of the work, and its severe simplicity. This early characteristic was due to the ignorance of the builders—not necessarily ignorance that was wrong, but want of knowledge of how to use the materials employed in their buildings to the best advantage. The designs of these buildings were not a sudden inspiration, but were the gradual outcome and growth of what had gone before; and the builders, in the first great period of Architecture had everything to learn. By means of lantern illustrations, the lecturer explained how this progress was developed through the Norman period, from the severe simplicity of the earlier structures, with the elementary cutting of stonework by the axe, to the more elaborate ornamentation of the later structures, developing with the greater skill in the use of the chisel. The great piers, he said, in the older Norman cathedrals, were not so strong as they looked. The dressed stone that was visible on the outside was merely a veneer or casing, and the core was filled with the roughest of rubble. It sometimes happened that, under pressure of the immense weight, the rubble core was squeezed down, and the casing burst. This occurred, some years ago, with the central tower of Peterborough Cathedral, which had to be taken down and rebuilt. The lecturer explained, too, that the earliest Norman buildings were fortresses, and that, when they turned their attention to churches, the builders carried into them the same idea of strength and simplicity; and he illustrated this by pointing out the similarity between the arrow slits in the castles and the narrow windows of the churches. Proceeding, Mr. Mitchell showed how, with the better knowledge of how to use their materials and tools, the builders made their structures lighter and more carefully ornamented, illustrating this, particularly, in the elaboration of the triforium and tympanum.

WROUGHT IRON WORK.

The Edinburgh Architectural Society opened its winter session on Wednesday, the 19th inst. in the workshop of Messrs. Henston and Stewart, smiths, to hear a paper by Mr. Percy E. Nobbs, M.A., on "Wrought Iron Work." The President, Mr. W. N. Cumming, A.R.I.B.A., was in the chair. After dealing with the history of wrought iron in this country, the most characteristic Continental types were described—the stamped work of the Ile de France of the 12th century, the German Renaissance interlaced work, Spanish Grilles and the Baroque and Rococo of the great French period. In comparing these manifestations with their contemporary work at home, the finding was that much greater skill had been attained on the Continent, but that English work was the more worthy of study, as its designers had invariably been ruled by the material, and had not been led away into the exuberances which make so much foreign work—rather a wonder of ingenuity than of beauty.—Mr. A. Lorne Campbell, the critic, touched upon the rapid improvement in wrought iron work during the last few years, and recommended the study of the best modern work.—The paper was illustrated by a quantity of drawings and photographs, and practical points were discussed in an examination of the work in the shop, and Mr. Stewart exhibited the process by doing a bit of floral work before the audience.

KEYSTONES.

THE mummy rooms at the British Museum have been completed, and are now open to the public.

ADDEAN PARK, near Chiswick, comprising a capital mansion and some 600 acres of good land, has been sold by Messrs. Osborn and Mercer, of Albermarle Street, W., to Mr. Tennent, Haddingtonshire. The price paid was over £20,000.

FARRINGTON ROAD is about to be closed for relaying. The Holborn Board of Works has accepted tenders for relaying the roadway with asphalt, and the footways with Victoria stone, and it is intended to put the work in hand shortly.

THE Dean and Chapter of Norwich have instructed Messrs. Norman and Beard Limited to build a new organ for Norwich Cathedral, at a cost of £3000. The new instrument will stand on the screen, and is expected to be completed next June.

THE Bishop of London has recently consecrated the new Church of Emmanuel, West End Green, Hampstead. It is built of red bricks, having a seating accommodation for 1000 persons. The cost has been £10,200, towards which over £9000 has already been raised.

THE Vaudeville Theatre has long suffered under structural defects of a very serious kind. Improvements have been from time to time effected, but the place still fails to satisfy the exacting requirements of the County Council. Recently, to meet the views of the Council, an extensive scheme of improvements has been formulated; but the Theatres Committee are still not satisfied, and they have decided to inform the Lord Chamberlain to that effect. Short of an entire rebuilding of the theatre, it is difficult to see how it is to pass the official scrutiny.

COLONEL C. H. LUARD, R.E., held an inquiry in the Town Hall, Scarborough, on behalf of the Local Government Board, with respect to an application by the Corporation for power to borrow £33,575 for the purchase of the St. Nicholas House estate. The Corporation are acquiring the property with a view of using the mansion-house for public offices, and converting the gardens into pleasure grounds for the use of the public.—With reference to the St. Nicholas House estate, Mr. H. W. Smith (borough engineer) produced the plans of a suggested scheme for dealing with the existing mansion-house. The outer walls of the building, he explained, would be preserved. Inside there would be a rearrangement of rooms. A council chamber would be provided, as well as rooms for the use of councillors, and in addition accommodation would be provided for various municipal offices, which at present were scattered about the borough.—In reply to the Inspector, the Town Clerk stated that the existing Town Hall in Castle Road would probably be disposed of; but that was not yet settled. Then St. Nicholas House would become the Town Hall. The Corporation wished to secure the gardens for the use of the

public, in which case they would be saved from the hands of the speculative builder.—The Mayor (Mr. James Pirie) tendered evidence as to the value of the property. He said it was in the market, and in private hands it might have been used to the detriment of the town. That was the reason why the Corporation were so anxious to secure it. He valued St. Nicholas House and grounds at £14,075, the Exhibition building (at present let on lease at £500 a year), at £9000; a house and shop in St. Nicholas Street, £2500; and surplus land, £8000.—Mr. S. N. Smith, Chairman of the Finance Committee, stated that in his opinion the property could have been sold for more money. One consideration which prompted the purchase was the fact that the Corporation were continually spending large sums of money on the present Town Hall, which was entirely inadequate for the needs of the borough.

TENDERS.

Information from accredited sources should be sent to "The Editor." No results of tenders can be accepted unless they contain the name of the Architect or Surveyor for the Work.

ASHFORD.—Accepted for the erection of iron bungalow, for Mr. E. Kemp, The Woodlands:—
T. J. Hawkins and Co., Ashford ... £105 5

BARNSELY.—Accepted for the erection of five cottages, &c., Spring-street. Messrs. Wade and Turner, architects, 10, Pitt-street, Barnsley:—
Building.—James Bycraft, Park-grove, Barnsley ... £494 0

Plumbing.—William Dransfield, Barnsley ... 18 18
Plastering.—Thos. Marshall, Barnsley ... 44 10
Slating.—Miss M. Fleming, Barnsley ... 53 5
Painting.—Clarke Bridge, Barnsley ... 12 6

BOLIVIA.—Accepted for the erection of iron Customs house, Bolivia (South America), for Messrs. Avelino, Aramayo, and Co.:—
T. J. Hawkins and Co., Ashford, Middlesex ... £312

BRISTOL.—Accepted for the erection of a laundry, South-street, Bedminster, for the School Board. Mr. W. V. Gough, architect, 24, Bridge-street, Bristol:—
Bale and Westlake, Clifton ... £470

BURTON-ON-TRENT.—Accepted for the execution of street works, Eldon-street, &c., for the Corporation. Mr. G. T. Lynam, Borough Engineer, Town Hall, Burton-on-Trent:—
Eldon-street.
G. F. Tomlinson, Derby ... £191 18 7

Nelson-street.
Holloway and Son, Wolverhampton ... 424 13 11

CHESHAM (Bucks).—Accepted for the erection of new shops, additions, stores, bakehouse, and slaughter-house, &c., in the Broadway, Chesham, for the Chesham Co-operative Society Limited. Mr. Geo. H. Green, architect, 340, High-road, Kilburn, N.W., and High-street, Chesham, J. Mead, Chesham ... £2,560
[The lowest of six tenders.]

CLACTON-ON-SEA.—For sewerage, kerbing, &c., West Clacton Estate. Mr. T. H. Baker, architect, Colchester and Clacton-on-Sea. Quantities by architect:—
Contract 4.—Freeland-road.
Moran and Son £2,145 0 0 Mackenzie & Son, ... £1,500 10 0
Everett and Son ... [Architect's estimate, £1,400.]

Contract 5.—Trafalgar and Nelson Roads.
Moran and Son £2,142 0 0 Mackenzie & Son, ... £1,482 12 0
Everett and Son ... [Architect's estimate, £1,435.]

Contract 6.—St. Vincent and Collingwood Road.
Moran and Son £1,592 1 10 Mackenzie & Son, ... £1,087 15 0
Everett and Son ... [Architect's estimate, £1,040.]

* Accepted.

CRADLEY HEATH (Staffs.).—For the supply of 500 tons Rowley granite, for the Quarry Bank Urban District Council:—
Per ton. Per ton.
Richards and Blewitt ... 8 0 Rowley Granite Co., ...
E. Richards ... 7 9 Rowley Regis, Staffs.* 7 6

* Accepted.

EALING.—Accepted for the erection of villa residence at Castle Hill, Ealing, for Mr. Herbert Born. Mr. Edward H. Dance, architect, Quadrant-road, Thornton Heath:—
Strudwick and Pyrie, Ealing ... £1,295

ELGIN.—Accepted for the erection of two houses, Rothes. Mr. R. B. Pratt, architect, County Bank House, Elgin:—

Masonry.—McKenzie & Co., Lossemouth ...
Corpenry.—J. and A. Robb, Rothes ...
Plumbing.—Ross Bros., Duftawn ... £1,133 10
Slating.—Ogilvie, Elgin ...
Plastering.—Melver, Elgin ...
Painting.—Garven and Ward ...

FARNHAM ROYAL.—Accepted for extending the heating apparatus to warm three bedrooms and staircase. East Burnham-grove, Farnham Royal, Bucks. Mr. W. Colling, architect:—
T. Potterton ... £119

FOREST ROW (Sussex).—Accepted for fixing two ranges fitted with patent zig-zag boilers, and heating conservatory, drawing-room, hall, and landing from kitchen and scullery fires. Forest-view, Forest-row, Hartfield, Sussex. Messrs. Merrin and Wagstaffe, architects:—
T. Potterton ... £143

HARROGATE.—Accepted for levelling, &c., Northumberland-court, for the Corporation. Mr. S. Stead, Borough Surveyor, Harrogate:—
J. Frost, Harrogate ... £278 15 9

HENLEY-ON-THAMES.—For the erection of a town hall, for the Corporation. Mr. Henry T. Hare, architect, 13, Hart-street, Bloomsbury-square, W.C. Quantities by Mr. R. B. Hogg, 10, John-street, Adelphi, W.C.:—
Lorden and Son ... £12,777 Bottrill and Son ... £10,843

C. Gray Hill ... 12,583 Walden and Cox ... 10,692
G. H. Gibson ... 12,307 Kinglerie and Son ... 10,449
Cox and Son ... 12,000 W. Hawkins ... 9,900

C. H. Hunt ... 11,565 McCarthy E. Fitt, Reading (accepted) ... 9,766
H. Flint ... 11,263 Hughes ... 9,696

General Builders, Ltd. 11,150

HOLMWOOD.—Accepted for the erection of ornamental wooden lodge for Mrs. Eva McLaren at Minnickfold:—
T. J. Hawkins and Co., Ashford ... £350

LEWES.—For the erection of temporary iron asylum buildings for the accommodation of 100 patients, for the Visiting Committee of the East Sussex Asylum. Mr. Henry Card, County Surveyor:—
T. J. Hawkins and Co., Ashford ... £4,654 10

LITTLEHAMPTON.—For the execution of street works Gloucester-road, &c., for the Urban District Council. Mr. H. Howard, surveyor, Town Offices, Littlehampton:—
Gloucester-road.
Grounds and Newt in, Hounemuth ... £167

Purbeck-place.
Snwin Brothers, Littlehampton ... 131

LONDON.—Accepted for fixing patent zig-zag boiler, 105, Tilse Hill, Brixton, and warming dining-room, hall and staircase, study, drawing room, two bedrooms, and bathroom from kitchen fire, in conjunction with hot-water domestic supply, for Mr. W. Williams:—
T. Potterton ... £115

LONDON.—For the construction of the northern and south end outfall sewers, for the West Ham Corporation:—
R. Ballard ... £29,709 0 0 C. W. Killingback, ... £19,991 2 8

W. Neave & Son 23,834 0 0 and Co.* ... 19,975 11 5
B. Cooke and Co. 23,241 0 0 Pedrette and Co. ... 18,869 0 0
R. Jackson ... 22,638 0 0 G. Bell ... 19,715 0 0
T. Adams ... 22,431 19 8 Clift Ford ... 19,715 0 0
J. Jackson ... 20,330 0 0 * Accepted.

Engineer's estimate, £16,500.

MARLOW.—For the erection of stabling, for Messrs. Thomas Wethered and Sons, The Brewery, Marlow, Bucks. Mr. James H. Deacon, architect, High-street, Marlow:—
J. S. Carter ... £1,230 0 W. Lumpon ... £1,107 0
H. Harris ... 1,108 15

* Accepted provisionally.

NAIRN (N.B.).—For the erection of granite boundary walls at the cemetery, for the Parish Council. Mr. J. R. Douglas, C.E., Nairn:—
Excavation and Masonry Work.
John E. Gibb ... (granite) £1,091 18 10
Robert Squair ... (freestone) 841 0 0
Taylor and Smith ... (granite) 790 0 0
D. Mathieson and Co. ... (freestone) 705 3 3
Thomas McDonald ... (freestone) 584 9 0
James Farquharson, Nairn ... (freestone) 454 12 0

Wrought Iron Railing Work.
McDowall, Steven, & Co., Ltd. ... £431 13 5
Ditto ditto (cast-iron) 367 13 0
G. and W. Millar ... 267 10 0
James Abernethy and Co. ... 255 0 0
G. B. Smith & Co., Glasgow* (amended) 223 16 11
Inverness Foundry Co., Ltd. ... 222 8 3
Cameron and Co. ... 211 3 0

* Accepted.

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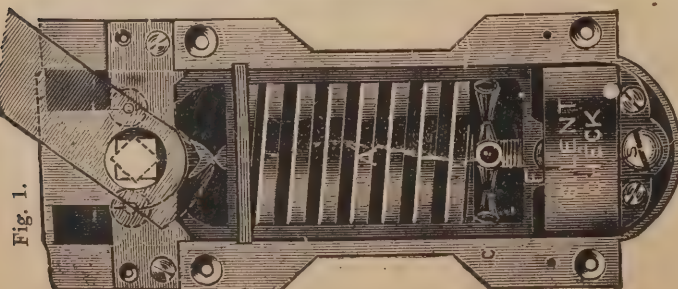


Fig. 1.

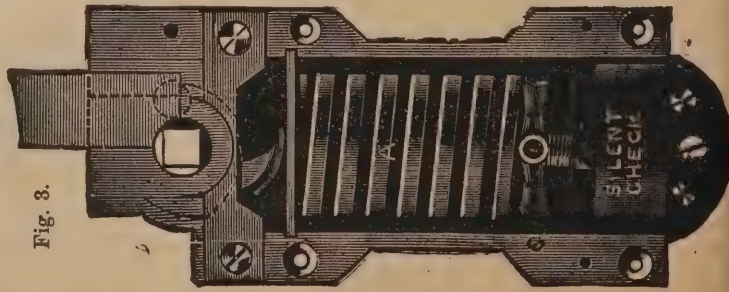


Fig. 3.

PORTSMOUTH.—For additions to workhouse infirmary, for the Portsmouth Island Union Guardians. Mr. C. W. Bevis, architect, Elm Grove-chambers, Southsea:—			REIGATE.—Accepted for the construction and erection of ornamental wooden homes at Duxhurst, for Lady Henry Somerset:—			SOUTHAMPTON.—Accepted for the erection of iron bungalow, for Mr. Ronald Baxter:—		
J. Crockerell	... £1,120	H. Jones	... £1,760	T. J. Hawkins and Co., Ashford	... £284 12 2	T. J. Hawkins and Co., Ashford	... £235	
P. Dowell	... 3,950	W. W. Learmouth	... 3,714	SKINNINGROVE, near Loftus.—For the erection of co-operative stores, for the Amicable Industrial Society Limited. Mr. Arthur Newsome, architect, Middlesbro':—		SOUTHEND-ON-SEA.—Accepted for making-up Clarence-road, for the Corporation. Mr. A. Fidler, C.E., Clarence-road, Southend:—		
Lalor Bros.	... 3,900	E. & A. Sprizings, Twyford-avenue, Stamford	... 3,700	Bricklaying, &c.—Cruddas and Son, Guisborough	... £1,263 12 2	Wm. Des, South-avenue, Southend	... £288	
W. W. Evans	... 3,800			Joinery.—W. Heckle, Guisborough	... 814 0 0	WELWYN.—Accepted for the erection of iron buildings, for Mr. Thos. Blow:—		
G. Davis	... 3,800			Plumbing.—J. M. Gowland, Skelton	... 147 0 0	T. J. Hawkins and Co., Ashford	... £600	
SALISBURY.—For additions to Workhouse, for the Union Guardians. Messrs. John Harding and Son, architects, 58, High-street, Salisbury:—				Plastering.—S. Kirby, Bishop Auckland	... 133 0 0	WESTON-SUPER-MARE.—Accepted for the erection of iron building, for Messrs. Heaton and Co.:—		
E. Pearce and Son	... £240	F. Dibben	... £150	Slating.—J. Harrison, Middlesbro'	... 123 10 0	T. J. Hawkins and Co.	... £178	
Wort and Way	... 220	W. Koles, Salisbury*	... 135	Painting.—R. Cockburn, Loftus	... 81 8 8			
T. Dawkins	... 163		* Accepted.					

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STEEL WORKS.

The Directors of the Caledonian Railway Company invite TENDERS for the ERECTION of a STONE and STEEL WORK of the new Hotel to be erected at Prince's-street Station, Edinburgh.

The drawings and conditions of contract may be seen at the Office of Messrs. PEDDIE and WASHINGTON BROWNE, Architects, 6, Albany-place, Edinburgh, on and after MONDAY, the 17th inst.

Copies of the specification, schedule of quantities, and form of Tender may be obtained from the Architects on payment of a deposit of Two Guineas per copy for the Mason Work, and One Guinea per copy for the Iron and Steel Work.

Sealed Tenders, addressed to the undersigned, and marked "Tender for Edinburgh Station Hotel," must be lodged with him on or before MONDAY, NOVEMBER 7th, 1898.

The Directors do not bind themselves to accept the lowest or any of the Tenders.

J. BLACKBURN,
Secretary.

Caledonian Railway Company's Offices,
Glasgow,
October 11th, 1898.

3

ADMINISTRATIVE COUNTY OF CARMARTHEN.
TO CONTRACTORS.

The County Council of Carmarthenshire are prepared to receive TENDERS for the ERECTION of a STONE BRIDGE of Three Arches and Approaches thereto over the River Towy at Dryslwyn, in accordance with the drawings and specification prepared by Mr. THOMAS CODRINGTON, M.Inst.C.E.

The drawings may be inspected between the hours of NINE a.m. and FIVE p.m. at the Office of the County Surveyor, The Shire Hall, Carmarthen, where a copy of the specification and form of Tender may be obtained upon depositing a cheque of £5, which will be returned on the receipt of a bona-fide Tender.

Sealed Tenders (on the form of Tender attached to the specification) must be addressed to me, endorsed "Tenders for Dryslwyn Bridge," and be delivered at

my Office at Llandovery on or before NOVEMBER 18th next.

The County Council do not bind themselves to accept the lowest or any Tender.

THOMAS JONES,

Clerk to the County Council,
Llandovery, October 6th, 1898.

THE BOARD of WORKS for the
LEWISHAM DISTRICT.
KERBING, TAR-PAVING, METALLING, AND
CHANNELLING WORK.

The Board is prepared to receive TENDERS for KERBING and TAR-PAVING the FOOTPATHS and CHANNELLING and METALLING the ROADWAY of Gabriel-street (part of), Forest Hill.

The plan and specification of the work and form of contract may be seen at these Offices (Surveyor's Department), where printed forms of Tender and other particulars may be obtained.

The Tenders must be on the forms issued by the Board, enclosed in an envelope, sealed, and endorsed "Tender for Gabriel-street," and must be delivered on or before FOUR o'clock on TUESDAY, NOVEMBER 1st, at the Offices of the Board, and placed in the box there provided for the purpose.

The Board does not bind itself to accept the lowest or any Tender.

By order,

EDWD. WRIGHT,
Clerk to the Board.
Lewisham Town Hall,
Catford, S.E.
October 20th, 1898.

HAMPTON WICK URBAN DISTRICT
COUNCIL.

The above Council invite TENDERS for the Supply and Delivery on land adjoining their Wharf by the River Thames of

550yds. (in Two Lots) of GUERNSEY GRANITE or QUENAST STONE, broken to pass a 2in. ring. Sealed Tenders, endorsed "Tender for Road Material," to be sent to the Chairman on or before NOVEMBER 5th next.

The Council do not bind themselves to accept the lowest or any Tender.

J. NIXON HORSFIELD, F.S.I.,
District Surveyor.

Hampton Wick,
October 11th, 1898.

TO BUILDERS AND CONTRACTORS.

The London County Council is prepared to receive TENDERS for the ERECTION and COMPLETION of NEW PUBLIC CONVENIENCES at Blackwall Tunnel (North Side).

Persons desiring to submit Tenders may inspect the drawings and obtain the specifications, bills of quantities, form of Tender, and other particulars at the Architect's Department, General Branch, No. 13, Spring Gardens, S.W., upon payment of the sum of Ten Shillings.

This amount will, after the Council or its Committee has come to a decision upon the Tenders received, but not before, be returned to the tenderer, provided he shall have sent in a bona-fide Tender and not have withdrawn the same.

Tenders must be upon the official forms, and the printed instructions contained therein must be strictly complied with.

The contractors will be bound by the contract to pay to all workmen (except a reasonable number of legally-bound apprentices) employed by them wages at rates not less, and to observe hours of labour not greater, than the rates and hours set out in the Council's list, and such rates of wages and hours of labour will be inserted in and form part of the contract by way of schedule.

Tenders are to be delivered at the County Hall in sealed covers addressed to the Clerk of the London County Council, and marked "Tender for Conveniences at Blackwall Tunnel."

No Tender will be received after TEN o'clock a.m. on TUESDAY, NOVEMBER 15th, 1898. Any Tender which does not comply with the printed instructions for Tender may be rejected.

The Council does not bind itself to accept the lowest or any Tender, and it will not accept the Tender of any person or firm who shall on any previous occasion have withdrawn a Tender after the same has been opened, unless the reasons for the withdrawal were satisfactory to the Council.

C. J. STEWART,

Clerk to the Council.

Spring Gardens, S.W.

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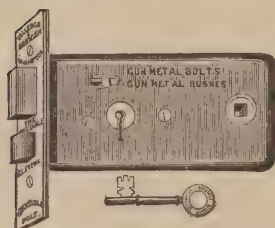
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234.-WASH-OUT.

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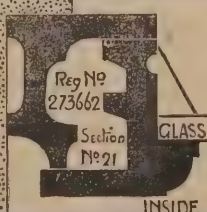
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OCTOBER 26TH, 1898.

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See Large Advertisement, Back Page, Monthly.

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Protective Metallic Coatings for Iron and Steel.*

BY SHERARD COWPER-COLES,
Assoc. M. Inst. C.E., M.I.Mech.E., M.Inst.E.E.

TO preserve iron and steel from oxidation it is necessary to exclude air and moisture, which is effectively done by a coating of zinc, cadmium, or copper, under certain conditions. Before dealing with the different processes for applying these metals, it will be as well to examine the chief causes that tend to corrode iron and steel. Amongst the most noteworthy changes of late years in the materials employed for constructional and engineering purposes is the very extensive substitution of steel for wrought iron. Ironmasters are dispensing with the puddler's services, and are using steel instead of puddled bars for rolling down into sheets, hoops, strips and other products, while engineers are now employing steel in many situations where formerly only iron was to be found. It is interesting to note, as demonstrating the almost exclusive employment of steel in shipbuilding, that during last year 98·5 per cent. of the tonnage claimed by Lloyd's Register was built of that material, and only about 1·2 per cent. of iron. The age of iron is giving place to

AN AGE OF STEEL.

With its many advantages over iron, steel unfortunately possesses one serious drawback: it corrodes more rapidly. At the present time it is a matter of very serious consideration with Lloyd's underwriters and with shipowners as to the advisability of encouraging more iron in the present type of cargo vessels so as to ensure a longer life to the ships. Mallet found the comparative liability of iron and steel to oxidation in moist air to be: cast iron, 100; wrought iron, 129; steel, 133·† The following table, compiled by Mr. B. H. Thwaites, is of considerable interest.

C = Coefficient of corrosion during one year's exposure in lbs. avoirdupois per square foot. (For value of C, see Table.)

W = Weight in lbs. of one foot length of the section exposed.

L = Length in feet of the perimeter exposed. If both the inside and outside perimeters are exposed to the corrosive action, they must both be included.

‡Y = The number of years' life of the metal
= $\frac{W}{C \cdot L}$.

Sir George Findlay, in his book "The Working and Management of an English Railway," states that the corrosion of steel rails as compared with iron rails is in the proportion of about five to four, and that in tunnels and manufacturing districts where sulphurous and other acid gases are present in the atmosphere, the life of a steel rail is shortened to a material extent. Mr. J. Farquharson has shown that while steel plates when tested alone lost about 12oz. by corrosion, iron plates similarly tested lost about 11oz. M. Gruner published the result of a year's researches into the comparative oxidisability of cast iron, steel, and soft iron under the influences of moist air, sea water, and acidulated water. He found that in twenty days steel plates lost three to four grammes every square decimeter of surface. Chrome steel rusted more, tungstated steel less, than carburized steel. Cast iron only lost about half as much as steel, and spiegel-eisen less than grey iron.

RECENT ANALYSES

have been made of twelve samples of boiler plates or tubes, all of which samples had

failed by corrosion when in use, the pitting being generally quite local. The percentage of carbon in these ranged from 0·3 to 0·31 (average 0·08), that of silicon from 0 to 0·89 (average 0·01), of phosphorus from 0·3 to 0·309 (average 0·102), of sulphur from 0·01 to 0·10 (average 0·04), of copper from 0 to 0·27 (average 0·12), of nickel from 0 to 0·13 (average 0·05), and of manganese from 0·05 to

dency of the iron to rust is increased. Mr. F. Carulla has observed that raw tar has a very marked effect on wrought iron. One case which came under his notice was some bolts which had been very badly pitted, the bolts were fixed in some valve boxes used for pumping water from a well where the water had been contaminated with tar residues. The water, on analysis, was found to be basic, and

TABLE OF VALUES OF C.

	CORRODING AGENTS.					
	Foul Sea Water.	Clear Sea Water.	Foul River Water.	Pure Air or Clear River Water.	Air of City or Manu- facturing District, or Sea Air.	Sea Water of Average Foulness.
	lb.	lb.	lb.	lb.	lb.	lb.
Cast iron	·0656	·0635	·0381	·0113	·0476	...
Wrought iron	·1956	·1285	·1440	·0123	·1254	...
Steel	·1944	·0970	·1133	·0125	·1252	...
Cast iron (skin removed by planing) ...	·2301	·0888	·0728	·0109	·0884	...
Cast iron, surface protected by gal- vanising	·0895	·0359	0·371	·0048	·0199	...
Cast iron in contact with brass ...	...	...	...	...	...	·1908
Cast iron in contact with copper ...	...	...	...	...	...	·2003
Cast iron in contact with gun-metal ...	...	...	...	...	...	·3493
Best wrought iron in contact with brass ...	...	...	...	...	...	·2779
Best wrought iron in contact with } copper ... ..	...	...	...	...	...	·4012
Best wrought iron in contact with } gun-metal ... ..	...	...	...	...	...	·4537

If painted once a year, multiply the result by 2·0

" " in two years, multiply the result by 1·8.

" " in three years, " " 1·6

0·82 (average 0·33) per cent. Of all these specimens, which exhibited but slight power of resistance to chemical attack, there was but one that was poor in manganese and phosphorus; and of two new tubes from the same works, one contained 0·51 per cent. of manganese, and was strongly corroded in spots by sulphuric acid, whilst the other contained only 0·09 per cent. of manganese and resisted attack. Hence, it would seem that these two elements are responsible, directly or indirectly, for the want of resistance to oxygen and water at comparatively elevated temperatures.

Sea water dissolves iron rapidly, and acts upon it more powerfully than upon steel. In the rusting of iron there is formed, together with an evolution of hydrogen (which combines with nitrogen, forming a small quantity of ammonia), ferrous carbonate. The presence in rust of ferrous oxide, carbonic acid, and ammonia is thus explicable. Rust formed under water, in consequence of the small amount of acid present, is usually richer in protoxide of iron, and, therefore, little magnetic, and of a deeper tint than that formed in air. It is accordingly assumed that the carbonic acid present in the atmosphere and in water acts in the production of rust similarly to those acids in which iron dissolves, the only difference being that in the rusting of iron the ferrous salt first formed changes before it is dissolved into basic salt or ferric hydrate; the change is a natural result of a solution of iron in an insufficient quantity of the acid or water present, or both. Where rusting has already begun, a change from the first-formed ferrous compound to ferric hydrate is attended by the setting free of the acid, which is then in a condition to act powerfully in the

FORMATION OF FRESH RUST.

Rust already formed should be quickly removed, in order that a fresh layer should not be produced; rust being promoted by acids existing in the air. Iron is destroyed more quickly in marshes and bogs than in lakes or considerable currents of water which are generally free from acids. Forged iron appears to rust on the bands of impurity occurring in it. A coating of fat protects iron for some time, but when the fat absorbs oxygen from the air it becomes rancid and in part changed into fatty acids, and the ten-

it was found to have a strong smell of naphthalene or gas liquor. The water yielded on analysis:—

Total solids at 110°	82
Free ammonia	0·43
Albuminoid ammonia	0·01
Chlorides, expressed as chlorine ...	12·20
Carbonates, expressed as CaCO ₃ ...	22·00

From the part that galvanic action takes in the corrosion of iron it follows that those substances positive to iron which in mere contact with it prevent it from rusting, promote the same if they are alloyed with the iron, for such are in general more positive than iron itself. Thus manganese alloyed with iron promotes the tendency of the latter to rust. So long, however, as the quantity is uniform and not too large, its effect in this direction is inconsiderable. In connection with the presence of acid gases in the atmosphere, Dr. Angus Smith, many years ago, found that 100 cubic feet of black smoke contained 33 grains of sulphuric acid, and, further, that in London the acidity of rain, calculated as sulphuric acid, was rather more than 2 grains in 10 gallons, and the rain of Glasgow more than 10 grains. Thin steel plates are largely used for constructing the hulls of such vessels as torpedo boats, but thin steel oxidises even more rapidly than thick steel, in consequence of the scales of rust being thrown off as soon as formed by the expansion and contraction from alterations of temperature. This danger of corrosion appears to deter engineers from using steel pipes to the extent they might. To such an extent is

THE EVIL OF THE CORRODIBILITY

of steel felt, that some engineers still object to its use, or specify that a large portion of the work, such as the upper deck floors, should be of wrought iron. The tubes for water tubes are found to corrode very rapidly, and are, therefore, now generally galvanised. M. Olsoy has analysed the powder found in the pits of boilers, and found it to contain 86·26 per cent. of peroxide of iron, 6·29 per cent. of grease and other organic matter, and 4·25 per cent. of lime salts. In the face of these facts the question of an effective protective covering for steel becomes of supreme importance. What then is the most effective protective coating for iron and steel? At present the answer is, decidedly, zinc; but in the near future aluminium coatings may supersede those of zinc,

* A Paper read before the Society of Engineers, on October 3rd, 1898.

† Brit. Assoc. Rep. 1342-42.

‡ Y is based on the assumption that the metal is tolerably uniform in thickness, otherwise the thin portions will have a shorter life than the average of the section.

In experiments of iron in acid, it was found that the metals, according to their impurities, lost most in the same time—steel less than iron, soft steel less than hard steel. On the second day the soft steel lost more than hard; on the fourth day the less was equal.

although experiments in this direction have not yet met with success. Galvanised sheets made of steel with the oxide formed in rolling removed, and then coated with spelter, would no doubt be more generally used in boiler or tank work if the advantages were better understood. The extreme

CHEAPNESS OF STEEL PLATES

and improvement in manipulation has been followed by the substitution of steel plate stacks and chimneys for brick. It is, however, well for boiler makers to remember that the action of moisture, especially when impregnated with sulphur arising from soft coal, has a destructive influence on steel plates, rusting them rapidly, particularly in the lighter gauges. This may be somewhat delayed by frequent painting or varnishing. A coating of spelter on steel sheets is impervious to moisture, and therefore the life of the metal is preserved indefinitely, especially when the galvanised surface is painted with the ordinary commercial stack or boiler paints. Sea air, charged as it is with brine, is more destructive in its action upon galvanised ironwork than the air on land, as it forms a chloride which is readily soluble. Mr. Chas. Young, in a paper read before the Society of Arts, mentions that a zinc sheathing attached in plates to an iron plate which had been submerged in the sea off Portsmouth, was found to have dissolved to the extent of one ounce per square foot in twelve months, and that zinc

TO RETAIN A CLEAN SURFACE,

must exfoliate or waste at about the same rate as copper, namely, two ounces per square foot per annum. Zinc is much affected by all acids, organic and inorganic; hence zinc does not afford much protection to iron when in contact with oak. Soot or carbon forms a galvanic couple with zinc in the presence of acid and water. The action of water, containing lime salts, on zinc is very much the same as that of moist air, the metal becoming coated with a protective covering of mixed oxide and carbonate. Zinc which is chemically pure does not decompose water, or, at any rate, only very slightly; this, however, is not the case with the zinc of commerce, which is violently attacked by very slightly acidulated water. Hot galvanising is often condemned as reducing the tensile strength of iron and steel, when the fault really lies with the smith who sends the work to be galvanised when he has made a bad weld, instead of leaving it in the black for inspection. Too much reliance is often placed on galvanising for making joints watertight. But still zinc forms

THE MOST EFFECTIVE COATING FOR IRON at present in practical use, and is capable of withstanding the corroding influences which boiler tubes are subjected to.

(To be continued.)

At University College, Professor Osbert Chadwick, C.E., delivered an inaugural address in opening the course of municipal engineering and Chadwick lectures and demonstrations of municipal hygiene instituted by the trustees of the late Sir E. Chadwick. Relatively, said Professor Chadwick, little practical instruction could be obtained from lectures alone, however complete, and their utility was vastly increased by a course of practical work. The drawing office was an essential adjunct to academic instruction, and it was above all things necessary that the student should be an expert draughtsman, capable of drawing plans with accuracy, neatness, and expedition. Engineering, he maintained, was a high art, the art of applying the great sources of power in nature to the use and convenience of man—an art only to be acquired by experience, practice, and personal observation. In a well-equipped mechanical laboratory the student may be taught to produce the parts or whole of a machine, but obviously the construction of bridges, roads, and the like could not be attempted. The student, however, could be prepared with the essential scientific knowledge, and taught how to learn the profession of a civil engineer.

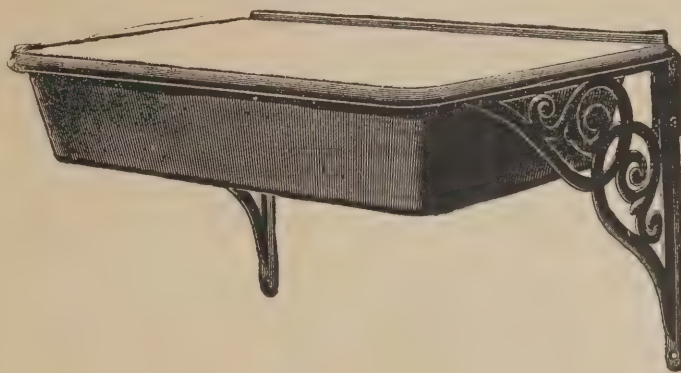
Trade and Craft.

BRIGGS' BITUMINOUS ENAMELS.

The largest and finest vessel in the world, R.M.S. "Oceanic," surpassing in dimensions even the "Great Eastern," is being coated with Briggs' bituminous enamels. Three other White Star liners are being done with the same material. Briggs' enamels are manufactured with large and carefully devised steam plant, and applied in the most efficient and economical manner possible. Orders for acres of work from many of the largest shipping firms in existence show the results of fair competition.

MESSRS. COLLEDGE AND BRIDGEN.

We have before us a leaflet illustrating a variety of sanitary enamelled wrought steel sinks manufactured by Messrs. Colledge and Bridgen, of Wolverhampton. One of these illustrations we reproduce; it represents the "Eclipse" sink with rolled rim, brackets, and brass strainer couplings. The firm manufac-



tures a variant on this pattern of sink, similar in every detail, but with the advantage of a splashier back. Another variety is "The Special." Whatever the pattern, however, there are advantages of workmanship common to all, inasmuch as each is light, seamless, and, within reasonable limits, indestructible.

MESSRS. WEBB AND CO.

Messrs. Webb and Co. have executed innumerable contracts for decorating walls and floors of hotels and restaurants, but this class of work is only one branch of a many-sided business, the extension of which, by-the-by, has necessitated a removal from Euston Road to more compact and convenient premises at No. 68 and 70, Lant Street, Borough, S.E., where the firm's warehouses and showrooms are now situated. Messrs. Webb's mosaic pavements and picture panels are now very commonly met with in churches and public buildings of all kinds, and several important contracts now in hand will enable the firm to further extend this decorative work. The showrooms at Lant Street are well stocked, and afford a happy hunting ground for the architect in search of various decorative accessories. Here we have seen tiles of tasteful design for dados, and amongst other things some fine marble and Ceramic and Venetian mosaics.

MESSRS. ADAMS AND CO.

A brochure on "Some of Adams and Co.'s best things" at this year's Sanitary Exhibition at Birmingham, gives special prominence to their "Titanite" ware. "Titanite" is the registered name of a new glazed ware of exceptional finish and strength—the firm say it has the finish of porcelain and the strength of fireclay. Besides, it does not craze and is impervious to moisture. It is used for closets, lavatories, urinals, and hospital appliances, and in cost only slightly exceeds that of the ordinary glazed ware. In this brochure there are illustrated lavatory basins which anyone might be proud to see fitted into his house. Their construction is based on the soundness of sanitary principles. They are up to date

with the latest fittings, and withal combine a taste and elegance of construction of which, years ago, so unimportant a thing as a lavatory basin would have been considered unworthy. The cheapest pattern here shown is the "Oval;" the most expensive is the "Surgeon's," which for neatness and elegance of appearance we have rarely seen equalled. Of the types of closets, Adams' patent seat-action combination closet must attain the highest standard of excellence yet known. There are other patterns worthy of note; for school work the Multiple closet has many advantages.

EMPLOYERS' LIABILITY.

IN the Westminster County Court a few days ago, Judge Lumley Smith, Q.C., and a jury had before them the case of Broom v. The Army and Navy Stores, which was a claim under the Employers' Liability Act for £280 damages for personal injuries by Henry Broom, a builder's labourer, of 1, Christchurch Villas,

Union Road, Clapham, from the Army and Navy Stores, Limited, Westminster, which he alleged he sustained through the negligence of a foreman whose orders he was bound to conform to.—Plaintiff's case was that one thing he had to do which was beyond his ordinary duties was to go round a gallery outside the fourth floor on that portion abutting on a well in the centre of the building. The gallery was of iron, and iron grids were lodged in the framework of the gallery. On one side of the frame was a ledge, and at each end a small piece of metal to lodge the grid on. Plaintiff had to go the round night and morning to open and close iron shutters to the windows. The shutters were an enactment of the London County Council as a fire-spreading preventative. On February 10th plaintiff was going round when a grid tipped up and

LET HIM THROUGH THE FRAME.

He fell 34ft. 6in. on to a skylight, and sustained serious and permanent injuries to his left arm. It was contended that the foreman was negligent in ordering plaintiff to walk on the gratings, which were not properly retained. The grating in question was defective, it having "a half-inch play" in the frame. Eighteen of the grids had been wedged up since this accident.—For the defence it was contended that under the Act, if there was any defect, it did not arise through the negligence of the defendants, but existed when they took over the building from the contractors. The architect was in no sense in the employ of the Stores, who were not bound to examine the building to see that all was correct.—Counsel for the plaintiff asked the jury to find the defendants' superintendent and foreman were negligent in not discovering the defect.—The jury found for the plaintiff for £140.

MESSRS. SHANKS AND Co., sanitary engineers, Barrhead, have secured the contract for the construction of a large underground convenience in the Market Place, South Shields. The work will be of the best quality throughout.

VENTILATION.

By W. N. TWELVETREES, M.I.M.E., M.S.I.

(Continued from page lxxxv.)

III.

APPARATUS used for lighting, other than electric lamps, add to the problems already furnished. Not only is air vitiated, but a considerable amount of heat is produced, the latter effect being sometimes pleasantly, and at others unpleasantly, obvious. A cubic foot

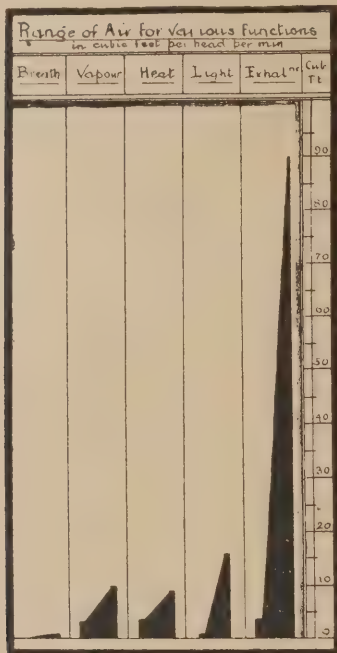


FIG. 11.

of coal gas is capable of generating 696 heat units, and of consuming the oxygen in about 15 cubic feet of air. As some oxygen escapes combination, it is proper to allow 30 cubic feet to a cubic foot of gas consumed. An ordinary gas burner consumes 0.083 cubic foot of gas per minute, requiring 1 cubic foot of air and generating fifty-eight heat units. If one gas-burner be allowed per head, a cubic foot of air must be included with other calculated quantities. The heat generated must not be overlooked, especially during warm weather, and it is easy to determine its effect, and to ascertain the volume of air required to limit increase of temperature to 20 deg. For this purpose the rule already given would be thus stated:—

$$V = 58 \div (20 \times .238 \times .0761) = 16 \text{ cubic feet.}$$

Petroleum lamps use about two-thirds the bulk of air required for an ordinary gas-burner, and heating power is in the ratio of 0.93 to 1.00 as compared with gas.

In order to ensure a perfectly healthful and wholesome atmosphere, it is essential that sufficient air should be introduced into every building for the purpose of diluting and removing exhalations from the skin, etc. The volume thus necessitated per head varies from 4 cubic feet per minute in private dwellings, and 66 cubic feet per minute in fever hospitals. Special circumstances attending each case must be considered, and provision be made accordingly.

Having now inquired into the relative effects produced by the various internal causes of vitiation in air, it will be convenient to summarise some of the results so obtained.

The total volume of air required for ventilation is not to be arrived at by simply adding up the amounts stated under various headings, because some of the different functions mentioned may be performed by one and the same quantity of air. Air respired is already charged with heat, carbonic acid, and vapour, but air introduced for the absorption of animal

heat is capable of also taking up vapour from the skin and that resulting from lighting appliances. Speaking generally, all air which has received heat has an increased capacity for moisture, conversely, air which has absorbed moisture has an increased capacity for heat; and, again, vitiated air is equally partial to either moisture or heat. Thus, separately considered, the minimum quantities of air required for the different functions of ventilation are as stated in Table VIII., and Fig. 11 is a diagram showing the minimum and maximum volumes, which have been generally advocated up to the present time.

TABLE VIII.

	Duty.	Cub. Ft. per Min.
1	Air for Respiration ...	31
2	" " Perspiration ...	3.5
3	" " Heat ...	4.0
4	" " Light ...	1.0
5	" " Exhalation ...	4.0
	Total ...	12.81.

In practice it is found that the volume necessary for either heat or exhalations is perfectly capable of performing the other duties stated as well as its own. This is shown in Fig. 12, where the air for exhalations is amply sufficient in volume to discharge all other functions. In some instances it may be found that the removal of personal warmth, of heat from gas-lights, or for dilution of exhalations, must preponderate, but the increased volume so provided is always found to represent the maximum quantity.

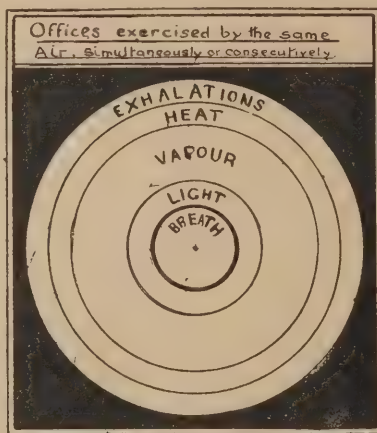


FIG. 12.

Considerable divergence of opinion exists as to the number of cubic feet of fresh air which should be provided for each person, the tendency, however, especially during recent years, has fortunately been towards increased supplies. Table IX. has been compiled from data given by well-known authorities, as well as from those obtained in a number of public and other establishments. Similar statistics, in cubic feet per minute, are graphically depicted in Fig. 13. These figures, as will be demonstrated later, may with advantage be considerably increased.

TABLE IX.

Description of Buildings.	Cubic feet per head per hour.
Dwelling houses ...	500
" " sick rooms	1000
Schools and colleges:	
" " Children	400 — 500
" " Adults	1000 — 1500
Theatres ...	1500 — 1750
Assembly Rooms ...	1000 — 2000
Workshops: Ordinary ...	2000
" Insalubrious ...	3500
Barracks, workhouses, prisons	1000 — 1500
Hospitals: Ordinary ...	2000 — 2500
" Fever ...	4000 — 5000

It should always be borne in mind that the quantity of air required is influenced by local and geographical situation. Considerably more air is necessary in large cities than in the open country, and the internal causes of vitiation, which have already been discussed, also exercise a marked bearing on the question generally.

The structural arrangements of buildings are not without their effect upon ventilation; wind, according to its direction, may assist or interfere with ventilation by penetrating through the walls, and it is always desirable that rooms should be of ample size. When this is the case the air is not so speedily vitiated, although it will soon become unfit for respiration if adequate ventilation be not ensured. In hospitals the number of cubic feet per bed ought not to be less than 1200, and in fever hospitals it is usual to allow at least 2000 cubic feet of space for each patient.

SIR MICHAEL HICKS BEACH has laid the foundation stone of the new church at Nailsworth, near Stroud.

THE Wallasey District Council has under consideration a new scheme for the water supply of the District, which is estimated to cost about £465,000. Mr. C. F. Deacon, C.E., has been instructed by the Council to prepare plans and to make surveys and trial borings at a cost of £700. The sub-committee selected to deal with the scheme propose to impound the waters of a tributary of the Clwyd in Flintshire, Nannerch being the place where a miniature Lake Vyrnwy will be constructed for that purpose. The gathering grounds will include nearly 3500 acres, and it is estimated that the supply will yield 2,600,000 per day. The water is said to be equal in quality to that at Vyrnwy. The distance from the reservoir to new Brighton is about eighteen miles, and the mains will probably be carried from Nannerch, which is situated at the back of Moel Famman, to a point opposite Thurston, where they will cross the Dee and come through the peninsula of Wirral. As the supply will meet the demands of a population of 104,000, and that of Wallasey is now calculated at 46,000, the district council would be in a position to supply Birkenhead with one-half the quantity obtained. At no distant period the corporation in that borough will most likely be compelled to supplement the supply of its own wells from some outside source. It is quite possible that Hoylake, West Kirby, and other districts in Wirral might be induced to participate in the new water supply.

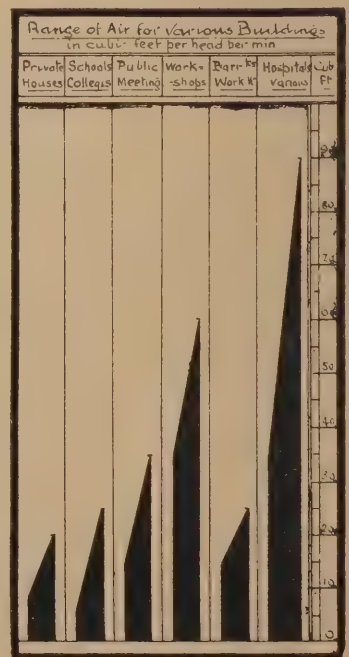


FIG. 13.

FAST RESERVOIRS.

IT is useful just now to note the progress of the Staines reservoir works. The prospect of all London suffering from a water famine owing to the Thames running short, just as East London has suffered owing to the failure of the Lea, has (says London) brought the whole question of the water supply of London prominently to the fore again. In the meantime extensive works are going on at Staines, which have an important bearing on this subject. Nearly 2000 men are hard at work making two vast reservoirs, which will store water for the people of London to the extent of 3300 million gallons. Three of the chief water companies north of the Thames, the Grand Junction, the North Middlesex, and the New River, have combined to provide additional storage in the Thames Valley. Mr. Walter Hunter, M.Inst.C.E., a director of the Grand Junction, in conjunction with the late Mr. W. Fraser, M.Inst.C.E., formulated a scheme some five or six years ago for an enlarged system of reservoirs. He claimed that the capacity of the Thames for the water supply of London was misunderstood and greatly undervalued. He pointed out that the average quantity taken from the Thames was about 90 million gallons daily, while the average flow was about 1350 millions and the maximum flow about 20,000 million gallons daily. His idea was that a large additional quantity could be drawn from the river if

A PROPER SYSTEM OF RESERVOIRS were constructed. Originally a scheme was prepared for nine reservoirs, each with a capacity of 2000 million gallons, capable of ensuring an average daily supply of 300 million gallons. Two years ago Messrs. Hunter and Middleton were instructed to prepare plans, which were adopted by Parliament. These plans presented a good many modifications of the original scheme, as the three companies were anxious to carry out the recommendations of the Royal Commission as to increased storage. A joint committee was formed to superintend the works, consisting of three members from each of the companies. The committee got powers to raise £1,000,000 in debenture stock for the purpose of the necessary land and for the construction of the works. Under the Act the joint committee are not allowed to take more than 100 million gallons from the Thames in any one day. Only the surplus water above the flow in the river of 265 million gallons at Bell Weir is to be drawn upon. The intake is at Bell Weir, so that by the time the river reaches Teddington Weir the engineers claim that the flow would be at the rate of 364 million gallons. But between Sunbury and Molesey the water companies have a right to draw 130 million gallons, reducing the flow at Teddington Weir to 234 million gallons. The reservoirs are not expected to be complete for four years yet. The works were commenced last April, and so far progress has been rapid and without any drawbacks. The intake is situated on the Middlesex side of the river a little above Bell Weir, where

SEVERAL SLUICES ARE BEING CONSTRUCTED, and it is protected by screens to prevent leaves and other floating matter from entering the conduit. The first part of the conduit is closed; afterwards it flows towards the reservoirs open like a natural river. The conduit

is syphoned under the Great Western and the South Western railways, under the Wyrardisbury river, and also under the Colne. The pumping station is situated near the Billet Bridge, which carries the London Road over the River Ash. At the pumping station there will be five triple-expansion engines, each capable of delivering 16,000,000 gallons daily into the reservoirs. The water will be delivered into reservoirs through steel pipes, which are believed to be the largest yet constructed. Proper sluices will be provided for regulating the supply into and from the reservoirs. The reservoirs, which are two in number, known as No. 1 and No. 1A, are about a mile and a quarter in length and a mile across at the southern end, and over half-a-mile at the northern end. The embankments are being built at a height varying from 21ft. to 35ft. They are being built of material excavated from the interior of the reservoirs, the excavation just balancing the banks to prevent the necessity and expense of running material to spoil. The slopes of the embankments are three to one inside, and two to one outside the reservoirs. In the centre of each bank a puddle wall is being constructed 6ft. thick at the top, 7ft. at the ground level, and tapering down to 5ft., where it joins the London clay, into which it will be securely toothed. This construction, for which this part of the Thames Valley is favourably adapted, will make the reservoirs perfectly tight. The inside slopes of the reservoirs are to be lined with concrete 5in. thick for a depth of 15ft., so as to resist any wave action which may take place in so large a sheet of water.

Surveying and Sanitary Notes.

THE ceremony of cutting the first sod, preliminary to the construction of a new reservoir to supplement the Harrogate water supply, took place a few days ago. The site of the new reservoir is at Scargill, where the Corporation—who recently acquired the Waterworks Company's entire undertaking for £206,000—have purchased a gathering ground of 1100 acres from Sir H. D. Ingilby, of Ripley Castle. The reservoir will have a surface area amounting to thirty-two acres, with a maximum capacity of 220,000,000 gallons. It is anticipated that the work of construction will be completed in about three years, the estimated cost being £100,000. The work is being carried out by the Corporation, under the superintendence of Mr. W. E. Dixon, waterworks engineer.

FOR some time past a series of very important and interesting experiments have been made in East Kent, with the object of ascertaining the water producing powers of the great chalk areas. The investigations, which have been conducted scientifically, have produced some very valuable results, particularly in regard to the enormous quantity of the purest spring water which runs to waste daily by being poured into the sea from the base of the chalk cliffs. From observations made, it is estimated that at least one hundred million gallons of water is lost in this way daily in the St. Augustine's Division of East Kent alone. The experiments have been made at intervals over

a period of two or three years, and it is a very remarkable fact that, notwithstanding the great drought which is affecting the upper springs all over the country, the tests made during the last few days at the base of the cliffs between Dover and St. Margaret's show that there is absolutely no diminution in the supply of spring water, which is escaping into the sea. From observations made, there is no doubt that these outflows of water from the chalk strata occur all along the seaboard from Dover to the Medway. It is well-known, too, that in the marshes between Canterbury and Dover there are other great outflows of spring water at the surface.

SIR DOUGLAS GALTÓN, as chairman of the Council of the Sanitary Institute, recently delivered an address at the Parkes Museum, Margaret Street, as an introduction to a course of lectures and demonstrations in sanitary science, in the course of which he referred to the multifarious duties cast upon the sanitary inspector, and pointed out the need of special training for the discharge of these functions. He thought, however, that the most astonishing fact connected with recent legislation was that whilst the sanitary inspector, who was intended to be the right-hand of the medical officer of health, was required to possess considerable knowledge and technical skill, he was nowhere protected either as to his emolument or as to the tenure of his office. He urged that sanitation should be made a branch of elementary education; meanwhile the sanitary inspector was the missionary upon whom devolved the duty of urging the people to pay attention to sanitary details. In reference to the requirement of the Public Health Act (London), 1891, that sanitary inspectors should possess a certificate of competency from some authority approved by the Local Government Board, Sir Douglas announced that some delay had occurred in forming the joint board for this purpose, to be composed of delegates representing the Sanitary Institute and other bodies, and that consequently next year's examinations would be conducted by the Sanitary Institute, as before.

THE Lancet sees a new terror to the Londoner in the multiplication of underground electric railways, unless certain precautions be taken. It contains complaints that on the Waterloo and City line nothing has been done to secure the adequate ventilation of the tunnel in the event of an emergency. "It must not be forgotten," it says, "that visible smoke and plainly discerned smells serve after all in the ordinary underground railways as an excellent index of the state of the air, but in the absence of these things, as on the underground electric railways, there is no such guide, and insidious poisoning by repeatedly inspiring human exhalations is possible, if not, indeed, suffocation." The other day there was a breakdown on the line, and the delay was sufficiently long to cause a marked sense of suffocation to the passengers. "It is assumed, and correctly, that the advance of a train through a tube which it closely fits is sufficient to maintain an adequate change of air in the tunnels, in which case no extra provision for ventilation need be made, but in the event of a breakdown the supply of air would soon be exhausted, and the result might be disastrous and comparable with the awful historic tragedy of the Black Hole in Calcutta."

COMPLETE LIST OF CONTRACTS OPEN.

DATE OF DELIVERY.	WORK TO BE EXECUTED.	FOR WHOM.	FROM WHOM FORMS OF TENDER MAY BE OBTAINED.
BUILDINGS—			
Oct. 28	Clydach Vale—Chapel, &c.	Welsh Independents	F. B. Smith, Port Talbot.
" 28	Pudsey—Two Villas ... ..	.....	H. Hodgson, Old Bank-chambers, Bradford.
" 28	Rochester—Drying Room	Hospital Board	G. E. Bond, Rochester.
" 28	Southampton—Omnibus Shed	Corporation	Borough Engineer, Southampton.
" 28	Llangrwyne—Concrete Wall, &c.	Brecon County Council	H. E. Thomas, Brecon.
" 28	Keighley—Mission Hall... ..	.....	W. and J. B. Bailey, 9, Market-street, Bradford.
" 29	Consett—House, &c.	Urban District Council	W. S. Shell, Consett.
" 29	Darfield—School ... ..	.....	A. B. Linford, Kelvin Cottage, Wombwell, near Barnsley.
" 29	Longtown—House	School Board	E. A. Johnson, Abergavenny.
" 29	Newquay—Council Buildings	Urban District Council	Surveyor, Commercial-square, Newquay.
" 29	Sunderland—House ... ..	.....	J. Eltringham, 62, John-street, Sunderland.
" 29	Trowbridge—Alterations to Inn ... ..	.....	W. H. Stanley, Market House-chambers, Trowbridge.

COMPLETE LIST OF CONTRACTS OPEN—continued.

DATE OF DELIVERY.	WORK TO BE EXECUTED.	FOR WHOM.	FROM WHOM FORMS OF TENDER MAY BE OBTAINED.
BUILDINGS—Continued.			
Oct. 29	Malling—Cottage	Rural District Council	J. Marshall, West Malling, Kent.
" 31	Hull—Crematorium	Corporation	A. E. White, Town Hall, Hull.
" 31	Middlesbrough—Offices	Tees Conservancy Commissioners	J. M. Bottomley, 23, Albert-road, Middlesbrough.
" 31	Morley—Works	Corporation	W. E. Putman, Town Hall, Morley.
" 31	Purston—Ten Houses	J. H. Shepherd	Garside and Keyworth, Pontefract.
" 31	Spilsby—Drill Hall	County Council	J. E. Butcher, Spilsby.
Nov. 1	Middlesex—Widening Bridges	County Council	E. J. Hammond, 111, High-street, New Brompton.
" 1	Dartford—Twenty-six Cottages	Leatham, Tew, and Co.	Garside and Keyworth, Pontefract.
" 1	Featherstone—Bank Buildings	Urban District Council	R. T. Hayes, Town Hall, Fleetwood.
" 1	Fleetwood—Underground Convenience	Urban District Council	J. J. Bell, Knaphill.
" 1	Knaphill—Additions to Chapel	Urban District Council	W. R. Jones, Ludgvan Church Town.
" 1	Ludgvan—Restoration of Church Tower	Urban District Council	Gale, on Works, Church-lane, Tooting.
" 2	London, S.E.—Alterations to Wards	Wandsworth and Clapham Union	H. Watkins, Ddery Farm, Glynawe.
" 2	Glynawe—School, &c.	School Board	Rycoff and Firth, Bank-bdgs., Manchester-rd., Bradford.
" 3	Bradford—Bakery, &c.	Provident Industrial Society Ltd.	A. F. Scott, Surveyor, Cromer.
" 3	Cromer—Conveniences	Urban District Council	H. Hutton, Town Hall-chambers, Sowerby Bridge.
" 4	Sowerby—Pavilion	Urban District Council	F. W. Holme, Westminster-chambers, Dale-st., Liverpool.
" 4	Widnes—Extension of Hospital	Caledonian Railway Co.	Peddle and Browne, 8, Albany-place, Edinburgh.
" 7	Edinburgh—Hotel	School Board	Bailey and McConnell, Bridge-street, Walsall.
" 7	Walsall—House	Urban District Council	E. W. Mountford, 17, Buckingham-street, W.C.
" 8	Hitchin—Town Hall and Offices	Bulgarian Ministry of Public Works	Commercial Department, Foreign Office.
" 9-21	Sophia (Bulgaria)—Public Offices	County Council	F. Sprack, Branstone, Hale Common, Isle of Wight.
" 11	Isle of Wight—Chapel	County Council	J. Mansergh, 5, Victoria-street, Westminster.
" 12	Coventry—Pumping Station Buildings	County Council	C. Broward, Town Hall, Birkenhead.
" 14	Birkenhead—Baths	County Council	County Surveyor, Shire Hall, Carmarthen.
" 18	Carmarthen—Bridge	County Council	Giles, Gough, & Trolope, 23, Craven-st., Charing Cross, W.C.
" 24	Bridge—Chapel	County Council	Engineer's Department, County Hall, Spring-gardens, S.W.
Jan. 24	London—Tunneling Works	London County Council	W. Constable, 20, George-street, Edinburgh.
No date.	Auchtergaven—Alterations to Church	General Accident Assurance Co. Ltd.	Wilks, Sloan and Co., 112, Bath-street, Glasgow.
"	Glasgow—Works	Ryhope Coal Company	A. W. Hudson, 42, Bishopsgate-street Within, E.C.
"	Ilford—Five Houses, &c.	Burial Board	T. Dyer, 114, Spencer-place, Leeds.
"	Leeds—Warehouse	Guardians	Harrison, Hall, and Moore, 36, Albert-road, Morecambe.
"	Morecambe—Hotel	J. Martin	Haberston and Fawcner, 41, High-street, Newport.
"	Newport—Church	School Board	G. P. K. Young, 42, Tay-street, Perth.
"	Perth—Offices	D. Boulton	Engineer, Ryhope Colliery, near Sunderland.
"	Ryhope—Twenty-five Cottages	Joint Committee	Hall, Cooper, and Davis, 24, Westborough, Scarborough.
"	Scarborough—Wall	Prudential Assurance Company Ltd.	T. M. Garrood, 172, Fenchurch-street, E.C.
"	Walton-on-Thames—Four Cottages and Two Houses	County Council	C. Griffiths, Guardians' Offices, Hay.
"	Hay—Repairs, &c., to Workhouse	County Council	J. W. Hanson, 79, King-street, South Shields.
"	South Shields—Alterations to Premises	County Council	F. Shove, 8, Colston-avenue, Bristol.
"	Bristol—Factory Additions	County Council	Clayton and Black, 152, North-street, Brighton.
"	Patcham—School Additions	County Council	H. Dain, Tunstall, Staffs.
"	Staffordshire—House	County Council	Mr. McDonagh, York Villas, Kilmainham.
"	Kilmainham—Two Houses	County Council	Mosley and Anderson, Northampton.
"	Hinton—Hotel, &c.	County Council	J. V. Edwards, County Hall, Wakefield.
"	Sheffield—Police Station	County Council	H. Wells-Smith, 70, Queen-street, Sheffield.
"	Walkley—Nine Houses	County Council	A. Waterhouse, 20, New Cavendish-street, W.
"	Oldham—Offices	County Council	
ENGINEERING—			
Oct. 28	Brecon—Concrete Wall, &c.	County Council	Town Clerk, County Hall, Brecon.
" 29	Kirkby-in-Ashfield—Well	Urban District Council	W. H. Radford, Angel-row, Nottingham.
" 29	Walton-le-Dale—Filter	Urban District Council	F. E. Dixon, 49, Lune-street, Preston.
" 31	Burton-on-Trent—Water Supply, &c.	Corporation	G. T. Lynam, Town Hall, Burton-on-Trent.
" 31	Grays—Tanks	Metropolitan Asylums Board	Office of Board, Norfolk House, Norfolk-st., Strand, W.C.
Nov. 1	Linton—Wells	Rural District Council	Mr. Chapel, Sanitary Inspector, Linton.
" 1	Cairo—Bridge	County Council	Inspector of Irrigation, 2nd Circle, Cairo.
" 1	Enfield and Isleworth—Bridge Works	County Council	H. T. Wakelam, County Surveyor, Enfield.
" 2	Abertillery—Colliery Air Doors	County Council	Brassey and Co., 1, Northumberland-avenue, W.C.
" 2	Penlan—Water Main, &c.	County Council	D. Morris, Priory-terrace, Cardigan.
" 3	Hunstanton—Refuse Destructor	Urban District Council	Stevenson and Burstall, 38, Parliament-st., Westminster.
" 3	Balcombe—Pumping Machinery, &c.	Rural District Council	J. Munsergh, 5, Victoria-street, Westminster.
" 5	New Shoreham—Repairs to Steam Tug	Harbour Trustees	Harbour Master, New Shoreham.
" 10	Royton—Pumping Machinery	Urban District Council	T. S. McCallum, 4, Chapel-walks, Manchester.
" 10	Belem (Para, Brazil)—Water Supply	Government	Brazilian Consulate, England.
" 15	Hanley—Refuse Destructor	County Council	J. Lobley, Town Hall, Hanley.
" 16	Knowle—Engines, &c.	County Council	W. J. Taylor, The Castle, Winchester.
Jan. 6	Johannesburg—Carburetted Water Gas Plant	Town Council	R. Whyte and Co., 22, Bury-street, St. Mary Axe, E.C.
No date.	Tralee—Crane, &c.	Harbour Commissioners	C. E. Leachy, Canal Office, Tralee.
IRON AND STEEL—			
Dec. 19	London, S.W.—Rails, &c.	County Council	Agent General for Victoria, 15, Victoria-street, S.W.
No date.	Glasgow—Iron Roofing	County Council	Wilks, Sloan, and Co., 112, Bath-street, Glasgow.
ROADS—			
Oct. 28	Wilmslow—Street Works	Urban District Council	Council Offices, Swan-street, Wilmslow.
" 28	Arklow—Flagging, &c.	Town Commissioners	J. Gornley, Town Clerk, Arklow.
" 29	Brompton—Alterations to Road	Urban District Council	W. Stead, County Surveyor, Northallerton.
" 31	Gainsborough—Materials	Urban District Council	H. Riley, Council Offices, Gainsborough.
" 31	Seaford—Flagging	Urban District Council	F. S. Yates, Town Hall, Watford.
Nov. 5	Hampton Wick—Road Material	Urban District Council	J. N. Horsfield, District Surveyor, Hampton Wick.
No date.	Winchester—Flints	Town Council	City Surveyor, Winchester.
SANITARY—			
Oct. 29	Bettwsycoed—Sewerage Works	Urban District Council	R. Parry, Bettwsycoed.
" 29	Kirkby-in-Ashfield—Sewerage Works	Urban District Council	H. Walker, Angel-row, Nottingham.
Nov. 2	Carisbrooke—Sewerage Works	Rural District Council	Stratton and Millgate, 21, Quay-street, Newport.
" 2	Fairlee—Sewerage Works	Rural District Council	E. A. Swane, Upper St. James-street, Newport, I. of W.
" 2	Ewell—Scavenging	Parish Council	G. Hards, High-street, Ewell.
" 4	Deal—Sewerage Works	Corporation	B. Latham, 13, Victoria-street, Westminster.
" 16	Aylesbury—Sewage Disposal Works	Urban District Council	G. Fell, 1, Rickford's Hill, Aylesbury.
PAINTING—			
No date.	Dewsbury—Painting Ten Houses	County Council	T. Speight, 28, Boothroyd-lane, Dewsbury.

COMPETITIONS.

DATE DESIGNS TO BE SENT IN.	DESIGNS REQUIRED.	AMOUNT OF PREMIUM.	BY WHOM ADVERTISED.
Oct. 28	Chertsey—Sewerage Schemes	£50, £30, £20	Chertsey Urban District Council.
" 29	Shrewsbury—School		Borough Surveyor, The Square, Shrewsbury.
" 31	Goole—Swimming Bath		Goole School Board.
Nov. 18	Sheffield—Board School		J. Moss, School Board Offices, Sheffield.
" 31	Stockholm—New Stations		Secretary, Royal Administration Swedish State Railways.
Dec. 1	Aberavon—Extension of Market	£21	Aberavon Corporation.
Jan. 2	Harrogate—Pump Room	£50, £30, £20	Corporation of Harrogate.
" 2	Harrogate—Alterations to Old Pump Room	£30, £20, £10	Samuel Stead, Boro' Surveyor, Municipal Offices, Harrogate.
No date.	Maidstone—Electricity Supply Works and Refuse Destructor (Assessor)	£100	Herbert Monckton, Town Clerk, Maidstone.
"	Wibsey—Fountain		Walter North, Wibsey.

Property and Land Sales.

Sales for the Year 1898.—Telephone No. 669 Bank.—Telegraphic address, "Akaber, London."

MESSRS. BAKER & SONS beg to announce that their SALES of LANDED ESTATES, Investments, Town, Suburban, and Country Houses, Business Premises, Building Lands, Ground-rents, Reversions, Shares, and other Properties will be held at the Mart, Tokenhouse-yard, E.C., on the following Fridays during the year 1898:—

October 28 | November 11 | November 25 | December 9
Auctions can be held on days besides those above specified.—11, Queen Victoria-street, E.C.

By order of the Bridge-house Estates Committee of the Corporation of the City of London.—A highly valuable Building Site, covering an area of considerably over an acre in the heart of the City.

MESSRS. BAKER and SONS are instructed by the Bridge-house Estates Committee to LET by AUCTION, on Building Lease, for a term of 80 years, at the Mart, Tokenhouse-yard, on FRIDAY, OCTOBER 28th, at TWO o'clock, to be offered in one lot, and if not so disposed of in four lots, the important BUILDING SITE, comprising Nos. 5, 6, and part of No. 7, West-street, Nos. 36 to 48 (inclusive), Finsbury-circus, Nos. 2 and 4, Circus-place, Nos. 101 to 116, London-wall, and Albion Hall, with warehouses, &c., adjoining, occupying a total area of 49,000ft., and possessing frontages of about 750ft., offering magnificent sites for the erection of bank, insurance, and other offices, shops, professional or business premises, well worth the attention of builders, capitalists, and others, affording an opportunity seldom obtainable of acquiring prominent building sites in the City.

Particulars, plans, and conditions of sale of the City COMPTROLLER and CITY SURVEYOR, Guildhall, E.C.; and of the AUCTIONEERS, 11, Queen Victoria-street, E.C.

Strawberry-hill, Middlesex. Within eight minutes' walk of the Station on the L. and S.W. Railway.

MESSRS. TOPLIS and HARDING will SELL by AUCTION, at the MART, E.C., on FRIDAY, NOVEMBER 11th, at TWO o'clock punctually:—

The valuable FREEHOLD PROPERTY known as Nos. 5 and 6, Waldegrave-terrace, Strawberry-hill, Middlesex, producing rentals, actual and estimated, amounting to £60 per annum, together with a plot of FREEHOLD BUILDING LAND adjoining, ripe for development, and having a frontage to Waldegrave-terrace of about 55ft., a depth of about 154ft., and an area of about one-third of an acre.

Particulars, plans, and conditions of sale may be had at the Mart, E.C.; of F. G. MEADOWS, Esq., Solicitor, 9, Fenchurch-buildings, E.C.; and of Messrs. TOPLIS and HARDING, 66, Cannon-street, E.C.

Sale of Valuable Freehold Land.—Harlington, Middlesex.

SEDGWICK, SON, and WEALL will SELL by AUCTION, at the Mart, Tokenhouse-yard, London, E.C., on MONDAY, OCTOBER 31st, 1898, at TWO o'clock precisely:—

23 acres of valuable BUILDING LAND, with good frontages, close to Hayes Station on the Great Western Railway, ripe for immediate development. An enclosure of Arable Land, believed to contain brick earth of great depth, close to Harlington Church, containing about seven acres; also

A Piece of Building or Accommodation Land, containing 1a. 2r. 0p., situate in New-road, and suitable for the erection of a block of cottages.

Particulars and conditions of sale may be had at the Mart, E.C.; of Messrs. BEDFORD, MONIER-WILLIAMS, and ROBINSON, Solicitors, 6 and 7, Great Tower-street, London, E.C.; of Messrs. SEDGWICK, TURNER, and JODIE, Solicitors, Watford, Herts.; of Mr. E. P. NEWMAN, Land Agent, Hillingdon, Uxbridge; of Mr. R. NEWMAN, Auctioneer, Harlington, Hounslow; and of the AUCTIONEERS, Watford, Herts.

Result of Sale.
A Phenomenal Success.
First Portion of
Telscombe Cliffs,
On the Sea Front between
Newhaven and Brighton,
150 Freehold Building Sites.

MESSRS. HARMAN BROS., in consequence of the phenomenal success of their Sale last month, are favoured with instructions to SELL the SECOND PORTION on the last day of this month, as below.

Telscombe Cliffs Land Sale.
In the Sussex Coast, between Newhaven and Brighton.
Special Land Sale, Monday, October 31st,
In a Marquee on the Estate.
The Second Portion.
111 Choice Freehold Building Sites, fronting
The Esplanade, the main road, Central Avenues, &c.
Payment by instalments. Special train.

MESSRS. HARMAN BROS., in consequence of the great success of their Sale last month, are favoured with instructions to SELL the SECOND PORTION of this magnificent ESTATE on MONDAY, OCTOBER 31st.

Particulars of Messrs. WARD, BOWIE, and Co., Solicitors, 7, King-street, E.C.; Messrs. HOOKER and WEBB, High-street, Croydon; Messrs. FAIRBROTHER and Co., 26, Queen's-road, Brighton; The Cavendish Land Company Limited, 68, Victoria-street, S.W.; and Messrs. HARMAN BROS., 75, Aldermanbury, E.C.

Telscombe Cliffs Estate.
MESSRS. HARMAN BROS. beg to call special attention to the fact that the main road from Brighton to Newhaven passes this Estate, and runs a Grand Marine Drive nine miles in length.

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Special Train for Telscombe Cliffs Land Sale.

MESSRS. HARMAN BROS. Telscombe Land Sale Train will leave Victoria at 10.10, Clapham Junction 10.20, and East Croydon 10.35 on the morning of the sale, MONDAY, OCTOBER 31st. Return Tickets, including luncheon, of the Auctioneers, 75, Aldermanbury, E.C., 5s. each.

SUNNY SUSSEX (34 miles from London).

Three splendid SITES for orphanage or any large institution, or for villa residences, greatly in demand; all corner sites, with magnificent frontages to made roads; almost adjoining main line station; FOR SALE cheap; owner going abroad.—JENNINGS and FELL, Land Agents, 3, Broad Street-buildings, London, E.C.

R. I.B.A. EXAMS. PREPARATION, personally or by correspondence, in three, six, nine, or twelve months' courses. Architectural Lending Library. Special three months' finishing courses.—For full particulars apply to Mr. W. CHURCH HOWGATE, A.R.I.B.A., Perchard House, 70, Gower-street, W.C. (close to the British Museum).

SANITARY INSPECTORS' EXAMINATIONS.—An Associate of the Sanitary Institute thoroughly PREPARES CANDIDATES for the above Exams. by correspondence; no books are required.—For particulars and testimonials apply, "Certified Coach," 31, Herbert-road, Plumstead, S.E.

R. I.B.A., SOCIETY OF ARCHITECTS, and CIVIL SERVICE TECHNICAL EXAMINATIONS. Preparation by correspondence, in residence, or personally.—MIDDLETON and CARDEN, 19, Craven-street, Strand, W.C.

PLANS, SPECIFICATIONS, QUANTITIES, &c., carefully prepared by young Architect. Moderate terms to those about to build.—ARTISTIC, 1, West-terrace, Whitby.

APPOINTMENTS VACANT.

The charge for Advertisements under this heading is 1s. 6d. per insertion not exceeding four lines, and 6d. per line afterwards, prepaid. Three insertions may be had for the price of two.

MASONS.—Constancy for steady, reliable, all-round Man; country yard near London; neat workman indispensable; good wages.—Box No. 863, Office of BUILDERS' JOURNAL.

TRACING and TYPE-WRITING.—VACANCIES for pupils in well-established Office. Gentlemen only.—Box 853, BUILDERS' JOURNAL Office.

WANTED, Architectural DRAUGHTSMAN for Land Agent and Surveyor's Office.—Apply, with salary and references, to "Country," Office of this paper.

ARCHITECTURAL DRAUGHTSMAN WANTED in North of England with view to permanency.—State age, salary, experience, references, to D. 32, care of C. Birchall, Liverpool.

WANTED, First-class WOODWORKING MACHINIST as WORKING FOREMAN. One used to church work and high-class joinery; able to braze, sharpen, and mate cutters, &c. Good knowledge of drawings indispensable. Competent men need only apply.—Apply immediately, stating age, capabilities, wages required, to RUDD and SON, Contractors, Grantham.

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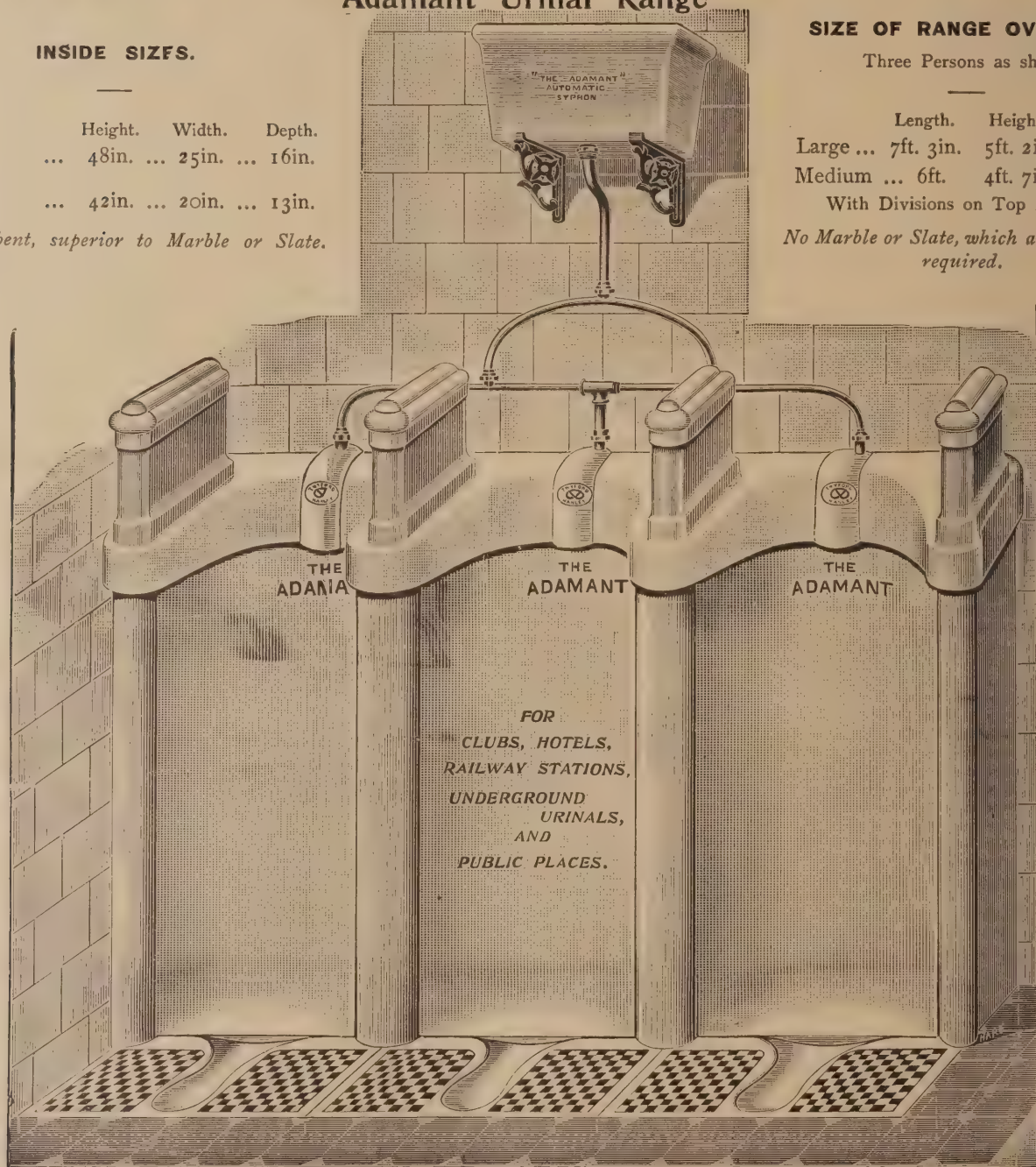
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Puvis de Chavannes.

A MEMOIR.

THE great romantic school of modern painting will soon be but a memory. Yesterday Burne-Jones went from us, to-day Puvis de Chavannes has joined the great innumerable multitude. Wholly absorbed into that world from which the inspiration of their works proceeded, and in which themselves mainly lived, those makers of history have in their turn become historical.

They have gone back to their own sphere and left us strangely solitary.

There is something very fitting in the nearness of these two departures. None can have studied their works without seeing that

decoration of large public buildings, were unhappily denied Burne-Jones. The indifference, ignorance, or incuriousness of public bodies and architects shut the latter artist out from the noblest of all forms of decoration, and while Puvis de Chavannes was covering walls of museums, municipal buildings, lecture halls, and churches with his marvellous compositions, the genius, the colour instincts, the decorative faculties with which Burne-Jones was so richly endowed, were given no like opportunities of development.

It is not suggested that the French are in any way more liberal towards artists than ourselves. After years of study, after repeated rejections at the Salon, Puvis de Chavannes received at the age of 37 his first commission. The State, that is to say, a committee of artists, purchased in 1861 a large decorative composition. It was destined for the staircase of the museum at Amiens. Overjoyed, the painter presented the corresponding panel to the municipal authorities, and Amiens is now rich in fine samples of his work. But it is rich largely because of the painter's own generosity. According to M. Arsene Alexandre, only one private commission, the "Doux Pays," painted for M. Bonnat, was ever received by M. de Chavannes. And France is full of *patrons* of Art.

young and struggling artist and fawn on him when older and successful, were just as rife in France as here. All through his life Puvis de Chavannes was a butt for the feeble-witted critic, a mark for the mockery of the Philistine and the lower public. But he treated it all with a fine indifference; and the series of masterpieces grew unchecked by any critical onslaught. The painter knew his strength, and, comforted by the admiring friendship of men like Delécluze, Paul de Saint Victor, Theophile Gautier, and Theodore de Banville, he retired within himself, lived out his dreams, and achieved his own salvation. Amiens, Rouen, Portiers, Lyons, Marseilles, the Sorbonne, The Pantheon, are to-day places of pilgrimage to all lovers of noble artistry.

Puvis de Chavannes was born at Lyons on December 14th, 1824. He was a descendant of an old Burgundian family, and was himself a typical specimen of that marvellous race which has for more than 600 years enriched France with so many celebrated painters, sculptors, and artists of all kinds.

He was educated at Lyons and, strangely enough, while at college resolved to take up a scientific career. But at the critical moment he made a journey into Italy; and thenceforth he determined to be an artist.



ASHBY ST. LEDGERS: THE BIRTHPLACE OF THE GUNPOWDER PLOT.

though separated by race and place and circumstance, both men lived in the same world, remote, mystical, serene. Both men breathed the same spiritual atmosphere. Though their methods were different they were twins in mental attitude towards nature and human affairs. Both showed the same concentrative-ness, the same ingathering of spirit from common things and thoughts, the same reverent outlook, the same avid appetite towards beauty. Each, as was fitting, admired the other as the complement of himself. The largeness of style, the spaciousness, the architectural dignity of design acquired by Puvis de Chavannes through long years spent in the

From the very beginning of his career he was, as Burne-Jones himself, assailed by the abuse of the vulgar and the ridicule of the stupid. The great mass of the public, as ever, too lazy to think, too careless to see, was roused by the attacks of the orthodox critics to unreasoning hatred of what it failed to understand. That same despicable blindness to real beauty which makes our leading comic papers shower ignorant abuse on all that is noble when it is new, the same pitiful toadyism which makes them beslaver with vulgar praise whatever survives their attacks, that same spirit which made them scoff at Burne-Jones when a

After studying for a while under Henry Scheffer, the brother of Ary Scheffer, he then made a second journey into Italy with one of his friends, Bauderon de Verneron. And it seems at least probable that the magnificent frescoes of Piero della Francesca, of Fra Angelico, of Luca Signorelli, and Ghirlandajo, inspired in him that passion for wall decoration which afterwards made him famous.

On his return he entered the *atelier* of Delacroix. The latter, weary of teaching, discouraged by lack of appreciation, closed his studio and dismissed his pupils three weeks afterwards. Puvis de Chavannes then

went to Couture for instruction, and after three months left him suddenly, disgusted with the artificiality of his methods and his teaching. From that moment the great painter became his own master. He took, in 1852, that famous studio in Place Pigalle, which he only left two years ago.

From that quiet little place proceeded, without rest, without haste, those embodied visions of peace and tranquil beauty we now passionately worship. Undisturbed by any storms without, in the inexpugnable calm of his soul he worked and waited. More than anything else a sentiment of peace disengages itself from the work and enwraps the spectator in its eternally beneficent effluence—that effluence which proceeds from every noble nature. So much is this felt in his own country that M. de Vogüe, in a most eloquent and noble article on the great painter, says:—"He has taken with him, wrapped in his shroud, like the reflux of the wave behind a departing ship, all that remained to us of peace. . . . For the first time the ritual invocation in the office for the dead, 'Requiescat in Pace,' seemed to me unnecessary. That blessing we implored for him he had enjoyed these many years—the prayer was for ourselves and not for the soul departed." He needs no monument who has thus moulded the minds and souls of his fellowmen.

As recorded above, the first great decorative scheme was that prepared for Amiens, and here, so far back as 1861, the painter showed that amazing power of resuming in a single scene the poetry of a whole county, and of expressing that poetry in a single pregnant phrase—the mere titles, *Picardia Nutrix* (1865); *Bois Sacré* (1883); *Inter Artes et Naturam* (1890-92); *Ludus pro Patriâ* (1879); to name only a few, are full of suggestion and inspiration.

This scheme was followed by others for Marseilles, Lyons, Rouen, Portiers, the Sorbonne, and the Town Hall, and the Pantheon in Paris, and the Boston Library. They cannot be described, they must be seen; and to see them there is an education of the highest kind. They come to one as a spiritual revelation—they strike upon the mind of the beholder with a kind of shock, as of some long desired but un hoped for vision of beauty—a vision presented without flourish, without apparent effort, silently, irresistibly incuriously, as by Nature herself. Indeed, it is Nature who speaks to us in him—Nature concentrated, ennobled, purified, in the alembic of a mighty soul. The man who did all this was as simple in his life as in his works. He was always cheerful, always ready to sing, to drink, to start excursions with his friends. He did not reject what life has to offer; he accepted and enjoyed it with a tranquil mind. He saw and knew how to express with the greatest sanity and clearness the glorious beauty of it all, and we are as much the poorer by his death as we are the richer by his life—a life spent in the service of his country and his Art. H. W.

MR. J. WOOLLEN writes from 33, Albert Square, Clapham Road, S.W.:—"Apart altogether from the fact that Vauxhall Temporary Bridge is an instance of as wanton a waste of public money as it was possible for even officials to devise, actual experience during the time it has been open to public traffic has clearly demonstrated that it is a source of danger to the public and of intense cruelty to the poor horses that toil up or down its steep inclines. It is totally unfit for vehicular traffic, and public safety demands that such should be prohibited. . . . With wintry weather, narrow slippery roads, and steep declines, only miracles can possibly save heavy vehicles like omnibuses from violent collision with other traffic that may be passing, or stone or concrete wall on one side of the river, or brick wall similarly situated on the other side."

ASHBY ST. LEDGERS:

THE BIRTHPLACE OF THE GUN-POWDER PLOT.

By WILLIAM YOUNG, P.A.S.I.

THE anniversary of "Guy Fawkes Day" is upon us. It was at Ashby St. Ledgers that the diabolical Gunpowder Plot was hatched, and where the authors are said to have met to discuss this historic conspiracy.

The place is situated out of the ordinary route of the tourist, seven miles from Rugby; the nearest railway station is Welton, which is about two miles distant. It immediately adjoins the village of the same name, and is a very quiet and secluded spot.

The historical room shown in the sketch on our front page is part of an ancient building over an old gateway, consisting in all of two rooms—one evidently a secret closet without a window, and the other the scene of the memorable meetings—approached by a handsome massive oak staircase, with the dust of centuries upon it, intermittently disturbed by the encroachment of a now and then strolling tourist, or the villagers' friends. The heavy old oak door at the bottom, redolent of the past, with its rusty hinges, croaks noisily as it is pushed open, as if in protestation at such unseemly intrusions.

The construction is of half timbered work, and the massive beams supply ample testimony of the difference between modern scientific calculation and old-fashioned ignorance and lavishment.

The principal room, which is situated immediately over the gateway, is of a good size, with a casement window and panelled walls. The mantel and fireplace are of carved oak, with a large rusty dog-iron grate, and several antique swords and pistols of the seventeenth century hung over. The floor is also of oak, and the whole appearance of the place, with its decaying smell, seems to take one back to the time when those swords and pistols were lying ready to the hands of that desperate band, who carried their lives in their hands at these clandestine meetings.

The reason the "rendezvous" was appointed here was because the leader, Sir Robert Catesby, lived in the house adjoining, known as "Ashby Ledgers," and which was approached by this same gateway, which constituted, in fact, part of the stables belonging to it.

The derivation of the name "Ashby St. Ledgers," or "Ashby Ledgers," as it was then called, may prove of some slight interest. "Ashby," or "Ascebi," comes from the Saxon "Arc," an ash tree, and *bye* a dwelling or habitation; "Ledgers" after the patron saint Leodegarius of the church adjoining.

The house is a charming and interesting old place, dating as far back as 1187 to the reign of Henry II. It was possessed by the Catesby family for several centuries previous to the Gunpowder Plot, and the first recorded historical incident connected with it, is that Sir Wm. Catesby, the favourite of Richard III., was taken at the Battle of Bosworth, 1485, and executed nine years afterwards. His grandson, also Sir Wm. Catesby, was next cited before the Court of the Star Chamber for harbouring Jesuits in the reign of Elizabeth, and condemned in 1581.

Sir Robert Catesby, his son, lived here for some time with his mother, although he was not actually born in the house, and eventually became notorious as the instigator and leader of the Gunpowder Plot Conspiracy in 1605. How this diabolical scheme was happily frustrated is common knowledge; suffice it to say that Sir Robert and some of his infamous accomplices escaped to Holbeach King's Swindon, in Staffordshire—a house belonging to one of the doomed band—where after a desperate stand they were shot down November 8th, 1605.

Guy, or Guido Fawkes, *alias* Johnson, the

man mostly associated with November 5th, and to whom the task was allotted to fire the train, was a foreigner, and formerly an officer in the Spanish Service. He and the remaining conspirators were captured and executed in London.

Curiously enough the Secretary of State at that time was Lord Salisbury.

After the Catesbys the house passed into the hands of the P'Anson family, from them to the Ashley family, and then by marriage to the Senhouse family, in whose possession it still remains.

"Next door," as one may say, stands the church, a stone building, chiefly in the perpendicular style; it contains a monument erected to the memory of Sir Wm. Catesby, the favourite of Richard, III., consisting of effigies in Heraldic costume.

Of the house itself a little more must be said.

It is built of stone in the early English style, and it is supposed about the year 1187, but the principal part of the existing structure, viz., the west and south fronts, were built in the reign of Edward III., between 1336 and 1360; architect unknown.

The dining-room or south end was restored by "Brian P'Anson" in 1652, and the east front by the late Capt. Senhouse in 1852.

There is a tower at one end with a stone balustrade; and the stone gables, battlements, and balustrades, in all their colours of weather-beaten richness, present a charming appearance, and, despite the restoration it has at times received, it is a good example of the Architecture of its time.

The interior is in parts as altogether charming as the exterior. It has a spacious entrance hall, with oak-panelled walls, on which hang antique swords, pistols, and blunderbusses, while in a corner one is confronted by a knight in full armour. The dining-room is a charming room, also oak-panelled from floor to ceiling, with two large, stone-mullioned bay windows, and a handsomely carved oak mantel, in which is incorporated the coats-of-arms of the families.

Out of a separate chamber an open newel staircase, in massive oak, with carved newels and banisters of very bold and beautiful design, leads to the floor above.

The garden completes the harmony of the whole. In one corner there are four stone statues, emblematical of the seasons, surrounding a large figure of "Atlas," with his heavy burden, while the main entrance is beautified by its "Guardian of Stone."

Innumerable sun dials are dotted and scattered about, and an old terrace with its decaying lichen-carressed stone in all its rich and beautiful colour-tones, over which like a sentinel hangs a gigantic mulberry tree, add additional charms and quaint notes to this already old-world corner.

THE corner stone of the new district church for the parish of Holy Trinity, Worthing, which is to be erected in Tarring Road, at a cost of between £3000 and £5000, has just been laid.

A ZÜRICH correspondent writes under date October 22nd:—"The cantonal authorities of Argovie have completed the restoration of the Schloss Habsburg (*lit.*, Habichtsburg, the Castle of the Hawk), near Schinznach, on the Aare. The castle was built by Werner, Bishop of Strasburg, of the Hapsburg family, in 1027. This was in the thirteenth century the seat of the first Rudolph von Hapsburg, Count of Argovie, the favourite of the Emperor Frederick II., and Governor of Lucerne, Zug, Glarus, &c. He was the founder of the Hapsburg dynasty. The building, which had descended to the low estate of a farmhouse, has now been restored to some resemblance of its historic past. The windows have been filled in with stained glass bearing the arms of Austria, the fine oak carving on walls and ceilings freed from its ancient coatings of plaster and whitewash, and the exterior woodwork of the house painted with the Austrian and Swiss national emblems and colours. It is intended henceforth to preserve the building and grounds as a national monument."

SPAIN: Its Picturesque Cities and Monasteries.

V.—THE MONASTERY OF SANTAS CREUS.*

By F. HAMILTON JACKSON, R.B.A.

(Continued from page 181.)

BEYOND the refectory is the Royal Palace, which was built by Pedro III. and Jaime II., the latter of whom used it as a royal residence in his frequent visits to the monastery. One enters through a plain doorway a sort of vestibule, 24ft. by 15ft., with a wooden roof painted with the arms of the house of Aragon and of the abbot under whose abbacy the building was erected. From this vestibule one enters the *patio*, which is Gothic, and very fine both as Architecture and workmanship. It is about 24ft. square. In the centre is a well of excellent water, which was covered by a 17th century well-head, but most of this work has been destroyed. On the right a staircase ascends to the first floor, the handrail of which is supported by two flying arches which meet in the middle upon a porphyry column.

The clustered columns supporting the arches rest upon this column, so that the arcade is regular all round the *patio*. The handrail and the edges of the steps are moulded, and at the bottom of the rail is sculptured a little group of crouching animals.

Above the inside of the door is carved the shield of Aragon, supported by two flying angels. The gallery occupies the

* The Chapter House at Santas Creus is singularly like that at Poblet, and we give an illustration of the latter for purposes of comparison.

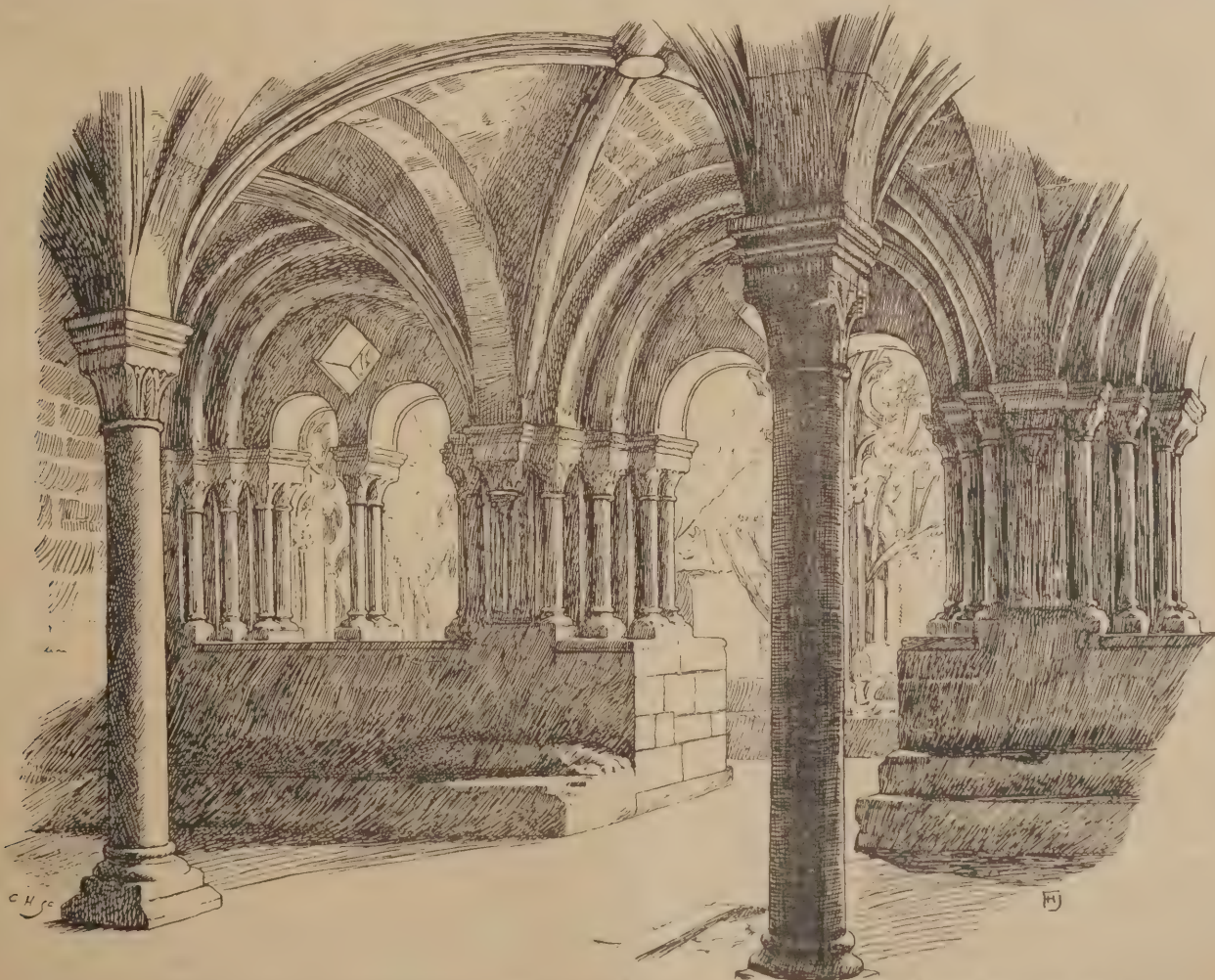
other three sides of the *patio*, being placed above a very flat vaulting. It consists of a low parapet which serves as base for eleven slender marble columns, the well-carved capitals of which sustain moulded pointed arches and a thin wall. It has a flat ceiling made of wood, and panelled, and painted in the same way as the vestibule. Some time after the erection of this gallery a second story was added, the weight of which, being more than the architect had calculated on, produced cracks, and other signs of ruin. After buttresses and various mendings up and alterations had been tried without success, in 1892 the second story was taken down, thus restoring the design to its original state. The rooms to which this gallery leads are not of any special interest. There were two other doors on the ground floor, one communicating directly with the exterior, and the other with the refectory. After the Kings ceased to make use of this palace it became the residence of the Abbots until 1562, when the palace in the outer cloister was erected. At one end of the building is a tower called "El torre del Homenaje," "the tower of the homage," because in it Don Fray Jaime de Aragon, the eldest son of James II. was shut up by his father, before he became a monk, as a punishment for the rebellious and disgraceful acts by which he embittered the last days of that distinguished monarch.

Beyond the ancient cloister and to the left is an interior court which contained the earliest buildings of the monastery in which the monks lived while the church was building, together with the principal dependencies prescribed by the statutes of the order. Of these buildings the only one now remaining is the Chapel of the Holy Trinity, commonly called that of St. Bernard, in which the religious rites were performed. It is but 30ft. long by 17ft. broad, and is perfectly plain. Close beside it there still remained until a few years ago the room of the Queen D. Petronilla of Aragon, with a window screened by a grating through which she could assist at the mass in the chapel.

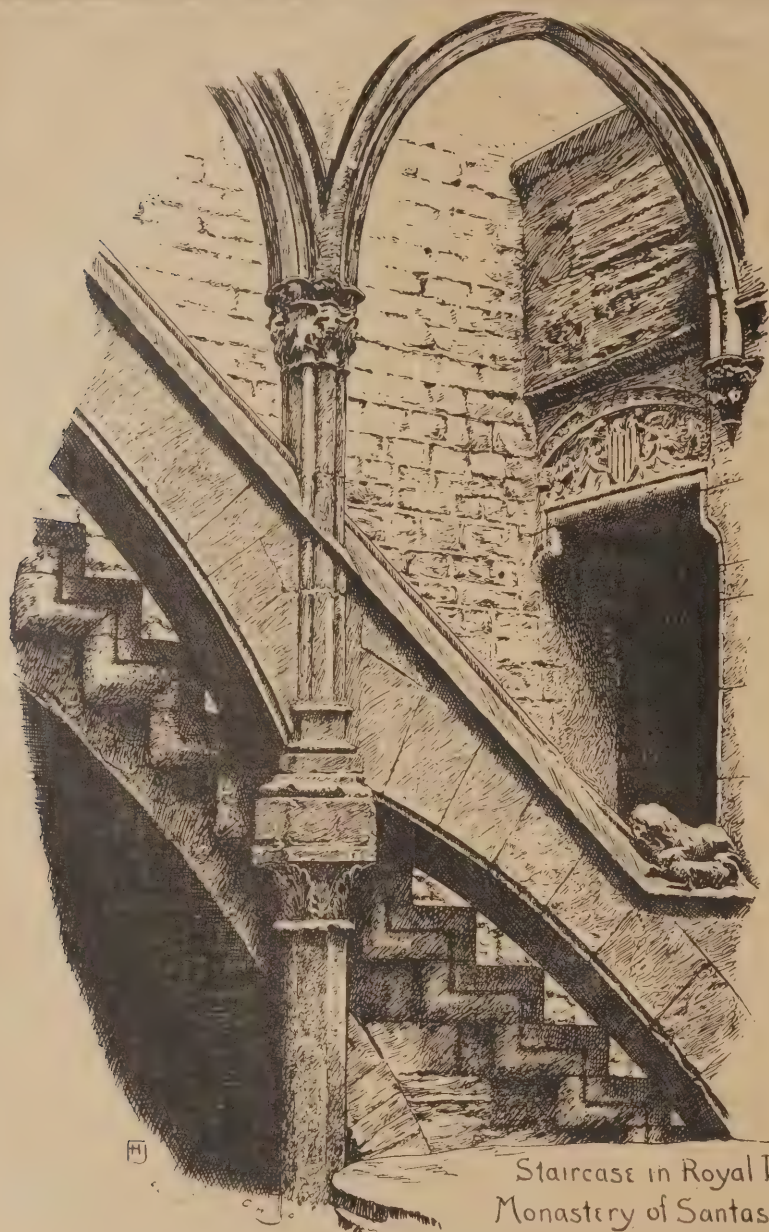
This room had a rich *artesonado* ceiling, but all has now perished, together with the other buildings, which were used as an infirmary, with its dispensary and chapels, &c., and as dwellings for the aged monks who were not obliged to conform to the strict rule of the order. There was also a tailor's shop here for necessary repairs to the clothes of the community.

On the first floor, above the Chapter House, was the dormitory for the young monks, and the library. The former is 141ft. long by 34ft. broad, and had a roof, now restored, supported by eleven slender pointed stone arches moulded at the angles. It was built at the end of the twelfth century, and D. Petronilla, the widow of Ramon Berenguer IV., gave a sum of money towards it in 1173, and from 1175 set aside the produce of a garden and a vineyard for the same purpose. The cells were 12ft. by 8ft., each lighted by a small window, and were ranged in rows along the walls, leaving a broad passage down the centre. The traces of them were only destroyed in 1870, when the dormitory was prepared to house the prisoners of Tarragona during the epidemic of fever of that year. Until that date the cell occupied by San Bernardo Calvo for a long time was preserved and much venerated. The library is situated to the south of the monk's dormitory, and is entered from it by a staircase of two flights meeting on a platform before the door. It is a rectangle of 36ft. by 22ft., with a rich *artesonado* ceiling, finished with a beautiful cornice. This library was very rich in manuscripts and early printed books, most of which have disappeared, though a few are preserved in the public library at Tarragona. The manuscripts were of the thirteenth, fourteenth, and fifteenth centuries, and in several languages, among which were Greek and Provençal.

The printed books included more than 150 in Latin and Spanish—some of which came from the presses of Basle, Florence, Ferrara, and Venice, the earliest date being 1499.



MONASTERY OF SANTAS CREUS: INTERIOR OF CHAPTER HOUSE. SKETCHED BY F. HAMILTON JACKSON, R.B.A.



Staircase in Royal Palace
Monastery of Santas Creus

SKETCH AT A SPANISH MONASTERY: BY F. HAMILTON JACKSON, R.B.A.

They formed part of the library of the Archbishop of Tarragona in 1594, who left most of his books to the Escorial, but a doctor of the town bought these after his death and left them to the monastery.

The monastery of Santas Creus, like that of Poblet, had the honour of being the last resting place of kings of Aragon and magnates of Catalonia, the majority of those distinguished monarchs who governed Aragon, Catalonia, and Valencia, and of the equally distinguished heroes who assisted in the heroic deeds of the Moorish wars being interred in one of these two monasteries. The important royal sepulchres are those of Pedro III., called "El Grande," and James II., which stand in the transepts one on each side of the nave, touching the piers of the crossing. The monument of the former is on the left of the spectator when facing the high altar, and is a work of the end of the thirteenth century.

The monarch died at Villafranca de Panades in 1285, and was translated to Santas Creus in 1300. The tomb consists of a slightly oval porphyry coffin said by some to have been a bath in a Moorish king's palace at Majorca, by others to have been a trophy of war brought by Roger de Lauria from Sicily. It rests upon crouching lions of marble, somewhat in the Italian Romanesque manner, and is covered by a richly carved Gothic cover of a tabernacle form, with canopied niches at the sides, tenanted by figures. It is 7 ft. 6 in. high, and stands beneath a canopy of the

height of 23 ft., which is rectangular in plan, and consists of ten slender columns of jasper which sustain large traceried arches crowned with finials and with pinnacles at the corners. The tracery consists of three sexfoils above three trefoiled arches, the external mouldings of each member being simple circles, and pointed arches of unequal height. On the shorter side there are but two arches, and the sexfoils become quatrefoils. At the base of the pinnacles at the angles the symbols of the evangelists project, gargoylewise. The capitals are delicately and beautifully cut, and the mouldings well considered, though rather later in effect than the date of erection would lead one to expect. In Don Pedro's will, after ordering that he should be interred in this monastery, he set aside 10,000 "morabetines" of gold for the expenses of the "assistance" and the construction of the monument. On one of the pilasters is a time-worn stone bearing a sepulchral inscription which runs thus: "Peter, whom this slab covers, subdued nations and kingdoms and cast down the mighty; he made much noise in the world. He realised all his enterprises, he made his soldiers brave and magnanimous. He who was first in war now humbly lies here. Constant to his proposals, true in his speech, and faithful to his promises was he, and valiant in arms; governing strongly with equal justice for all he was praised by them, but his energy of character was above all praise. He adored Christ by means of

repentance from which he received happiness. May the Virgin Mary be his pious conductor." Surely a character worthy of honour and capable of great deeds. The lid of this tomb was raised in 1857 sufficiently to show that the body of the King was still there, clothed in a monk's habit.

In the other sepulchre in the opposite transept are buried James II. and his wife, D. Blanche of Anjou. The monument is a good deal like that of his father Don Pedro, but is much more ornate, and the tomb itself is Renaissance in style. The traceries are composed of quatrefoils throughout, the external arches are crested with crockets, the finials are more elaborate, and there is a central pinnacle with open arches crowning the edifice. On the lid of the sarcophagus are effigies of the two persons buried within, the whole being carved with great delicacy, but being a little out of harmony with the canopy owing to the difference in style. It was executed by Bertram Riquer, the architect of King James's palaces, in 1312, about two years after the death of the Queen. The King's epitaph is modelled on that of his father, but is longer and more grandiloquent. I quote a part of it—"He was not lazy in subduing kingdoms, and he subdued Murcia and Cerdeña. He ruled at one time five kingdoms in one place and another; he gave back three without ransom, only preserving the dignity of Signory—he was humble hearted, pure from the miserableness of sin, pitiful, pure of spirit, eloquent, just in his judgments and valiant in war and in the use of arms. Of a joyful countenance and not melancholy, easily appeased and modest he deserved to be called 'the pacific,' for he was a friend to peace. He now has the Kingdom of Heaven for having faithfully confessed his Lord. May He who governs all things pardon him all which he did without malice." He died in 1327 at Barcelona, at the age of sixty-five, where his body remained until 1410. The following royal personages were also buried at Santas Creus, but the occurrences of 1835 destroyed their tombs. D. Margarita, second wife of King Martin, *El Humano*, who was abbess of the convent of Bon Repos after the death of the King. In 1473 this convent was abandoned, and the ashes of those who had been buried in the garth were translated to Santas Creus—the Infante Don Fernando Sanchez, natural son of James I., the founder of the noble house of the Castros of Aragon; the Infante Don Fernando, Marquis of Tortosa, son of Alfonso the Fourth and Leonor of Castile, and the King Don Alfonso III. of Aragon.

Among the great men who are buried in the monastery may be mentioned first the celebrated Admiral Roger de Lauria, to whom is attributed the saying "that he would stop the fishes even, in the Mediterranean, who did not bear the arms of Aragon." He died in 1305 at Valencia, and in his will directed that he should be buried near to his Sovereign, having been with him in life in his glorious undertakings. He lies within a shallow grave on the right of King Pedro's tomb, covered with a slab bearing his arms. From the inscription the line bearing his name has been obliterated. Close to the door into the cemetery in a sepulchre supported by five columns are the mortal remains of the Baron Arnaldo Guillermo de Cervello and his wife, one of the Castro family, barons of Llacuna. It is thought that during the restoration of this tomb it was made into a resting-place for the other remains of royal and historical persons scattered to the winds during the disturbances of 1835. In the nave is a pretentious monument put up in 1756, with white and coloured marbles, containing the bodies of ten or more members of the families of the Moncadas and Medi a Celi. It bears a long and pompous inscription stating that the Duke of that period had collected the bones of his ancestors into this tomb so that his duchess might rest more comfortably among them! In the centre of the nave is a stone bearing this inscription: "Here rest the bones of the nuns of the destroyed convent of Bon Repos of the holy Cistercian order, translated to this monastery of Santas Creus, hoping to be translated to a better resting place."

In the cloister are numerous tombs set in semi-circular niches made in the walls. They are most of them much the same in character, a sort of chest of stone carved with more or less elaboration on the front, and with a ridged lid upon which is sometimes set an effigy of the person who rests within.

The first of these which we encounter on the south side is that of Don Ramon Alemany de Cervello, who died in 1229, and was buried here in 1285. He was one of those who most distinguished themselves in the conquests of Majorca and Valencia under James I. His tomb has six niches on its face with two figures in each, a range of twelve shields bearing stags filling the spaces between the canopies and pinnacles. Upon the cover is a recumbent figure about the size of life of an armed warrior whose feet rest upon a lion. A little further on is a somewhat similar tomb, which contains the remains of Don Bernardo de Salvo and others of his family. This tomb has a recumbent figure clad in monastic garb on the lid, and the front is ornamented with sunk quatrefoils, the centre one containing a crucifix and the other two the family arms; it dates from the fourteenth century. On the wall to the left of the chapter house is the tomb of two members of the family of Aguilo, barons of Talavera. This family was descended from Don Ramon de Aguilo, great grandson of Yolt de Cervera, one of the nine barons who aided the Catalans in the war of the reconquest. Robert de Aguilo, called El Bardet, who was prince of Tarragona, was of this family. Close by is a tomb, supported by brackets, which contains the remains of two marquises of Barberá, of the family of Pinos, the descendants of another of the nine barons. The Admiral Galceran de Pinos who was made prisoner by the Moors in 1147 in the war against Almeria, but escaped after five years captivity, also belonged to this famous family, and next to this is the Moncada tomb, which still contains the remains of the brothers Don Guillermo and Don Ramon, who died in 1229 during the conquest of Majorca, though most of the bodies interred there were removed to the Medina Celi monument in 1756. It is a Romanesque tomb with little twisted columns, between each two of which are four circular plaques. The cover is divided into many compartments, which contain various shields, cows, and castles. The Moncadas were descended from Dapifer, another of the celebrated nine barons, who, having distinguished himself in the taking of Monte Catheno, took the name of Moncada, derived from it they say.

In the Chapel of the Assumption is the tomb of the foundress, D. Magdalena Salva de Valls, the slab covering which shows in relief her figure robed in the Cistercian habit. Several similar slabs are in the floor of the chapter house, among which may be mentioned one of 1366 showing a bishop with chasuble, mitre, and crosier, and others showing the abbatial costume. In the next walk is the Cervello's tomb, in which five barons of Llacuna lie buried. This family is descended from another of the nine barons, Raimundo de Cervello. The family of Cervera has two tombs here, they were descended from Yolt de Cervera already mentioned, a descendant of the Dukes of Saboza, who in the time of Charlemagne gained the estate of Cervera, acquiring at the same time the lordship of Castillo. Close by is the tomb of the family of Queralt, dating from 1288. The founder of this family was also a grandson of Yolt de Cervera. A little further on is the tomb of the "Unconquered Amazon," D. Guillermina de Moncada, wife of Don Ramon de Cervello. She was so called because when her husband was taken prisoner by the Moors she undertook a campaign against them which resulted in his liberation. The tomb is Renaissance in style with a shield on its cover. The front is divided into three parts, the centre of which contains in relief the equestrian statue of the warlike lady clothed in mail and with sword and spur.

Among these tombs of the valiant and noble is a slab of marble fixed in the wall close to the eastern door of the church, which records that "here lie the remains of him who in life

was a chemist in Barcelona, Pedro Judice, who died in 1315." One more tomb may be mentioned, that of the family of Montoliu, the lords of Renan and Bon Repos, which had its origin in Germany, and whose representative in the eighth century accompanied Louis the Pious to Catalonia. The style of all these is similar, the front being panelled with foiled panels of various shapes, often with shields within them bearing the arms of the various families, and with a gabled top, often also panelled, and I have gone through the catalogue at such length because of the historical interest of the names; though it is difficult to be critical in this beautiful quiet cloister, with the sun striking down through the slightly leaved trees in their tender spring green, and with the feelings stirred by the knowledge that the dust of many of the noblest warriors who fought successfully against the Moors and drove them from this part of Spain lies around one.

On the last page of a fourteenth century manuscript book which is preserved in the library at Tarragona, and which came from this monastery, is a Latin note giving the dates of construction of some of the most important buildings. This note says that the church was commenced in the month of September in the year 1174 "to the honour of the Virgin," that in 1191 the first stone of the foundations of the dormitory was laid, and that on Whit Sunday in the year 1211, about three o'clock, the convent was transformed into a new church, Don Bernardo the abbot presiding, with forty-five monks. In 1302, on St. John Baptist's day, the refectory was commenced. In 1313, on the 13th Sept., the first stone of the foundations of the cloister was laid, and it was finished in 1341. This was written by Fray Bartolomé de la Darnosa in June, 1367, the dates being taken from ancient books belonging to the monastery. On the 1st January, 1376, the walls round the church, the cloister, and the dormitory were begun as a sort of relief works on account of the famine, which was the most severe of the century. These works went on till February 23, 1378, at

which time the scarcity had passed away and they no longer hurried over the work.

Among the relics preserved in the monastery was one called the "holy hand." The story of this relic was as follows: Two monks who were friends agreed that whichever survived the other should pray for his friend's soul nightly by his tomb. One died, and the other according to his vow went to say a *De Profundis* every evening in the cemetery. - One evening as he rose after giving the benediction he saw a hand on the ground which repeated his actions! As this prodigy occurred not once but many times the monk reported it to the abbot, who, with the rest of the community, went to the cemetery at the right time and entreated the dead saint to allow his hand to be preserved as a memorial of the miracle. A cross of stone was erected in the cemetery on the spot where it appeared.

LEITH ACADEMY, built at a cost of £33,000, exclusive of the site, has been formally opened by Lord Reay.

SIR WILLIAM HARCOURT, Bart., has opened at Aberystwyth the new central block of the College buildings.

AFTER extensive repairs lasting over more than two years, the church of St. Mildred, Bread Street, has been reopened for worship. The church is one of the finest examples of Wren's interior Architecture, with its extremely handsome cupola and rich decoration, and was opened in 1683. Very wisely, the fine old oak pews have been preserved, as well as the panellings and altar piece, with its quaint pictures of Moses and Aaron. The carving of the pulpit and sounding-board is superb, and is attributed to Grinling Gibbons and his pupils. In the course of some previous alterations the beautiful carved altar rails of Charles II. work were removed, and arranged round the font, but have now been restored to their original place, and many other improvements have also been effected to render this one of the brightest and most characteristic of City churches.



AT THE MONASTERY OF SANTAS CREUS: TOMB OF D'RAMÓN DE CERVELLO.



THE MONASTERY OF POBLET. INTERIOR OF THE CHAPTER HOUSE.

GLAMIS CASTLE.

A MYSTERIOUS CHAMBER.

THERE are few stories of haunted chambers in ancestral castles better known than that which is connected with Glamis Castle. Several variants of the tale are given; but these all have in common the notable peculiarity that the location of the mysterious chamber is unknown. A writer in Chambers' Journal offers an ingenious solution of the much debated question. An examination of the evidence (says the writer) shows that the oral tradition was in existence about a century ago, and that the earliest printed record dates for over seventy years. Earl Beardie was dead three centuries and a half before the former time, yet his name may have survived as a nursery bugbear, just as that of the Black Douglas was used to terrify children in Sir Walter Scott's early days. The evil reputation of Earl Beardie was a local Forfarshire superstition long after he had gone to receive the reward of his misdeeds. A story, therefore, which had any mystery connected with it would naturally be associated with his name. Hence the secret chamber at Glamis need not have been constructed previous to 1454—the date of Earl Beardie's death—so as to link his name with it. Indeed, it is far more likely to be an erection of a much later date, when the name of the "Tiger Earl" had been canonized in an evil sense. It may here be explained that many structural curiosities at Glamis Castle have been only recently discovered. A

SPLendid FIREPLACE IN THE DRAWING ROOM, which was not known to exist, was accidentally found a few years ago; and a secret staircase, which appears to have been built about 1670, had been closed up, and was discovered in 1849, when some alterations were in progress. The principal renovator of the ancient Castle of Glamis was Patrick, first Earl of Strathmore, who was born in 1642 and died in 1695. In the "Book of Record," written by this Lord

Strathmore, and published by the Scottish History Society in 1890, he gives very full details of the work done by him at Glamis Castle. For instance, the construction of this back staircase, so long forgotten, is distinctly described; and from his references to certain leaden statues which he had erected in the grounds, these works of art were recovered from their undignified seclusion in some of the cellars, and have been restored to their original positions. When confronted with a mystery like that of the secret chamber, one naturally turns to the "Book of Record" to see if it contains any allusion to this apartment. The diligent student of that remarkable book will find two curious entries that seem to have some bearing on this subject. Writing on June 24th, 1684, Lord Strathmore records the following transaction:—"Agried with the

FOUR MASONES IN GLAMMISS

for digging down from the floor of the lital pantry off the Lobbis a closet designed within the charterhouse there, for wch I am to give them 50 lib. scotts and four bolls meall." The work of constructing this closet or small chamber was more serious than the earl had contemplated. Judging from similar chambers which he caused to be made at his other residence at Castle Lyon (now Castle Huntly) in the Carse of Gowrie, the closet was probably dug out of the thickness of the wall. On 25th July there is another reference to this closet, which shows that its construction was an arduous undertaking:—"I did add to the work before mentioned of a closet in my charterhouse severall things of a considerable trouble, as the digging thorow passages from the new work to the old, and thorow that closet againe so that as now I have the access off on flour [one floor] from the east quarter of the house of Glammiss to the west syde of the house thorow the low hall, and am to pay the masones, because of the uncertainty yrof dayes wages, and just so to the wright and plasterer." From these precise entries it is plain that in 1684 the first Earl of Strathmore caused

A SECRET CHAMBER

or closet to be constructed, with an entrance from the charter-room. This was by no

means an unusual thing, for many noble Scottish families have had frequent occasion to conceal documents that would have compromised them in times of war, and even a charter-room might not have been secure against the searches by enemies. The first Lord Strathmore, himself, for instance, was deeply implicated in a Jacobite plot with the Earls of Southesk and Callander in 1689; and though he afterwards became reconciled to William III., it would be useful for him to have a secure hiding-place for treasonable papers. Several of his descendants were concerned in the risings of 1715 and 1745, and a chamber of this kind would be useful either to secrete documents or to afford shelter to a fugitive. The third Earl of Strathmore died of wounds he received at Sheriffmuir in 1715. By that time the masons who had constructed the secret chamber thirty years before would have passed away, and the lingering rumours of its existence would be linked in popular mind with the mysterious Earl Beardie. For obvious reasons the successive Earls of Strathmore would not seek to dispel this superstition, and thus the simple "closet designed within the charter-room" has been elevated to the dignity of a haunted chamber. At least this suggestion is a reasonable one. Certainly the secret of this mysterious closet has been faithfully kept alike by the Earls of Strathmore and their factors. In the middle of last century this secrecy was of vital importance. It has since become habitual and traditional.

THE roof of a church in the Faubourg de Santa Lucia, Verona, Italy, while undergoing repairs, fell in. Several lives were lost.

An extraordinary scene was witnessed at Feltwell, in Norfolk, where the tower of St. Nicholas' Church has been under repair, and girt round with scaffolding. Suddenly, while the workmen were at breakfast, the tower swayed and then fell with a tremendous crash into the churchyard, wrecking gravestones, filling the place with rubbish, and sending up clouds of dust. The belfry contained a fine peal of bells, which were scattered in all directions.

THE NEW THAMES BRIDGE.

THREE score years and twenty is by no means the allotted span of a bridge, yet that is the age of the structure crossing the river at Vauxhall, which is now in process of demolition. It is not that the bridge is too old, it is young as bridges go, but, like much else in these go-ahead times, it has outlived its days, and it is now being sacrificed to make room for a bridge more in keeping with the requirements of a neighbourhood concerned with something more than a pleasure garden, and of a traffic which does not consist of the equipages of the rich and the fashionable alone. And so now that a temporary bridge has been thrown across the river to accommodate the diverted stream of traffic, old Vauxhall Bridge is in the hands of the destroyer. Already its sides are stripped of their iron palings, the roadway is in a state of upheaval suggesting the effects of an earthquake, and broken iron plates and girders (all cast-iron, a relic of engineering methods gone for ever) are piled up ready for the melting-pot. It is estimated, says the *Globe*, that over two thousand tons of scrap-iron and

NINE THOUSAND TONS OF STONE

from the old piers and abutments will have to be removed by the contractors, Pethick Bros., of Plymouth, before they are in a position to commence the work of rebuilding. Vauxhall Bridge seems destined to mark important changes in Thames bridge construction, for that now speedily disappearing was the first iron bridge thrown across the river, and the one to be put in its place will be the first concrete bridge ever built over an important river in this country, and at the same time it will, we believe, constitute the first notable attempt at bridge construction by the London County Council. Considerable interest therefore attaches to the work, and the novel methods (now made public for the first time) by which the old structure is to be removed, and its successor placed in position, will tend to enhance the interest which the expert may be expected to evince in so important an undertaking. On the Continent

CONCRETE BRIDGES

are no novelty; they are in use over the Seine, in Geneva, and in other places, and have been found to perform admirably all that is required of them, but the fact that the traffic over a London bridge is far greater and heavier than in any Continental city is one not to be lost sight of, and gives additional importance to this first experiment of Sir Alexander Binnie in concrete bridge building on the Thames. One great advantage, it appears, of this kind of bridge is the greater rapidity of construction and the saving of expenses (chiefly in labour) which is involved in bringing stone from a considerable distance and hauling it into position. Concrete can be made on the spot, as it were, and while being much more easy of treatment in the process of construction, is claimed to possess all the strength and durability of granite. It need hardly be said that only the heart of the piers and arches will be of concrete, the external portion of the structure being composed of more imposing material—in this case

SCOTCH GRANITE.

Waterloo Bridge (a granite structure) is said to be the finest of our bridges looking at it from an architectural standpoint, and in the new Vauxhall Bridge an attempt will be made to build on the Waterloo lines, at the same time rendering it more light and attractive in appearance. Many attempts were made to bolster up Vauxhall Bridge before its obvious unsuitability for present needs, and the urgent demands of those in the district it serves, came to be recognised. The bridge, opened in 1816, was built by a private company chiefly for the convenience of the fashionable world, which made Vauxhall Gardens a rendezvous. With its surrounding market gardens and fields there was then no thought of such a traffic as has of late years rendered Vauxhall Bridge, with

its 24ft. carriage way, at times quite impassable. It was more suited to its earlier purpose; indeed, over £250,000 was spent on its construction; albeit it was purchased some twenty years ago by the Metropolitan Board of Works for £75,000. Not only the traffic over, but that under the bridge has, of course, increased enormously since 1816, and the fact that the bridge has nine arches, and that its piers occupy about one-sixth of the waterway, has rendered it a source of danger to navigation, particularly as the ebb tide is often given to running here at a surface velocity of $7\frac{1}{2}$ miles an hour. The deepening of the river bed in the process of time had exposed the foundations, and about ten years ago an attempt was made to protect them with blast slag and cement, but the current soon commenced to play havoc with the protective works. It became dangerous for any load weighing more than ten tons to pass over Vauxhall, whereas the new bridge will be allowed to take a weight of over thirty tons. It may be mentioned that Westminster Bridge, considered by many to be the handsomest of the London bridges, can only take fifteen tons (the new Vauxhall will be almost as wide as Westminster), and that the safe capacity of Lambeth Bridge, which is guarded day and night by men who are ready to close it at any moment should a crowd assemble, such is its want of strength, is but three tons. The removal and

RECONSTRUCTION OF A BRIDGE

must necessarily impede to a considerable extent the traffic on the river itself, and any method which will tend to lessen the inconvenience must confer an undoubted benefit on those who use the great waterway. Messrs. Pethick claim to have hit on a plan which, while conferring this benefit, will at the same time expedite the work of demolition and rebuilding, more especially having regard to the fact that the piers of the new bridge (and it is only with the structure up to what is known as the spring line that the present contractors are concerned) are to be of concrete, faced, as already stated, with granite. The work is to be carried out with the help of a "Blondin railway"—overhead cable trucks—the idea very naturally being taken from the granite quarries of the North, to which recourse is to be had for the stone. There these cable cars are used to lift the granite out of the deep quarries and convey it to the railway trucks or lorries. On each side of the river a mast 90ft. high will be erected, carrying a cable of 1000ft. span and $2\frac{1}{2}$ in. in diameter. A truck running on the rope will be able to convey from three to four tons of the

DEBRIS OF THE OLD BRIDGE

or of material for the new structure, along the whole extent of the span in less than two minutes. There is talk of having two cables. The trucks can be lowered to any level from the cable line, so that there will be no difficulty in getting down to the foundations of the bridge, which are to be laid 25ft. into the bed of the river, going into the London clay, a somewhat different plan from that of the present structure, the foundations of which are built on a wooden platform not more than 3ft. below the river's bed. The task of building the new piers will be carried on, not in iron caissons, the usual method, but in coffer dams constructed of grooved piles, to ensure their being watertight. There will be only four spans to the new bridge, half the number of the old, but the greatest width between the five piers which will replace the nine of the old structure, would admit of three steamers passing under abreast. The parapets will be 89ft. apart, whereas old Vauxhall measures but 36ft. across, and the length of the bridge is put down at 1000ft., against 809ft., the present distance between abutments. The method of construction, as revealed in the bridge now in process of demolition, compared with that to be adopted in the new Vauxhall Bridge, affords striking evidence of the advance in a single department of engineering science during the present century, and it is believed that the architectural proportions of new Vauxhall will show an equally notable improvement.

The Society of Architects' Examination.

To the Editor of THE BUILDERS' JOURNAL.

SIR,—Mr. Arthur Cates was for so many years intimately connected, as Chairman of the Examining Board, with the R.I.B.A. examinations, that one naturally listens to him with respect when dealing with this subject. His letter in last week's BUILDERS' JOURNAL is consequently all the more to be regretted, in its effort to stir up a non-existent conflict between the Institute and the Society, to prove that the R.I.B.A. exam. meets all cases—which it is far from doing.

The Society provides a single qualifying examination, which the R.I.B.A. does not, for all assistants, whatever their age, and whether they be chief assistants or those holding comparatively junior rank.

The Institute limits are severe, often anomalous, and in a large number of cases quite prohibitive. The triple examination scheme is most excellent; but it can only apply to the younger men of leisure and means. The scheme of a single "Special Examination" is only open to the few, owing to the restrictions imposed.—Yours, &c.,

G. A. T. M.

Oct. 28th, 1898.

The "Bitter Cry" of the Outcast Architectural Assistant.

To the Editor of THE BUILDERS' JOURNAL.

SIR,—I thank your correspondent "A.R.I.B.A." for his letter, and I trust that it may result in much prominence being given to the mere pittance paid to fully qualified architect's assistants. From my experience the Profession is not overcrowded, but is the worst paid under the sun, and it is quite time that assistants should speak out and demand a larger salary from their employers, for I question very much whether in any trade or other profession an employer makes so large a percentage of profit out of his employees as an architect and surveyor does out of a fully qualified assistant.

Do we assistants fully realise how much our employers make out of our services in a year? I think not, or we should never submit to the usual two guineas a week salary, for which we are expected to be competent in all branches of the Profession.

May I be permitted to refer to myself. I am chief assistant to a firm of architects and surveyors in the provinces, and receive a salary of £2 10s. per week after having been in their employ four years. The greater portion of the working and detail drawings are prepared by myself, and, in addition to writing specifications, superintending works, &c., &c., I take out all the quantities. During the last twelve months I have taken out quantities for different buildings, the contracts of which amount roughly to £24,000, for which my employers receive—at $2\frac{1}{2}$ per cent. commission—£600. The time I put upon those quantities would altogether amount to about twelve weeks, which at £2 10s. per week comes to £30, and this is all I receive out of £600 going into my employer's pockets. I contend that an assistant who puts at any rate a clear £550 into the pockets of his employers in three months, would, if he were fairly paid, be receiving a salary of at least £5 per week.

Some of your readers may say: Why not get a better berth? but I am afraid that were I to change I should not get more than £2 15s. per week, which is regarded by most architects as a very liberal salary.

I think that before we can expect any alteration as to our wages we shall have to combine in some way or other, and I hope that something practical may result from this correspondence. Apologising for taking up so much of your valuable space, I am, sir, yours faithfully, PROVINCIAL ASSISTANT.

THE strengthening of the venerable tower of St. Peter's Church, Liverpool, which also serves as the Pro-Cathedral of the diocese of Liverpool, continues.

DWELLINGS FOR THE POOR.

SOME LOCAL GOVERNMENT BOARD REQUIREMENTS.

THE Local Government Board has imposed such requirements upon the Lincoln Corporation that the latter has been obliged to drop its scheme for the housing of the working classes. Particulars of the scheme and the criticisms are contained in the following report, prepared by the City Surveyor: (1) On November 25th, 1897, the Sanitary Committee approved a scheme for the erection of 30 houses, viz.: 14 houses to cost complete £195 each, at a proposed weekly rent of 5s.; 11 houses to cost complete £148 each, at a proposed weekly rent of 4s. In addition to the above there were five houses specially designed to meet the exigencies of the site. On December 7th, 1897, the Council considered the above scheme, and deeming the rents too high referred the matter back to the Sanitary Committee for reconsideration. (2) On December 29th, 1897, the Sanitary Committee approved of

A REVISED SCHEME

for 40 houses, viz.:—12 houses to cost complete £168 each, at a proposed weekly rent of 4s. 8d.; 26 houses to cost complete £132 each, at a proposed weekly rent of 3s. 4d. In addition to the above there were two houses specially designed to meet the exigencies of the site. On January 5th, 1898, the Council approved this revised scheme, and authorised application to be made to the Local Government Board for the necessary loan. (3) In reply to this application a communication dated April 5th, 1898, was received from the Local Government Board and considered by the Sanitary Committee, together with the Surveyor's reports thereon, dated April 12th and 19th, when they authorised the amended plans to be returned to the Local Government Board. The cost of the emendations, consisting of

ADDITIONAL DRAINAGE DETAILS,

provision of bedroom fireplaces, skylights over staircases, and extra thickness of passage walls, was estimated at £200. (4) The Local Government Board inquiry was held on 22nd July, 1898. (5) A further reply, dated 22nd August, 1898, was received from the Local Government Board, wherein they ask for the site to be covered with cement concrete (which was also to be placed round all drains), for all bedrooms to be made a minimum size of 80 square feet, and for the provision of a depth of open space of 15ft. at the rear, instead of 10ft. as required by the Building Committee. It should be understood that all the requirements of the Local Government Board are over and above those insisted upon by the Corporation when approving plans.

THE ADDITIONAL ESTIMATED COST

of the above is £458, but it must be distinctly understood that the scheme now only consists of 37 houses (instead of 40), three having to be eliminated to provide the additional open space, and the increased size of bedrooms. The estimated cost will therefore now stand as follows:—12 houses to cost complete £189 each, at a proposed weekly rent of 5s. 3d.; 23 houses to cost complete £153 10s. each, at a proposed weekly rent of 4s. 3d. Part of the additional cost is owing to the statement of the Local Government Board inspector, that it is against their regulations to allow more than 30 years for the repayment of the loan for the buildings, whereas the former calculations were based on 40 years. The total amount required to be borrowed (if this last amended scheme is carried out) will be £6900, as against £6500, though three houses less are to be built as mentioned above.—The above report has been considered by the Sanitary Committee and by the City Council in Committee of the whole. It was resolved to inform the Local Government Board that they consider the Board's later conditions unnecessary and unreasonable, and that, in consequence, as the object was to build decent houses for the working classes at low rents without cost to the rates, the Council will be compelled to abandon the scheme.

COGAN OLD CHURCH.

COMPARATIVELY few people visit the Parish Church of Cogan, though many are familiar enough with the new church that stands in New Cogan to the left of the road on ascending the hill into Penarth. The Parish Church lies in the midst of a rural district, hard by the roadside, about half-way between modern Cogan and Lavernock. Twenty years ago it was roofless, and stinging nettles flourished in the nave. The birds nested in holes in the wall, the eastern wall leaned outward a foot or so from the Perpendicular, and it appeared as though in a very short time there would not be one stone left upon another. But time works changes which are not all destructive, and to-day the little church is at all events secure. To the antiquary the church is especially interesting. Very small in size, not more than 50ft. in length, it dates back from Norman, if not still earlier, times. At the same time there are traces of Early English work in it. In the churchyard opposite the south porch is the

BASE STONE OF THE OLD CROSS,

all vestiges of the shaft and head have disappeared. The interior of the church presents many points of interest, not the least of which is the "herring bone" work in the walls, which bespeaks great age. The nave and the chancel are separated by a thick cross wall and low Norman arch. In the chancel are several graves of the Herbert family bearing date 1670—the family through which the present Marquis of Bute inherits part of his estates. These graves are now covered by a wooden floor, but by an ingenious arrangement the boards can be easily removed and the old tombstones laid bare. All round the wall to a height of a few feet oak wainscot covers the original stone plaster. At the west end of the church, close to the old font, is a curiously raised dais, now covered with a wood floor, upon which, it is supposed, the knights of the district formerly sat or knelt when performing their devotions. The ancient font is

A WONDERFUL OLD RELIC,

about which a curious story is told. Towards the end of the last century, when services at the church were discontinued, the parishioners of Sully were anxious to secure the font, and to this end asked leave to remove it. The leave was granted by the diocesan authorities, much to the chagrin and wrath of the farmers of Cogan, for at that time bad blood existed between them and the men of Sully. Determined that the font should not be removed, the farmers of Cogan went one dark night to the church armed with hammers, and broke the font in pieces. In this state it long remained, but afterwards such of the fragments as could be found were fitted together, though little more than the base and lower part of the basin now remain. The beautiful reredos which has recently been placed in the church, and which will be dedicated in the course of the next few weeks, has been erected by Lord Bute in memory of the late Mr. James Andrew Corbett, at whose suggestion the restoration work was commenced. The reredos, which is of bronze, is a work of great beauty. It is quite unique in character, and represents the Transfiguration. In the centre is our Lord, with a nimbus, in robes of gilt-bronze and aluminium. On either side are representations of Moses and Elias, and the figures below are St. Peter, St. James, and St. John. The lower part of the reredos is in the most chaste open bronze work in the Perpendicular style. Mr. C. B. Fowler was the architect for the restoration.

SHEFFIELD COUNTY COUNCIL has decided to accept the Duke of Norfolk's offer to sell to the corporation the whole of his markets and market rights in the city for £530,000.

A SYNDICATE is in course of formation to build and carry on a first-class theatre at Hampstead on a freehold site near Hampstead Heath Railway Station and the tramway terminus. The theatre is to hold about 2500 persons, and is to comprise a spacious pit and stalls, two tiers of boxes, and a large gallery.

ARTS AND CRAFTS IN THE CITY.

UNDER the auspices of the Worshipful Company of Turners, and by permission of the Lord Mayor, the exhibits in the twenty-ninth annual competition in turning in wood and metal were last week on view at the Mansion House. The number of exhibits were not large, but the quality of the work was above the usual average, and speaks well for the continued progress made under the influence of the Guild. The judges in the wood-turning classes, Mr. Burdett-Coutts, Mr. James Livesey, Mr. A. Murray, and Mr. G. W. Holtzapfel, considered that the quality of the work in general design and execution was up to the required high standard, and they were especially pleased with the improvement shown by the apprentices. The amateurs, both in wood and ivory, have come well to the front in support of the exhibition. The winner of the first prize for

WOOD-TURNING

was Mr. William Gleeson, of Cardiff, who sent four massive and handsome newels, three in teak and one in walnut, fit to adorn the stairs of some stately mansion. Mr. Gleeson received the silver medal and Freedom of the Company, and, subject to the consent of the Court of Aldermen, the Freedom of the City of London, and 5gs. Mr. R. H. Isaacs came next for the bronze medal and 4gs., with three sets of square pine balusters. Among the apprentices, Mr. L. G. Seegar, of London, stood first with two mahogany flower stands, and Mr. H. Wilson, of Coventry, second with nine deal balusters. There were five other prize winners, all of whom have produced highly meritorious work. The metal exhibits are very scanty, and hardly representative of turning in metal. Mr. A. W. Curzon, of Clerkenwell, was awarded the silver medal and the Freedom of the Turners and of the City of London with three escapements for marine and pocket chronometers. The other prize winners were Mr. F. Jackson, of Peckham, Mr. T. Taylor, of Sheffield, and Mr. W. Hayes, of Wimbledon. What is lacking at the Mansion House is

THE METAL WORKER'S ART

is, to a great extent, found at the Ironmongers' Hall, where another of the Guilds, the Founders' Company, has organised an exhibition of articles entered for competition by founders, designers, craftsmen, and apprentices engaged in foundry business within the metropolitan area. On the committee are Mr. W. E. Chambers, the Master, and Messrs. Herbert and Bertram, the Wardens of the Founders' Company, Professor Aitchison, R.A., Mr. Alfred Gilbert, R.A., and Mr. G. J. Frampton, A.R.A. Here, again, as at the Mansion House, the number of the exhibits is strangely small, but so far as it goes the display is satisfactory enough, and, in some of the specimens, of high quality, as, for instance, in Mr. O. Whiting's door knocker, a well-designed "Prometheus," and Mr. A. C. White's female head, which might have come from some French sculptor's studio. The ornamental and decorative work in metal is excellent in finish if not always original in design, and, small though this exhibition is, it is to be hoped that the Founders' Company will see their way to continue the encouragement which they have given, and which has been assisted by the Ironmongers in the lending of their beautiful hall to this important branch of art.

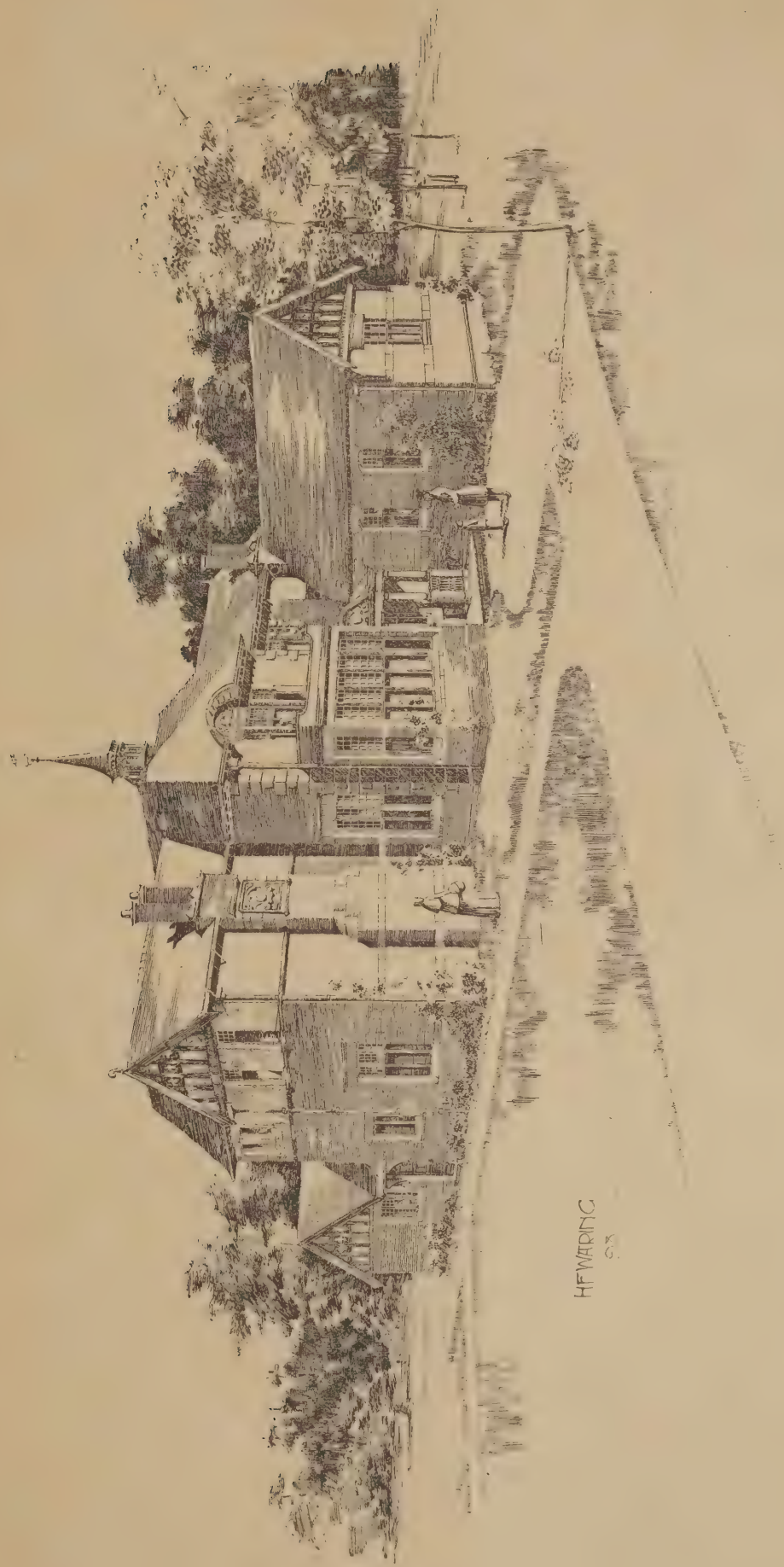
THE new county intermediate school of Machynlleth, Montgomeryshire, was opened last week. The building has been erected at a total cost of £2000.

THE exhibition buildings at Coolgardie are completed, and the Government railway siding has been constructed. Goods can therefore at any time be forwarded for the port of arrival and delivered in the exhibition grounds. Arrangements in reference to obtaining improved travelling facilities to Australasia for Great Britain and the Continent of Europe, and securing a British Art Section for the exhibition, are in progress.

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COMPETITION DRAWING FOR AN INFANTS' SCHOOL IN A NORTH COUNTRY VILLAGE.
DESIGNED BY G. L. MORRIS; DRAWN BY E. A. RICKARDS.



HWARDING
93

PROPOSED COTTAGE HOSPITAL, WOODFORD, ESSEX. MESSRS. KINGWELL COLE AND KENNETH WOOD, ARCHITECTS.

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COMPETITION DRAWING FOR AN INFANTS' SCHOOL IN A NORTH COUNTRY VILLAGE. FRONT ELEVATION. BY G. LL. MORRIS.

EXCAVATIONS AT THEBES.*

BY JOHN E. NEWBERRY, A.R.I.B.A.

WHEN the Committee of the Architectural Association asked me to read a paper on "Excavations at Thebes," I accepted without much thought of the great range that such a generalised title might be taken to embrace; for the site of ancient Thebes is the place of all others in Egypt where digging for antiquities has been carried on from the earliest times. Professor Petrie remarks that what we now find are but the last leavings of a hundred generations of incessant pillage. But this paper will only deal with the excavations that

I personally assisted in making during two seasons' work for the Egypt Exploration Fund, and, by the kindness of the Committee of that Society, I am able to show you a series of lantern slides from photographs taken whilst we were unearthing the Temple of Hatshepsut, now known as Deir-el-Bahari, or the Convent of the North. The result of this excavation, to quote an article in the *Edinburgh Review*, "has been to give back to the world a temple which, though ruined in some parts, unfinished in others, is, perhaps, the most beautiful, certainly the most original in Egypt, and the earliest of those now standing

ON THE PLAIN OF THEBES."

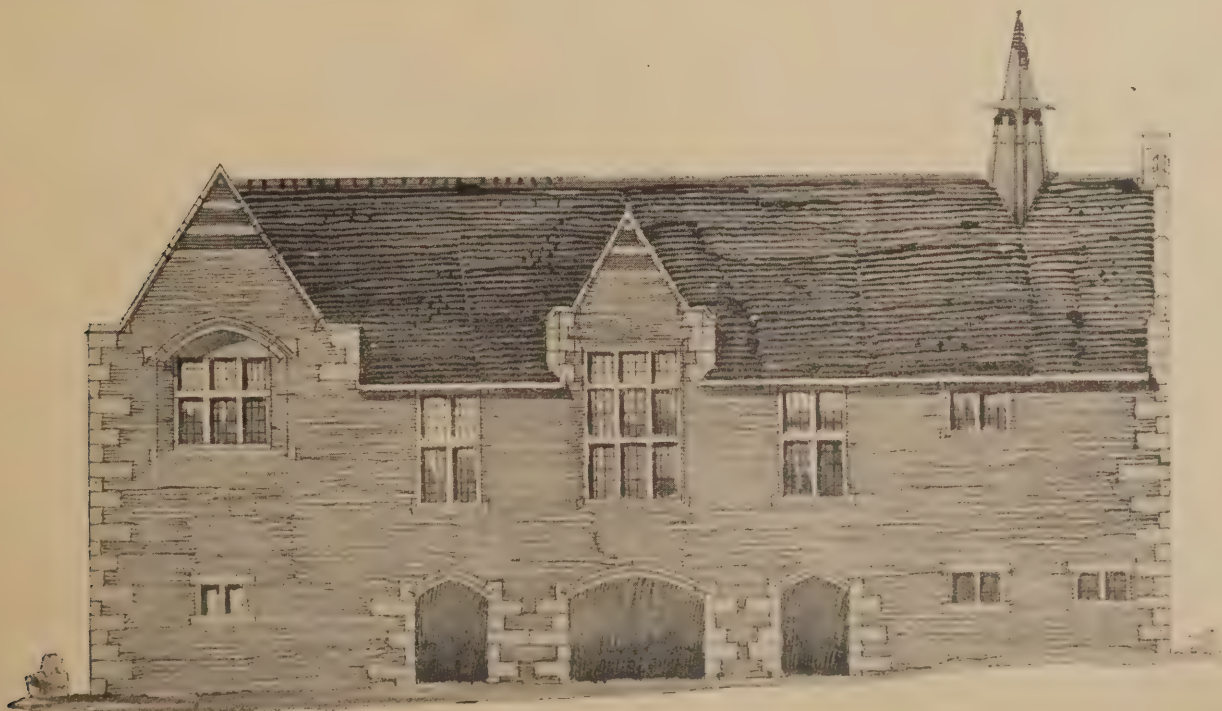
I propose to divide my paper somewhat as follows:—First, a description of the site and surroundings of our work. Second, a brief sketch of the vicissitudes that this temple has passed through, which, to be intelligible, must include a recital of a few of the facts of ancient Egyptian history. Then I will endeavour to

describe our mode of work and the architecture of the building and its details. The site of the ancient city of Thebes in Upper Egypt is now marked by Arab villages, the principal being Luxor, Karnak, and Gournah, some 450 miles from Cairo by the river. When I returned from there in 1894, the railway alongside the Nile from Cairo only extended to Sohag, but now it passes through Luxor and Assuan, on the way to Khartoum. But no one should attempt a first visit by train if he can possibly afford the time and extra expense of going by steamboat, or better still by dahabiyeh. The *Edinburgh Review*, in the article which I have already quoted from, aptly remarks that "One cannot journey into

THE PAST OF SOME FOUR THOUSAND YEARS AGO

in thirteen hours of noise and dust. Five days on the Nile post-boat give a more fitting preparation, with their uninterrupted hours on a glassy water, through a landscape, monotonous

* A paper read before the Architectural Association at a meeting held on Friday, October 28th, 1898.



COMPETITION DRAWING FOR AN INFANTS' SCHOOL IN A NORTH COUNTRY VILLAGE. BACK ELEVATION. BY G. LL. MORRIS.



PLAN OF INFANTS' SCHOOL IN A NORTH COUNTRY VILLAGE. BY G. LL. MORRIS.

enough, but with a strange incomprehensible fascination of its own." To continue the quotation in the writer's own poetic words: "As one goes further south, the colouring becomes more vivid; the hills are no longer tinted with pale pink and purple, but glow at evening with the colour and transparency of a sunset cloud, or like snow peaks with their rose light and aerial blue shadows. At last, where the hills, no longer flat-topped, but with sharp peaks and jagged outline, open out round a fertile plain deep in corn, one comes to Luxor. It is sunset when one arrives by the post-boat; the sky glows behind the Libyan hills, the water towards the west is a sheet of gold and crimson, the pylons and obelisks of Karnak rise black on the left. Under the hills on the west bank one can faintly trace the white terraces and colonnades of Deir-el-Bahari; the Colossi are no more than two misty points against the hill; the giant pillars of Luxor stand out against the purple sky where night rushes up from the east; and Thebes is reached." A map of a part of the Theban district taken from Lepsius' "Denkmal" shows that on each side of the Nile stretches a belt of fertile land; it is much wider on the east side, extending for perhaps four miles from the river to the mountainous desert of the Arabian hills beyond. Here by the river are the remains of the mighty temples of Karnak and Luxor, created for the worship of Amon, and the work of many generations. On this side stood the ancient city of Thebes. It will be seen that the map shows the cultivated land on the west side to be only a narrow strip, which ends as abruptly at the foot of the barren limestone cliffs as a lawn adjoining the gravel walk in a garden.

EGYPTIAN TOMBS

were always placed in the desert, partly that they might be beyond the reach of the Nile, and partly because every inch of cultivated ground was, and is, so valuable. The hills here are regularly honeycombed with tombs, and this western side is simply one vast necropolis, the biggest in the world. The northernmost cliffs, known as the Drah abu'l Neggah, contain the earliest tombs. To the south-west is the entrance, a narrow gorge, to the natural amphitheatre of cliffs in which the temple of Deir-el-Bahari is situated. Beyond in the desert is the wonderful valley of the Tombs of the Kings, approached either by a ravine north of the Drah abu'l Neggah, or by a steep mountain path over the cliffs. On this side of the river are also the Ramesseum, the temples of Seti I., Medinet Habu, Der el Medineh, as well as the famous Colossi. Lepsius believes that the temple of Deir-el-Bahari was formerly connected with Karnak, since the axis of the prolonged dromos would lead straight to

THE GREAT TEMPLE OF AMON.

The remains of the Sphinx Avenue, from Karnak to Luxor, can be traced, and in places the ram-headed monsters are still to be seen. The ancient Egyptian name of the city is read as Uas, and its scriptural name was No, or No Amon, the city of Amon; no satisfactory explanation has been given as to why the Greeks called it Thebes, a name borne by cities in Boeotia, Attica, Thessaly, Cilicia, Asia Minor, etc. It will be convenient here to

briefly remind you that Egyptian history is divided into dynasties:—These are grouped into the *Ancient* kingdom, including the I. to VI. dynasties; the *Middle* kingdom, XII. to XVI., and the *New* empire, XVII. to XX., which is dated at 1600 B.C. to 950 B.C. Following this is the period of foreign domination, XXI. to XXV., or 950 B.C. to 663 B.C.—the late Egyptian period, XXVI. to XXX., or 663 B.C. to 332 B.C., and

THE GRÆCO-ROMAN TIME,

which includes the Ptolemies, the Romans and the Byzantines, from 332 B.C. to 640 A.D. The history of Thebes under the Early Empire is veiled in uncertainty, but it is known to have been the capital of a nome or province and was ruled by princes of its own. A Vith dynasty tomb has lately been discovered in the Drah abu'l Neggah by my brother, Mr. Percy Newberry, which I believe is the earliest known tomb in the neighbourhood. In the Middle kingdom, Thebes rose to a more commanding position, but its greatness dates only from the beginning of the New Empire, or, say, 1600 B.C. The liberation of the country from the Hyksos, and the reunion of the kingdoms of Upper and Lower Egypt was directed from Thebes,

and for centuries it continued to be the favourite seat of the Pharaohs. Historically, the interest of Thebes centres on one of the most fascinating periods of Egyptian history—the XVIIIth and XIXth dynasties, being the time of the Amenhoteps, Hatasu, or, more correctly, Hatshepsut, the Thothmes, Seti, the Rameses, and Merenptah, of Israelitish fame. But the sun of Thebes began to set when the Royal residence was transferred to Lower Egypt in the XXist dynasty. Alexander the Great and the Ptolemies probably found Thebes still a great, though decadent city, but they assisted to embellish it, as some buildings of this period attest. After many rebellions, the great city revolted for the last time in 30-29 B.C., taking part in the insurrection of Upper Egypt against the oppressive taxation of the Romans. Cornelius Gallus, the prefect, overthrew the rebels, and is said to have utterly destroyed the ancient town. From this time Thebes is only mentioned as

A GOAL FOR INQUISITIVE TRAVELLERS.

The introduction of Christianity and the edicts of Theodosius were followed by the destruction of many pagan statues, and the obliteration of countless inscriptions. Later the rock-cut tombs, at first occupied by Christian hermits, were converted into peasants' dwellings; Christian churches were erected in the temple halls, and mud-brick houses built between the columns of the Temple of Luxor. Carefully worked blocks and slabs were removed from the monuments, which were used as quarries, and much beautifully carved limestone has been burnt for making lime. In considering the history of

THE TEMPLE OF DEIR-EL-BAHARI

we must first glance at what we know of the reign of its great founder, Queen Hatasu, or Hatshepsut. In the first excavation of the temple it was not at once discovered that she was its founder, as in nearly all the inscriptions the name of her successor, Thothmes III., has been substituted for that of hers. But further observation has shown that, although she is always depicted on the reliefs in male



INFANTS' SCHOOL IN A NORTH COUNTRY VILLAGE. END ELEVATION. BY G. LL. MORRIS.

attire, the personal pronouns in the inscriptions are feminine, and the names of the king were incised deeper than the surrounding hieroglyphic signs. Such usurpation is not uncommon among the Egyptian kings, but the persistence with which every trace of the queen's reign has been erased seems to point to something more than the mere desire for fame. This destruction is attributed to the queen's nephew, Thothmes III., and the reason may be found in the

HISTORY OF THE SUCCESSION.

Professor Petrie in his "History of Egypt" says that the father of Hatshepsut, Thothmes I., died before he had a son old enough to succeed him on the throne; some five or six months before his death, and whilst he was probably in failing health, he associated his daughter with him, as she was the heiress in the female line, in which royal descent was specially traced. She was then about twenty-four years of age and of great capacity and power. Two or three months later the king married her to his eldest son, Thothmes II., who would otherwise have had no claim to the throne, being the son of Mutnefert, who was not a royal princess. Ten weeks later Thothmes I. died. His son, who was now king in name, was but seventeen years old, appears to have shown no abilities, and must have been a weakling, for he did not go on any campaigns, undertook no wars; in fact, did no great work of any kind, and at thirty he died. During his life his sister probably entirely organised public business, and at his death she was left sole legitimate ruler at about thirty-seven years of age, the only person who could challenge her power being her little nephew, Thothmes III., then, perhaps, nine years old. He had no claim to the throne, being the son of a woman named Isis or Aset, who was not of royal blood. But Professor Petrie considers that his aunt did all she reasonably could be expected to, for she associated him with her in the kingdom;

PUBLIC DATING OF DOCUMENTS

was carried on in his name; and she married him to her second daughter, Meryt-ra, as soon as might be, and thus gave him the position of heir. If she held on firmly to her royal prerogative, she only did what any other capable ruler would have done. No doubt it was galling to a very active and ambitious young man to be held down to peaceful pomp and routine. . . . But, to quote Professor Petrie again, all things come to him who waits. Egypt developed greatly during this twenty years of peace and progress, and at the Queen's death Thothmes III., now thirty-one years old, succeeded to the full power. He was then able to launch into that mighty series of campaigns which mark the highest extent of Egyptian power, and which gloriously occupied twenty-eight years of overflowing energy. We can now form some idea of the force of character and ability of Queen Hatshepsut by the fact that she is, as far as we know, the only woman in the great historical period that overcame the prejudices of a changeless people and broke the male line of succession. By one means or another she kept her throne, and only after many years could her mighty nephew

WREAK HIS VENGEANCE ON HER MONUMENTS.

But Hatshepsut's temple suffered at other hands than Thothmes III. Amenophis IV., Khuenaten, or, as the name is now read, Akhenaten, the so-called heretic king, hacked out here, as everywhere, the figures and names of Amoh-Ra, and the inscriptions and reliefs were left thus mutilated until the time of Rameses II., who restored them, though in a style unworthy of the first hand. For centuries after the temple remained practically unaltered, though there are evidences that the unfinished northern colonnade was used by a colony of embalmers as early as the XXII. dynasty, and many burials have been discovered in this part of the XXVI. dynasty. Under Ptolemy Euergetes II. a few minor restorations and some important additions were made. On the introduction of Christianity a community of monks established themselves,

and founded a Coptic convent, known to the Arabs as Deir-el-Bahari, which was built with bricks brought from an edifice of the XXVI. dynasty at the Assasif. The

CHAMBERS OF THE TEMPLE

were converted into chapels, and the "heathen" representations on the walls barbarously defaced. The earliest detailed description of the place is given in the account of the French expedition of 1798, and later on we read of it in the works of Wilkinson, Lepsius, and Mariette, the latter of whom undertook important excavations in 1858, and published a monograph on the temple. But it was reserved for the Egypt Exploration Fund, under the able guidance of M. Naville, to bring to light one of the most interesting temples of Egypt, of which up to 1892 two-thirds were covered by mounds of rubbish that reached to a height of 40ft. in places. As I am addressing an architectural audience I cannot do better than begin my description of the temple with a ground plan. This only reaches as far east as the lower colonnade, the excavation of the lower part not having been commenced when the drawing was prepared. The plan is very remarkable, quite different from all

OTHER TEMPLES IN EGYPT,

and was probably suggested in great measure by the site. It consists of three great terraces or platforms cut out of the east slope of the mountain, and rising one above the other from the level ground, the upper platform being backed against the vertical cliffs, which here rise to a height of 384ft. Centrally placed sloping ways, or inclines, lead from terrace to terrace, and along the front of each terrace the ceiling stones of the one above were carried over on the top of a double colonnade, thus forming a kind of cloister underneath. The upper and part of the middle platforms are terminated by a series of chambers, excavated and then built into the solid rock. The sphinx avenue, some 24ft. wide, with trees planted at intervals, led from the plain, or perhaps the river, to the gateway of the lower court, or entrance to the temple precincts, and formed a continuation of the axis of the temple, running approximately east and west. Only the scantiest traces remain, but these are enough to show that the gateway was flanked with

GREAT GRANITE OBELISKS,

which stood on pedestals. This first court, or lower platform, measures about 325ft. by 263ft. wide; and the excavations have proved that it was treated as the garden or orchard of the temple; round pits cut in the rock some 10ft. deep have been discovered full of Nile mud, with the stumps of palm or apricot trees still in them. The western colonnades are in ruins, but we can see that they each consisted of twenty-two pillars, arranged in double rows. The back row was sixteen-sided and the front row seven-sided at the back and square in front. The top of the stone ceiling of this colonnade formed the floor of the court above, the middle platform, which is at a level of 21ft. higher up. It measures roughly 279ft., by 250ft. wide. On the west it is bounded by a double colonnade, each side consisting of eleven pairs of square pillars. Two steps at the north end of the colonnade descend to a hypostyle hall, in which are twelve sixteen-sided columns arranged in three rows, which support massive architraves and a flat stone ceiling. Three steps lead up to

THE SHRINE OF ANUBIS,

consisting of three small chambers, with elliptical vaulted ceilings. On the north side of the court is a colonnade of fifteen sixteen-sided columns, and in the wall behind are four small vaulted chambers. The south side of this middle platform is supported by a retaining wall ornamented with wide, flat pilasters, surmounted by alternating hawks and urasi of colossal size. To the south-west of this court, and at the same level, is the little shrine dedicated to Hathor, goddess of the dead. It has since been found that this was reached only from below, by a flight of steps, of which a few traces still remain. The innermost chambers are hewn out of the rock, and are preceded by two covered vestibules, which are now in ruins. The first had sixteen-sided

columns and four square pillars, with semi-circular attached shafts, terminating in Hathor-headed capitals, the remains of which are now lying shattered on the ground. The second vestibule, at a slightly higher level, has four central columns with round shafts and sixteen-sided columns on either side. The shrine proper is raised two steps, and consists of three chambers, each with several niches surrounding it. Here we find conformity with the same law which prevails in hypæthral temples, and which M. Perrot has named

"THE LAW OF DECREASING DIMENSIONS."

Thus from portico to sanctuary the dimensions of the building decrease in every way, and the floor itself rises. The innermost room contained the sacred emblem of the goddess, perhaps a golden cow, enclosed in a tabernacle or shrine. The sacred boat, which bore the tabernacle, was probably kept in the room immediately preceding. The various lateral niches were used, it is supposed, as store chambers, to serve for offerings, the divine vestments and all the sacred furniture. We now ascend to the level of the upper platform, which is again 21ft. higher up. The terrace in front of the central court had a row each of square pillars and sixteen-sided columns, as remains show, on the north side. A granite doorway leads to this central court, 83ft. by 121ft. wide, which it is now considered had a double row of columns around it.

(To be continued.)

OUR ILLUSTRATIONS.

AN INFANTS' SCHOOL IN A NORTH COUNTRY VILLAGE.

THE School, of which we give a perspective view, and the elevations, was to have been built in a stone district, and it was proposed by the author to use very large stones at the angles (somewhat similar to the quoins of a Lancashire Manorial Hall), the principal part of the walling being of smooth parpoints, varying from 1½ in. to 3 in. thick. A touch of red colour was obtained by the introduction of three bands of tiles, several courses deep in the gables. The School, which was designed by Mr. G. Ll. Morris, was to accommodate 174 infants.

WOODFORD COTTAGE HOSPITAL.

THIS building is now being erected facing the green at Woodford, and is the gift of Mr. J. R. Roberts, J.P., as a Jubilee memorial to the poor of the district. The building on the ground floor consists of two wards, one for male and the other for female patients, 26ft. by 20ft. each, with accommodation for six patients per ward; these are divided by the nurses' sitting room. From each ward a corridor leads to a bath pavilion, which contains bath, w.c., and sink room, all disconnected from the ward itself. Across the hall is the operating room, 20ft. by 13ft., with a large bay. This room is constructed, internally, so as to give as little possible harbourage for septic deposit. At the rear are the matron's sitting and bed rooms. The kitchen and offices, together with ironing room, &c., are on the return frontage to Grange Avenue. On the first floor two paying patients' wards are arranged for, to accommodate one patient each, with bath pavilion at end. On this floor are the nurses and servants' bed rooms, box rooms, and stores. The basement contains the laundry, ambulance room, heating chamber, and the necessary minor offices. The building is faced externally with red brick and patent Victoria stone, with half-timber work introduced in the gables. The fireproof work throughout is in the hands of Messrs. B. Ward and Co., of Westminster. The roofs are tiled with buff Brosely tiles. The general contract for the building amounts to £5000, and is carried out by Messrs. Thos. Osborne and Sons, of James Street, E.C. The architects are Messrs. J. Kingwell Cole and Kenneth Wood, A.R.I.B.A.

Bricks and Mortar.

EFFINGHAM HOUSE, ARUNDEL STREET,
November 2nd, 1898.

"I know what it is to live in a cottage with a deal floor and roof, and a hearth of mica slabs; and I know it to be in many respects healthier and happier than living between a Turkey carpet and a gilded ceiling, beside a steel grate and a polished fender. I do not say that such things have not their place and propriety; but I say this, emphatically, that the tenth part of the expense which is sacrificed in domestic vanities, if not absolutely and meaninglessly lost in domestic discomforts and incumbrances, would, if collectively offered and wisely employed, build a marble church for every town in England; such a church as it should be a joy and a blessing ever to pass near in our daily ways and walks, as it would bring the light into the eyes to see from afar, lifting its fair height above the purple crowd of humble roofs."—JOHN RUSKIN.

ONE of the finest old churches in Central France fell in on Sunday night week, and is now a complete ruin. It is the parish church of Montluel, in the Rhône Department, and was built in the purest style of the thirteenth century. Fortunately the accident, which is attributed to the recent heavy rains, happened just after evening service, otherwise a terrible disaster would have been certain.

THE excavations at Pompeii during the past year have resulted in the discovery of an unfinished temple, near the "sea gate," which appears to have been deserted by the workmen at the very moment of the catastrophe. Tools, carvings, masonry, have been left just as they were, the light thrown upon the methods of the Roman stone artist being very valuable. Hard by the ruined city, in a plot of private ground, has been found one of the finest and most interesting mosaics of antiquity. It consists of a group of seven philosophers, one of whom is reading from a scroll, and contains in the background a view of the Athenian Areopagus. The mosaic, which was apparently new and had never been put down, has been acquired by the Government, and will shortly appear in the Naples Museum.

ANTIQUITY has hid for ever the name of the first turner, and the Company, or Guild, in the City of London which deals with and perpetuates his invention has, therefore, been compelled to fall back on a mythical personage, and ascribe its foundation to the celebrated Richard Whittington, who, in "turning" at Highgate, in response to the admonition of the bells of Bow, became the legitimate patron of a useful and ornamental craft. At all events, from that time the Company has never turned aside from the right path in encouraging this beautiful art, and the exhibition of work, which was held at the Mansion House last week, was highly creditable to its fostering care in promoting high-class and artistic technique.

THE several correspondents who have recently written to the Times on the subject of "Building Regulations in Town and Country," are unanimous on one point—that the building by-laws cause unnecessary expense and inconvenience in rural districts. "So great is this expense and inconvenience," writes W. M. A., "that it results in most rural districts refusing to adopt any building by-laws at all, with consequences, sanitary and other, which are often to be regretted. The moral would seem to be that greater elasticity must be introduced into the machinery. In the first place there should

be, I submit, a larger number of 'models.' The code in force in the Devonshire village from which I write, deals, to give one instance, with the thickness of the walls of domestic buildings between 90ft. and 100ft. in height, and yet there is really no great likelihood of Hankey's mansions being copied in this neighbourhood. Further, I submit that various by-laws as to 'space about buildings,' 'ashpits,' 'materials,' and so forth, might with advantage be 'starred' as applicable only to the village proper and not to detached residences two or three miles off down a lane.

"BUT even if this were done we should still want a dispensing power somewhere, and I have recently been officially informed that the Local Government Board would not be prepared—and rightly, I can well believe—to leave a dispensing power in the hands of the local authority. But surely no risk could be run if the Local Government Board reserved to itself the right to dispense with what are really, though not in name, its own by-laws on a memorial addressed to it by the person proposing to build, and submitted to the local authority for their observations. In difficult cases the would-be builder might even be allowed to claim that the Department should send down—of course at his expense—one of its own inspectors to view the *locus in quo*. I submit that the matter is one well deserving reconsideration by the Local Government Board."

MR. EDWIN O. SACHS' work entitled "Modern Opera Houses and Theatres" will see its completion towards the middle of November, when Messrs. Batsford, the publishers, will issue the third volume, which includes a treatise on Theatre Planning, with various supplements. This volume, as the others, will be grand folio size, and will comprise over 300 pages, with some 900 illustrations on plates and in the text. A feature of the third volume will be the particulars given in the introduction regarding the finance, staffing and management of the subsidised or endowed theatres of the Continent, which should be of some value at the moment when the proposal for a Municipal theatre for London is under consideration. The main chapter of Mr. Sachs' treatise is devoted to the general arrangement of the playhouse, and the chapter next in importance deals with the auditorium. Among other chapters there is one dealing with safety of life, and another with the service arrangements. The three supplements treat respectively of stage mechanism, theatre fires, and protective legislation. With the completion of the work every class of playhouse in Europe will be referred to, from Madame Patti's miniature auditorium at Craig-y-nos, or the Casino Theatre at Monte Carlo by Charles Garnier, to the most important opera houses of Paris and Vienna, or the distant establishments in the Russian Caucasus. The international character of the work is characterised by all the references on the plates being in three languages. Volume 1 was issued in 1896, and volume 2 last year, whilst the preparations for the work reach as far back as 1890.

MR. E. BOROUGH JOHNSON has just been appointed head-master of the Art section of the South Western Polytechnic at Chelsea. He is, like Mr. Burns whom he succeeds in the post, an old pupil of Professor Herkomer's, and the artistic system which he follows in his own work, and upon which his teaching is based, is that which has already produced such good results at Bushey. He has had considerable experience as an Art educator, and should give a very good account of himself in the wide sphere of influence open to him at Chelsea. His capacity as an artist is unquestionable, and many of the pictures he has exhibited have been worthy of the highest praise.

EDINBURGH claims to have discovered an interesting, if grim, link with the historic past. An antiquary of that city has brought to light the stones which formed the central portion of the old Netherbow Fort, and it is

stated that it was upon one of these that the head of the famous Marquess of Montrose was placed after his execution. The portion of the Netherbow Fort, of which the stones formed a part, was supposed to have been erected for the Provost and Bailies in 1606 by John Mylne, who, according to the city treasurer's accounts, was at that time Master Mason to the King of Scotland.

THOSE who have charge of the Lincolnshire memorial to Tennyson have, says the Globe, set about their task with commendable care. Great pains have been taken to secure a suitable place for the poet's statue at Lincoln, and after many visits and inquiries, two spots have been selected, either of which would be suitable. The monument, the committee think, would stand well in front of the ivy-covered church of St. Benedict, and the opinion is also held that it would have an imposing appearance on a space between the road fronting the south entrance to the Cathedral and the Vicar's Court. A decision as to the exact spot for the statue will be come to at the next general meeting.

FORMERLY there hung in the refectory of the Abbey of St. Michael of Le Treport an ancient and vigorous oil painting commemorating the foundation of the Abbey in 1056. In 1790 this painting was seized by the delegates of the Directoire, who carried it off to Rouen, where it disappeared, and was not afterwards heard of until the other day, when it was found among the stock of a picture dealer in Paris. The good news was at once conveyed to the authorities of Le Treport, and they have entered into negotiations for the purchase of the painting.

CAMBERWELL, Brixton, Stockwell, Clapham, Wandsworth, once all separate suburbs, are now merged in a single monotony of streets and houses. The democracy—small clerks and workpeople—are pushing further south. Dwellers in Clapham know how the old and stately mansions in their spacious gardens, recalling memories of Macaulay and Wilberforce, are giving way before the interminable rows of doors and bay windows. Sir Walter asks the dweller in Penge if he has ever heard of Penge Common—and the resident in Norwood if he knows aught of the Norwood oak, or the Norwood Spa, or the Norwood gipsies. Who thinks of Mrs. Thrale at the south-east corner of Tooting Corner, or of Defoe at Tooting itself, or of Voltaire at Wandsworth, or Pitt at Putney? Verily, the builder and the railway engine have played havoc with South London.

THE directors of the Colston Hall (Bristol) Company held a meeting last week for the purpose of considering what should be done in reference to the future of that building. While ready to restore the hall on an improved plan, they considered that the citizens should possess a public hall, and therefore they made overtures to the Council, and were prepared to let the city have the site on fair and easy terms. But the Council not having accepted that offer, the directors have decided that in the interests of the citizens steps should be immediately taken to rebuild on the site. At the meeting plans, which had been prepared for the guidance of competing architects, were submitted, and the directors are already inviting architects to send in plans and designs for the restoration and refitting of the hall. The directors will appoint an assessor to assist them in making selections from the plans, and meanwhile a sub-committee of the directors will visit some of the best public halls in the kingdom with the view of being well instructed so as to help them in giving to Bristol a hall second to none both as regards convenience and means of ingress and egress.

THE London, Brighton, and South Coast Railway have, in consequence of the great increase of traffic on their system, decided upon important extensions at Victoria Station. For some time past the London Brighton directors have felt the necessity for increased accommodation, and it has now been decided to

extend the terminus of their line to the westward of the existing premises. This will involve the taking up of land situated behind the south side of the Buckingham Palace Road, where what will be practically a new terminus, to be devoted exclusively to main line business, will be erected. Foot passengers by that line will enter by the present doors into the booking hall which is to be much enlarged and improved, while a special entrance and exit for vehicles will be constructed by the side of the Grosvenor Hotel. There is no intention whatever to interfere in any way with the existing London, Chatham, and Dover station, as has been stated in several of our contemporaries.

SIR WALTER BESANT, lecturing at the new Congregational Tabernacle, Shoreditch, on the subject of "Around the Tower of London," characterised the new Tower Bridge as the most noble entrance gate and portal that existed in the world. He referred to the antiquarian history of Thames Street and the neighbourhood, and remarked that on looking at a picture of Pompeii they would see how closely the streets of that district, even to this day, resembled the old Roman streets, having from time immemorial been the home and haunts of those connected with the service trade of the City.

MR. CECIL L. BURNS, of the London Art Gallery (Lord Leighton Memorial), Peckham Road, S.E., writes:—"I am organising a special exhibition of drawings and prints showing the rise and development of popular illustration from the time of Dürer and the early Italian draughtsmen upon wood to the present day. Apart from the artistic interest attaching to the drawings, it will, I think, prove of educational value to students, and of great interest to artists to trace the influence exercised by the method of reproduction upon the style of the draughtsmen at various periods—from the ancient drawings done on the wood planks, through the copper engravings which supplanted them, and again through the boxwood engraving popularised by Bewick, to the modern photo-mechanical process block. Owing to the fact that the South Kensington Museum can only lend their large exhibition for the short space of two months, I am anxious that students and the public should know of the opportunity afforded them, thanks to the generosity of many well-known collectors, who have placed drawings which may never again be at my disposal. I should, therefore, esteem it a great favour if you could give publicity to the exhibition through the medium of your columns. The exhibition opens on Monday, November 7, and will continue open till early in January. It is open free to the public from 2 p.m. to 10 p.m."

A SCHEME is on foot for the further restoration of St. David's Cathedral, described by the late Bishop Thirlwall as "the noblest monument of ecclesiastical Architecture in Wales. It is recognised that in this venerable pile, Wales possesses an architectural monument almost unique in this country—a treasure of mediæval Architecture, to which there are very few parallel in the kingdom. Dean Howell, who seeks to raise a fund of £12,000, points out how great has been the work accomplished during the last thirty-five years in the way of restoring the cathedral of the mother diocese of Wales to its former magnificence. Nearly £44,000 has already been spent in this way. What is now proposed is to effect a thorough restoration of the eastern group of buildings, "which form a very important and especially beautiful part of the cathedral, but are in a state which can only be described as little better than ruinous." The group consists of Bishop Vaughan's noble chapel, of the vestibule of the lady chapel, and, still further east, of the lady chapel itself, which is the largest and most important of the group, and finally of the later continuation of the north and south aisles of the early English Presbytery. In addition to the restoration of the eastern chapels, it is also proposed to remove the existing buttresses on the north side of the nave, built apparently in the darkest period of architectural debasement,

and at present a serious disfigurement to the cathedral, and to replace them by others more in character with the rest of the sacred building; and particularly to do what is needful to arrest the decay of what remains of St. Mary's College, founded in 1365, so as to preserve one of the oldest and most interesting ruins of the kind now existing from further dilapidations.

MR. WALTER CRANE writes to the Times as follows:—"As a member of the Society for the Protection of Ancient Buildings, I am surprised to see that no answer has been made to a letter of that Society which appeared in your columns of Oct. 17, calling attention to the state of Chichester Cathedral, certain cracks having appeared over the large western doorway in the west wall of that building. These cracks have appeared, as I understand, as the result of the new north-west tower, and consequent destruction of old work, against the advice of the Society for the Protection of Ancient Buildings, who in fact foresaw the danger and pointed it out to the Dean and Chapter and restoration committee as long ago as last November. As we are without any national authority for conserving our historical buildings, this important but thankless task falls upon the Society, an expert committee of which devotes its time to what is really public service. It is not, then, too much to ask that their efforts should be supported by the public.

At the last meeting of the London County Council the General Purposes Committee reported that Mr. Blashill, the superintending architect, would retire at the end of this year. The retiring age for officers had been fixed by the Council at sixty-five years, but Mr. Blashill had at the request of the Council remained another three years in their service. His full length of service was eleven years. In recognition of his valuable services to the Council, the committee recommended that he be allowed a pension of £525 a year, being at the rate of twenty-one sixtieths of his salary of £1,500 a year, ten years being added to his eleven years of actual service, as authorised by the Act. Mr. Dew moved an amendment to refer the report back for the committee to give a pension of the amount to which Mr. Blashill was entitled by his actual period of service. Mr. Hubbard, in supporting the amendment, said that had Mr. Blashill been called upon to retire when he was sixty-five, he would not have been entitled to a pension, but he had been allowed to stay on in order to qualify for one. In the discussion which followed, several members spoke in the highest terms of Mr. Blashill's service to the Council. The amendment was rejected by a large majority, and the committee's recommendation was adopted.

LAST week, at the monthly meeting of the Gower Archaeological Society, at their rooms in Gower Street, Mr. Alwyne Fitzdavis, D.D., exhibited a torque of fine gold discovered a few days ago in a wood forming a part of Charnwood Forest. A new fox-earth had been made just at the place, and the animals appear to have been amusing themselves with the torque, which, there is every reason to believe, they had raked up in their gambols. It was found in its present state by the keeper at the mouth of the hole. Many collars of this description, formed of a single wreath, have been exhibited on previous occasions at the Society's rooms, but in form and character of workmanship this one is more curious and more splendid than any yet discovered, and it is chiefly remarkable in the number of wreaths which compose it. Its weight exceeds one pound, and it is, therefore, of considerable intrinsic value, apart from that it possesses as an antique. Mr. Fitzdavis intends to present it to a public institution, probably to the British Museum.

THE executive committee of the Gladstone Liberal Memorial Fund have resolved to entrust the execution of the statue of Mr. Gladstone, which is to be placed in the Houses of Parliament, to Mr. F. W. Pomeroy. He is

best known by his Burns Commemoration Statue, which Lord Rosebery unveiled at Paisley. Mr. Linley Sambourne will design the commemorative certificate for subscribers.

THE Modern Gallery, 175, Bond Street, is the headquarters of the latest additions to Art exhibitions—that of the London Sketch Club. The inaugural show is now open to the public. Mr. G. C. Haité, who is president of so many societies, is president also of this, and seeing how active he has always been at the Langham Club, and that a large proportion of the present exhibits are marked as being Langham "time" sketches, we may wonder whether there is connection—or the reverse—between the old and the new sketching clubs. Be that as it may, the clubbists now to be considered are quite a gallant band, embracing artists of all sorts of pictorial opinions. These comprise dainty pen drawings by Mr. Shepperson, mental impressions—mainly of figure—dashed off in opulent oil colours by Mr. Dudley Hardy, or landscape full of sentiment and very sympathetic as to atmosphere and light as in "A Wet Harvest," by Mr. H. Sykes, and the extensive swampy land bounded by wind-cramped thorn trees, "The Haunt of the Gull," by Mr. Lee Hankey. Self-expression always rules in sketches, though indeed quarrel may be made that half the things present are not sketches at all, but of quite finished work. Such are the illustrations of nursery rhymes by Mr. Cecil Aldin, character drawings by Mr. Phil May, graceful beaux and belles of last century painted fluidly, in delicate tones of water-colours by Mr. Robert Sauber, and many another. Probably when the club is more firmly established, and time does not press, the exhibits will be confined to that order suggested by the club's title. Some of those who by quality of their works as a whole most strengthen the exhibition are Mr. Haité, Mr. Tom Brown, Mr. Walter Fowler, Mr. Lee Hankey, and Mr. Lance Thackeray.

MR. EDWARD ROBERTS, of Swansea, has just produced a most interesting history of St. Iltyd's Church, Pembrey, which is published in book form, and is copiously illustrated by Mr. H. A. Pertwee, of Burry Port. St. Iltyd's is, unquestionably, one of the oldest churches in Wales, and although, as Mr. Roberts says, there is nothing in the tower or aisle to show definitely any trace of work prior to the twelfth century, the nave and chancel appear to have been the older building. The church is noteworthy for heraldic carvings on its southern window, including the arms of the Butlers of Dunraven, the Bassets of Beupie, and the Beauforts and Plantagenets, etc. There is a carving also representing the pierced feet, heart, and hands of the Saviour; also the nails, the only similar thing known in Wales being carved on an old oak chest in Coity Church, near Bridgend.

THE proposals introduced last summer by the London-United Tramways Company for the adoption of electric traction have been accepted, in part, by the County Council. That body has agreed to electric cars on the underground conduit system being run along the Uxbridge Road and Goldhawk Road lines, and also on that part of the company's route extending from Hammersmith Broadway to Young's Corner. Beyond this point the jurisdiction of the London County Council does not extend. A correspondent suggests that a covered waiting-room should be provided at the several recognised stopping places on the tramway line, just in the same fashion adopted on the Bristol tramways, not only for the comfort of the passengers, but with a due regard for the convenience of pedestrians. Indeed, it is little short of scandalous that the omnibus companies have not yet been compelled to provide waiting-rooms for their passengers at such crowded points as the Marble Arch, Chancery Lane, Broad Street, Ludgate Circus, or Charing Cross, where, at any time of the day, and far on into night, crowds of people obstruct the pavements and hinder the circulation of traffic along them in the intervals between the arrivals of omnibuses.

Professional Items.

ABERDEEN.—The favour which has been shown by southern architects of late years for ornamental granite fronts for business premises continues to develop, and this line of work is proving an important source of business for Aberdeen granite monumental manufacturers. The fashion has come at a most opportune time, when the export trade in finished monuments for America has been showing such a falling-off. In many ways the house-front trade is preferable to the American monumental trade, but especially in respect that each contract means a large amount of work, and, also, that there is much more satisfaction in the work as regards price arrangements. At the present time most of the large granite firms in the city are engaged on orders of this description. Probably the most important contract of the kind that has been carried out in Aberdeen has just been secured by Mr. Charles M'Donald, Froghall Granite Works. It is a front of three sides, two stories high, for a business block in the busy city of Belfast. The total length of the front is 150ft. by 33ft. high from the ground level, and as it consists largely of massive moulded piers, and horizontal courses of a similarly rich design, the whole being finely polished, it will be seen to represent a very large amount of work. The central doorway, 30ft. high by 20ft. wide, is of elaborate design, and the enormous jambs and semi-circular top would of themselves have been a considerable contract. Part of the job consists of six columns, each 2½ft. in diameter at the base, and 19ft. high, which will decorate the front of the second story of the building. About 500 tons of granite will be used in the job. The contract price amounts to close on £6000.

ACOMB (Yorks).—A new pulpit and window, which have been placed in the parish church of Acomb, near York, were dedicated last week. The pulpit forms a handsome addition to the internal fittings of the sacred edifice. The body is of alabaster, relieved with small dark marble pillars, and stands upon a substantial stone pedestal. The handrail, lectern, and gas brackets are of brass, the latter being relics of the former pulpit. Messrs. Erps and Hobbs, of London and Manchester, have executed the work. The window, of stained glass, occupies a position in the north aisle. It is lancet shaped, and the subject portrayed is the Ascension. This work has been executed by Messrs. Lavers and Co., of London.

BELFAST.—The first Ballymacarrett Presbyterian Church was opened last week. The Gothic style of the fifteenth century has been employed throughout the building. The heating is on the "Plenum" system, by Messrs. Musgrave and Co., and the lighting is by Mr. John Dowling. Mr. Robert Corry is the contractor for the work, and Messrs. Young and Mackenzie are the architects.

BIRMINGHAM.—Perhaps no portion of Birmingham is at the present time undergoing so rapid a transition as the Colmore Estate, between Colmore Row and St. Paul's Square. Old properties are being pulled down, streets are being widened and diverted, and a large number of modern and handsome buildings are rapidly springing up and taking the place of so many old rookeries. One of the most important buildings of the series is a large block of offices in Newhall Street, and also having a frontage to Cornhill Street (originally Bread Street). In this case, advantage has been taken in the difference of the levels to obtain several entrances, and so avoid anything in the nature of a warren. The building has been planned with suites of rooms for doctors or dentists, having separate entrances, and at the back and on the upper floors are a large number of professional offices. In the aggregate the number of the rooms is about ninety. The elevations, in small red bricks

and buff terra-cotta, and a very fine roof of Stow-in-the-Wold stone slabs (the first used in Birmingham), are a picturesque rendering of the later Dutch style. In Edmund Street, a large block of offices for Messrs. G. J. Eveson, Limited, in a floral treatment of red bricks and buff terra-cotta, has just been completed. Almost immediately opposite, new premises have just been started for Messrs. Edmund Worrall and Co., bookbinders. These premises contain shop, warehouses, and offices fronting the street, and will be carried out in Darley Dale stone, Leicester sand bricks, and Westmoreland slate roofs. Immediately adjoining will be two sets of doctors' chambers with residential houses, for which there is a very large demand in this district. They are so planned that they may be used, if necessary, as private hospitals. The elevations show four bold arches on the ground floor in Portland stone, from which rise an equal number of ornamental bay windows, terminating in two high-pitched gables and a bold green slate roof. Perhaps a broader treatment than any of these obtains in the new buildings for Messrs. Buckler and Webb, Limited, at the corner of Church Street and Cornwall Street. The elevation to Church Street is divided into five large spaces, with semi-circular arches, springing from wide and deeply-recessed piers. Above this is a boldly-modelled cornice and window in arcading for the top floor. This treatment is also in small red bricks and buff terra-cotta, and when completed the deep shadows from the recessed piers should give a very bold effect to the whole. The architects are Messrs. T. W. F. Newton and Cheate, of Colmore Row.

BUCKLAND.—A new church is in course of construction in Kingston Road, Buckland, from plans prepared by Mr. Crowley, of Croydon. Mr. T. P. Hall is the contractor. The church, square in shape, owing to the shallowness of the site, is to be of red brick, with corn-grit stone dressings, of which material the pillars and arches will be formed. The style of Architecture is the Perpendicular. The cost of the building (exclusive of the site, valued at £1000), is estimated at £7300.

DEVONPORT.—A new Baptist chapel has been erected at Ford, Devonport. The plans were prepared by Messrs. Wiblin and De Boinville, of Plymouth, and the contractor is Mr. W. Partridge, also of Plymouth, whose contract was £2552 5s. The building is designed in late perpendicular style, and will have a most attractive and picturesque frontage on Alfred Road. It will be built of red brick, relieved by polyphant and Doulton stone dressings. The main front will have gable, with a handsome five-light tracery window, and will be flanked on either side, with turrets. There will be two main large entrance doorways opening into a lobby, and a doorway to each turret, which will form the future gallery entrances. The seating accommodation on the ground floor will be for 480. If galleries are added there will be an additional accommodation for 235 more. Two vestries are provided, together with an organ chamber and choir seats. Heating is to be supplied by means of hot water pipes. The roof is to be open timbered.

DUBLIN.—For a considerable time extensive building alterations have been in progress at No. 16, Dawson Street. The old building has been remodelled. The front of the house has been taken down and rebuilt with Portmar-nock bricks, having pilasters, cornices, string and caps of terra-cotta. The building works were executed by Mr. P. Ryan, of Church Street; the plumbing work by Mr. Farquarson, of Jones's Road; the mahogany-work and shop front by Messrs. Dockrell, of George's Street; the painting and decoration by Mr. Keatinge, of Grafton Street; and the electric fittings by Mr. Robinson, of College Green. The entire works were executed according to the designs, and under the supervision of Mr. J. L. O'Hanlon, C.E., Dublin.

DUNDEE.—Mr. William Mackison, the Burgh Engineer of Dundee, has prepared sketch plans

and front elevation of a new Central Fire Brigade Station. The site is well adapted for such a dépôt. The area to be covered is 30 poles. The engine-room, in the front, will be entered by four wide doors, with arched heads, transoms, and glazed fanlights. Over each of the two extreme doors circular oriel windows, carried up to the top of the three stories, will be formed; while the corner of the block will also have a circular oriel window, and will be surmounted by a tower. The accommodation on the ground floor will consist of an engine-room, with stables immediately in the rear fitted with six stalls and a loose box, having a harness-room adjoining. On the north side of the engine-room will be situated the duty-room, in which will be fitted up telephones and other means of communication. Alongside is the reading-room. On the other side of the passage leading to this there will be a lobby running direct to the staircase, to the dwelling-houses, to the hose tower, &c. Off the washing space there is a boiler-house and a large recess for firemen's uniforms, &c. There will be a two-story back building, with access off the court, containing workshop and a washing-house for two families. In addition to other rooms, a gymnasium will be fitted up. The cost is estimated at £6100, exclusive of the purchase price of the site. The plans have not been finally adopted.

HEREFORD.—A new foot bridge has been built over the Wye at Hereford. The bridge has two main piers consisting of cement concrete upon which ornamental steel towers are erected. These carry steel suspension chains, which pass through the shore abutments to the anchor blocks, which, the same as the abutments and piers, are also of concrete. The central opening is 110ft. span with the two side spans of 37ft. 6in. each, and the suspension chains consist of four rows of steel links (two on each side), each 3½in. by 11-16th of an inch. The foundations, concrete piers, and masonry throughout have been carried out by local labour, almost entirely of an unskilled character. The contract for the steel and iron-work was let to Messrs. Findlay and Co., Motherwell, who have carried out their work in a most satisfactory and creditable way. The work of decorating and painting was entrusted to Mr. J. C. M. Vaughan, of Hereford. Mr. W. H. Beswick, A.M.I.C.E., acted as resident engineer for the foundations, the work throughout having been carried out from the designs and under the personal superintendence of Mr. John Parker, C.E., City Engineer, Hereford.

LONDON, N.—A new Board school at Ambler Road, Blackstock Road, Finsbury Park, was opened last week. The new buildings will accommodate 930 children—300 girls, 300 boys, and 330 infants; and the total cost of the building and site has been £26,000.

MIDDLESBROUGH.—The dedication ceremony recently took place of the New Holy Cross Mission Church, Middlesbrough. The old building, which was formerly a music hall, has been adapted to the purposes of a church and mission hall. The structural alterations necessary have cost a sum of £1000 and the furniture about £150. All the work contemplated in the interior of the edifice has not, however, been accomplished at the present time, but this will be attended to at a later period. From Lord Street the entrance gives admission to the ground floor hall, which is about 43ft. by 40ft., provided with a platform 36ft. by 17ft. From the same street there are two separate entrance staircases, which give admission to the church on the first floor, which is estimated will seat nearly 500 people. A chancel is erected at the east end, with dome lighting from the top. A separate entrance has been provided from Benjamin Street for the admission to the clergy and choir vestries. To secure sufficient strength to support the portion of the building to be used for church service three heavy girders have been placed as cross supports. These measure 39ft. in length, are 22½in. in height, and weigh nearly 3½ tons each. They rest on a column of bricks and cement, built

from the ground, and the whole will bear a weight of 120 tons, or 40 tons each. Mr. Roberts, of Middlesbrough, was the architect, under whose supervision the work was carried out by the contractors, Messrs. Allison.

NEWCASTLE.—The foundation stones of the "Bond Memorial" Wesleyan chapel at New Benwell, Newcastle, have just been laid. The chapel is to be erected on the site of the Iron Chapel, between the School and the Manse, in Adelaide Terrace. It is designed to accommodate 800 persons in seating arranged on the ground floor and in two galleries. There is a gallery behind the rostrum for the choir, with organ gallery adjoining, and there are three vestries. The walls will be of rubble stone, and the doors, windows, and angles will have stone dressings. The roof is to be covered with slates, the internal woodwork is to be of pitch pine, and the building will be heated by hot water radiators. There is a large three-light window behind the rostrum, which is to be fitted with stained glass. The contract is let to Mr. Thomas Hutchinson, of Elswick Road, and the architect is Mr. John W. Dyson, Grey Street, Newcastle-on-Tyne.

NEWARK.—A new school of Science and Art is being erected at Newark, which is to constitute the town's Diamond Jubilee Memorial. The building will cost about £3200, and is being erected by Mr. W. Smith, builder, Newark, from designs by Messrs. Mellows and Grocock, architects, Bedford. In addition to two large class-rooms, provision is made for a lecture room, a life room, an antique room, elementary Art room, wood-carving room, dark room, and chemical laboratory, besides a master's room, cloak rooms, and a room for the caretaker.

OLDHAM.—The new banking premises just opened in Shaw, near Oldham, by the Oldham Joint Stock Banking Company, branch of the London and Midland Bank, Limited, are situated in Rochdale Road and Chapel Street. They form most commodious and convenient premises, and comprise a banking room, manager's office, &c., and a house for the local manager. The whole forms one of the chief architectural features of Shaw. The exterior of the bank is a free treatment of classical design, in polished masonry. The interior is cased in faience and tiles, a special glaze being used. The lighting is from the ceiling, this being of Venetian rippled glass, giving a most subdued light. The fittings are of mahogany and walnut. The following is a list of contractors by whom the various works have been completed:—Messrs. S. and J. Whitehead, Oldham, masonry; Mr. Whitworth Whittaker, Oldham, brickwork; Messrs. Stanley Bates and Son, Oldham, plumbing and glazing; Mr. R. C. Fletcher, Oldham, slating; Mr. James Hall, Oldham, plastering; Messrs. W. A. Peters and Son, Rochdale, carpenter and joinery; Mr. Alfred Whitehead, Leeds, tilework and faience; Messrs. Pearsons and Brown, Manchester, bank fittings; Messrs. J. and H. Patteson, Manchester, granite and marble work; and Messrs. J. G. Wagstaff and Co., Dukinfield, heating. The whole of the work has been designed, detailed, and superintended by Mr. Thomas Taylor, architect, 29, Queen Street, Oldham.

REDLAND.—The ceremony of dedicating the temporary church of St. Katharine, Redland, was performed on Saturday week. The building has been erected on land in Salisbury Road. At first an iron church was contemplated, but the Corporation would not sanction this, so that plans were prepared by Messrs. P. Munro and Sons for a commodious stone-built hall, which is first to be used as a church, and, when the permanent church of St. Katharine is built, it will be used as a parish hall. The building is 108ft. long and 36ft. wide, the roof rising to a height of 50ft. The chancel and sanctuary at the east end are approached by a few steps. There is a porch on the north-west side. The building, which is constructed of pennant stone, is Gothic in style, the open roof being of pitch pine, and covered with Broseley tiles.

Under Discussion.

THE ARCHITECTURAL ASSOCIATION.

At the meeting of the Architectural Association on Friday, the President (Mr. G. H. Fellowes Prynn) in the chair, the business items included a vote of thanks to those artists whose work was on view at the Association's conversazione held on the previous Friday, and also votes of thanks to Mr. Arthur Cates, who has presented several office fittings, books, &c., to the Association. The following candidates were elected members of the Association:—Messrs. David Good, A. E. Brown, E. A. Agutter, Leonard Judge, P. J. Turner, F. G. Allsopp, T. B. Ball, H. R. Bird, E. D. Ford, H. J. Gravenor, R. Knott, J. Mansell, H. J. C. Marshall, E. J. Martin, G. J. Morris, C. P. Moss, J. Myers, S. V. North, W. Paice, jun., A. G. A. Quibell, E. M. Reeves, F. V. Rider, W. H. Rogers, G. L. T. Sharp, G. S. Simpson, M. Skinner, C. F. Skipper, W. Thornton, J. E. Tindall, H. M. Whiddington, C. S. Yates, C. E. Simmons, C. H. Smith, A. Durst, and E. Brantwood-Muff. Mr. John E. Newberry then read a paper, illustrated with lantern views, on "The Excavations at Thebes," which Mr. Newberry assisted to carry out for the Egyptian Exploration Fund. The text of this paper will be found on another page of this journal. The paper evoked a fine discussion, in which the President, Messrs. Phené Spiers, Alexander Payne, H. V. Lanchester, and Alex. Wood took part.—The next meeting of the Architectural Association will be held on November 11th, when Mr. H. Wilson will read a paper on "Arts and Crafts."

INSTITUTION OF MECHANICAL ENGINEERS.

The ordinary general meeting of the members of the Institution of Mechanical Engineers was held last Wednesday at the hall of the Institution of Civil Engineers, Gt. George-street, Westminster, Mr. Samuel W. Johnson, the president, being in the chair. The president, who retires from office at the ensuing annual general meeting, announced that Sir W. H. White, Chief Constructor of the Royal Navy, had been nominated for the post of president, Mr. T. Harry Riches as a vice-president, and Sir William Arrol, M.P., Sir Benjamin Baker, Mr. Henry Chapman, Mr. W. J. Pirrie, and Sir T. Richardson, M.P., as members of the council. Papers on "Electric Installations for Lighting and Power on the Midland Railway, with notes on Power Absorbed by Shafting and Belting," by Mr. W. E. Langdon (Derby), and "Results of Recent Practical Experience with Express Locomotive Engines," by Mr. W. M. Smith (Gateshead), were afterwards read.

VENTILATION.

A lecture on ventilation was delivered by Mr. Low at the last meeting of the Glasgow Architectural Association. Questions regarding the quantity of air required, the cubic space of room necessary per person, and the necessary purity of air fit for breathing, were gone into closely. Although carbonic acid gas was an impurity, it was more the presence of organic matter that rendered air unfit for breathing. One of the greatest difficulties ventilating engineers had to contend with was the difficulty of ventilating comparatively small rooms, without causing a draught, and this, no matter what system was adopted. Mr. Low described each system of ventilation in turn, referring to different buildings ventilated by each method. The natural system was illustrated by several very interesting experiments, made with small models, and, more particularly, with a small model of a room. The failure of cows as foul air extractors was pointed out. The whole series of experiments tended to shew how difficult and uncertain natural ventilation was under certain conditions and circumstances. On the motion of the chairman, a vote of thanks was accorded Mr. Low for his interesting paper.

Enquiry Department.

ARCHITECTURAL SCHOLARSHIPS.

To the Editor of THE BUILDERS' JOURNAL.

DEAR EDITOR,—Could you give me the subjects which one has to study before entering for a Whitworth Scholarship? Are there any other Scholarships connected with Architecture or Building Construction, and where are they held?—Yours truly, J. McA.

If you think of competing for the Whitworth Scholarships you must write to Messrs. Eyre and Spottiswoode, East Harding Street, Fetter Lane, E.C., for "Department Science and Art, Publication No. 455, Prospectus of the Whitworth Scholarships and Exhibitions," enclosing seven stamps, when you will be sent post-free a pamphlet giving all particulars. We know of no other scholarships in Architecture and Building Construction, though smaller prizes are given by the various Architectural Schools in London. There is a prize of £200 given every alternate year to the author of the best Architectural design to a set subject among the students at the Royal Academy; and there are several valuable prizes and travelling studentships offered yearly by the Royal Institute of British Architects for drawing, design, and construction, full particulars of which will be found in the "Supplement to the Kalender," which will be sent you by the Secretary R.I.B.A., 9, Conduit Street, Hanover Square, on receipt of 4d.

ELECTRIC CURRENT.

To the Editor of THE BUILDERS' JOURNAL.

DEAR SIR,—First: Would the presence of mud and dirt, &c., between sheet copper and rusty steel, though the two are bolted together, interfere with the efficient passing from one to the other of an electric current? Second: Assuming the answer to the above is yes, is there anything cheap and efficient I could place between the two metals so as to prevent the entrance of mud and dirt, &c., and which would not interfere with the current?—Thanking you in anticipation, I am yours, E. R.

In the absence of more precise information, it is difficult to reply to your questions except in general terms. Assuming the plates to be held apart, with an intervening air space, the intention apparently is that the bolts referred to should form the medium for transmission. In such case the interposition of foreign matter, and the presence of rust (which is a non-conductor) would be less calculated to cause interference with the electric current than the presence of dry air, which possesses the quality of non-conduction in a high degree. Mud and dirt, although convenient and familiar colloquialisms, designating equally familiar but less convenient compounds, do not convey very definite impressions to the scientific mind. Dry mud, being largely constituted of such substances as dry wood, paper, straw, metallic oxides, oils, lime, chalk, hair, wool, etc., may be safely regarded as a non-conductor. Liquid mud, on the other hand, in virtue of the water contained, may be a fairly good conductor of electricity. Metallic contact is naturally preferable, and if our correspondent will forward a sketch with measurements and give at the same time particulars as to the conditions under which the apparatus is required to work, we shall be in a position to give a definite opinion as to the proper course for adoption.

At the Salford Police Court last week, John Ward, builder, Barrfield Road, Pendleton, was summoned for a breach of the Salford Improvement Act, 1871, by building half-brick partition walls in the construction of six dwelling-houses in Barrfield Road without placing a course of hoop-iron in every story. The defendant, who said he had trusted to another man to do the work properly, was fined £30 and costs.

TENDERS.

Information from accredited sources should be sent to "The Editor." No results of tenders can be accepted unless they contain the name of the Architect or Surveyor for the Work.

ABERDEEN.—For the erection of a bridge at the Links, for the Town Council. Mr. J. Rust, City Architect, Town House, Aberdeen. Quantities by architect:—
Gall and Walker... £540 16 0 Scott and Sellar... £357 19 0
Charles Gordon... 429 15 0 John Morgan... 355 0 0
Pringle and Slessor... 419 0 0 Thomas Grant... 350 10 0
P. Bisset and Son... 373 15 0 Leslie Smith... 347 0 0
Edgar Gauld... 371 16 3 George Hall... 337 10 0
A. Milne and Son... 369 18 0 Geo. Fordyce & Co.
Robert Beattie... 365 10 0 Aberdeen*... 320 0 0
* Accepted.

BELVEDERE.—For the erection of six cottages at Parsonage Farm, Belvedere, Kent, for the trustees of the late Lord Wynford. Mr. G. St. Pierre Harris, architect, 8, Ironmonger-lane, E.C., and Orpington, Kent:—
G. Miles... £1,938 Stebbings and Pannell £1,680
S. H. Gunning... 1,300 F. Hind... 1,350
T. Knight... 1,739

CAMBORNE.—For the erection of masonic buildings. Mr. Sampson Hill, architect, Redruth:—
C. and J. Harris £1,141 15 0 Trounson and Mitchell... £389 0 0
J. Beryman... 1,050 0 0 W. C. Hodge... 854 0 0
Trounson and Haslett... 1,013 0 0 Barbary and Mitchell... 827 8 7
Whys & Moffat 891 0 0 and Croun*
* Accepted.

CORNWALL.—Accepted for billiard room and bedrooms, additions to Torrey, Cornwall, for Mr. W. G. Mills. Mr. Sampson Hill, architect, Redruth:—
N. Penter, Pothman... £550

CROYDON.—For erecting the "Leslie Arms" Hotel, and four shops adjoining, for Messrs. Nalder and Collyer, Limited. Messrs. Berney and Sons, architects and surveyors, Croydon:—

Edwards and Medway £10,700 J. Smith and Sons... £10,420
J. J. Carrick... 10,366 S. Hart... 10,297
Lorden and Sons... 10,540 E. P. Bullock and Co. 10,050
W. H. Lascelles and Co. 10,437 Hanscomb and Smith 9,433
Patman and Fotheringham... 10,475 F. Bullock... 9,384
Joselyne and Young... 10,455 S. Page... 9,021
S. J. Jerrard and Sons 10,439 D. W. Barker, Croydon (accepted)... 8,937
J. Carmichael... 10,430

EVESHAM.—For building a bridge, &c., Bengeworth and Badsey, for the Urban District Council:—
Thos. Vale Stourport, Evesham... £200

FARNBOROUGH.—For the erection of a new Girl's School at Farnborough, Kent, Mr. St. Pierre Harris, architect, 8, Ironmonger-lane, E.C., and Orpington. Quantities by Messrs. Stanger and Son:—
G. E. Wallis & Sons... £3,178 F. Jones... £2,975
J. C. Arnaud & Son... 3,834 H. Somerford & Son... 2,960
W. Holt & Son... 2,999 T. D. Grady*... 2,898
* Accepted.

FEATHERSTONE (Yorks.).—For laying 2½ miles of water mains for the Urban District Council. Mr. W. A. Palliser, engineer, Council Offices, Featherstone:—

	Per yard laying.	Per valve fixing.	Per chamber.
T. Rowland	1 5½	0 2 6	0 6 0
Jenkins & Son	3 0	0 7 6	0 7 6
E. Cheetham	3 0	2 10 0	—
W. Doleman	1 9	0 15 0	—
W. Barrick	1 0	—	—
M. Arundel	1 6	0 10 0	—
A. Henson, Leeds*	1 3½	0 10 0	—
H. W. Jowitz	2 0	0 3 0	0 10 0

HELSTON (Cornwall).—Accepted for music-room and bedrooms and alterations to stables at Bonallack, Helston, for Mr. F. C. Baddeley. Mr. Sampson Hill, architect:—
W. J. Winn, Helston... £706

ILKLEY.—For the erection of a detached house. Messrs. Iait, Adkin, and Hill, architects, Prudential Buildings, Bradford:—

Masonry.—S. Mounsey and Son, Oxford-road, Guiseley... £395 0
Joinery.—J. and B. Emmott, Addingham... 400 0
Plumbing.—T. L. Nelson, 5, Wharfe-view, Ilkley... 192 0
Slating.—R. Nelson, 5, Wharfe-view, Ilkley... 64 10
Plastering.—F. Dean, Stott Hall, Clayton Heights, Bradford... 144 0

KINGSCLORE (Hants.).—For the erection of six cottages, for the Ancient Order of Foresters. Mr. W. H. Bell, architect, Market-place, Newbury:—
Hoskings... £1,700 Garrett... £1,152
Bance... 3,220 Head, Burghclere*... 1,140
* Accepted.

LEDBURY.—For the execution of sewerage works, for the Urban District Council. Mr. R. E. W. Berrington, engineer, Bank-buildings, Wolverhampton:—
J. Braithwaite and Co. £4,000 J. McKay... £2,876
J. Smith... 3,397 J. Evans... 2,849
J. Meredith... 3,274 H. Holloway... 2,733
H. Vale... 3,063 J. Bentley... 2,616
G. Law... 2,878 Johnson Bros. Hereford (accepted)... 2,528
[Engineer's estimate, £2,700.]

LEICESTER.—For additions to museum buildings, Hastings-street, for the Corporation. Mr. Geo. Mawbey, C.E., Town Hall, Leicester:—
T. F. Scott... £1,912 4 1 J. Riddett & Sons £1,728 0 0
W. G. Harrison... 1,872 7 11 W. Haddon... 1,701 0 0
F. Neal... 1,860 0 0 Clark & Garrett 1,696 15 0
J. E. Tyers... 1,832 0 0 H. T. & W. Chambers... 1,635 2 6
Sons... 1,830 13 9 T. Herbert, Well-ford-road, Leicester*... 1,608 0 0
G. Brown & Son 1,787 0 0
H. Herbert and Sons... 1,746 10 0
* Accepted.

LEYTON (Essex).—For widening part of Grove Green-road, for the Urban District Council. Mr. W. Dewson, C.E., Town Hall, Leyton:—
G. J. Anderson... £874 7 6 W. & C. French, Buckhurst Hill* £734 0 0
Geo. Wilson... 791 13 0
Wm. Griffiths... 769 15 10
* Accepted.

LONDON.—For the erection of two shops in the Harrow-road and Wellington-road, W., for Mr. Edward Reed. Mr. G. H. Green, architect, 340, High-road, Kilburn, N.W., and Chesham, Bucks. Quantities by Mr. Henry Bushell, 33, New Bridge-street, E.C.:—

Yerbury & Sons... £3,939 J. Bennet... £3,200
Langley & Pinkham... 3,789 W. H. Stone... 3,100
Ransom & Co... 3,708 G. Neal... 2,997
Cowley & Drake... 3,745 T. W. Rhodes, Stoke Oldrey & Son... 3,250 Newington (accepted) 2,966

LONDON.—Accepted for alterations and additions at "Bechfield," Wigmore-road, Bromley, for Mr. W. Cave. Mr. G. Gordon Stanham, architect, 100B, Queen Victoria-street, E.C.:—

J. Appleby, Cornwall-road, S.E. £753
LONDON.—For new detached residence at Westmoreland-road, Bromley, for Mr. John Bransdon:—
Stebbing & Pannett... £2,050 J. Appleby, Cornwall-Knight... 2,047 road*... £1,997
* Accepted.

LONDON.—For new factory at Marigold-street, Bermondsey. Mr. Edward Crosse, architect:—
F. & H. F. Higgs... £4,168 J. Chalkley... £2,997
Joselyne & Young... 3,217 B. Wells (accepted) 2,949

LONDON.—Accepted for alterations and fittings, No. 137, Cheapside, for Messrs. Cave and Benoit. Mr. G. Gordon Stanham, architect, 100B, Queen-Victoria-street, E.C.

LONDON.—For the supply of gas-engines for the Lots-road pumping station, for the London County Council:—
Crossley Bros... £10,744 6 5 J. E. H. Andrews and Co. Ltd. £10,300 0 0
J. Taylor and Sons, Ltd... 10,620 0 0 Cambell Gas-Engine Co., Ltd. 10,000 0 0
Fielding & Platt Ltd... 10,450 0 0 Premier Gas-Engine Co. Ltd. 9,590 0 0

LONDON.—For the erection of a Nurses' Home for the Royal Hospital for Consumption, Brompton, S.W. Mr. Edwin T. Hall, architect, 57, Moorgate-street, E.C.:—
Leslie and Co... £20,895 G. and H. Bywaters... £23,650
Leslie and Co... 39,654 Higgs and Hill... 33,240
Henry Lovatt... 34,176 Lawrence and Son... 32,954
Woodward and Co... 33,890 Foster and Dickies... 32,476
Kilby and Gayford... 33,774

LONDON.—Accepted for alterations and additions to "The Atlantic" public-house, 388, Coldharbour-lane, Brixton, S.W., for Mr. W. F. Chapman. Mr. A. B. Robb, architect:—
Spencer and Co., Lambeth... £4,227

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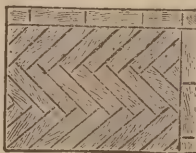
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Assoc. M. Inst. C.E., M.I. Mech.E., M.Inst.E.E.

(Continued from page xci.)

THE author will now briefly touch on the nature of the protection that zinc affords. Iron coated with zinc, after a short exposure, becomes covered with a thin film of oxide, which gradually passes into a basic carbonate and adheres tenaciously, forming a protective covering to the zinc. So long, therefore, as the zinc surface remains intact, the underlying iron is effectively protected from corrosive action. The nature of the protective influence of the zinc on the iron is galvanic, zinc being electro-positive to iron. Two metals in contact in the presence of moisture form a galvanic couple, and the result of the galvanic action set up under these conditions is analogous to that which takes place in a galvanic battery, viz., the electro-negative element remains unaffected so long as the action continues, the intensity of the chemical action being governed by the relative positions of the two metals in the electro-chemical series. This electro-chemical action is sometimes curiously shown in fagoted iron bars. After lying about for some time the bars may be found to be rusted, not uniformly, but in parallel streaks running lengthways of the rod, these streaks giving the rod the appearance of having been built up of

A NUMBER OF PARALLEL PLATES.

This is evidence that the rod was originally made from fagoted iron, and the difference in the electro-chemical condition of the alternate layers has given rise to the oxidation only of the alternate positive layers. The effect of stress is also found to have considerable effect on the corrosion of metals. Tin and iron, and copper and iron, standing some distance apart in the series, give rise to a decided galvanic action, in which the iron, as the electro-positive metal, is corroded more rapidly if the coating is partly removed than it would be if not coated at all. For this reason copper sheathing, which was first used for vessels of the English Navy about the year 1770, is now insulated from the iron or steel hull by wood casing. This practice, no doubt, led to the strange blunder of H.M.S. Audacious being cased in wood, to which insulated zinc sheets were fastened, thus rendering the zinc quite worthless as a protection to the iron. With zinc and iron the positions of copper and iron, and tin and iron, are reversed. Zinc is positive to iron, and, consequently, whatever galvanic action is set up by their contact in the presence of moisture or other excitants must have for effect the solution or corrosion of the zinc and the protection of the iron. An interesting example is reported of

ELECTROLYTICAL ACTION

which was observed to have taken place in some brass condenser tubes in a cruiser, which, after being in service for a year or more, were found to have experienced a peculiar change. In many places the metal was changed to almost pure copper of a spongy texture, the zinc having completely disappeared. An investigation showed the probable cause of the failure to have been an electrolytic action between the tin lining of the tubes and the brass, the sea water circulating through the condenser forming the electrolyte. Had the tin coating remained perfect, no corrosion would have resulted; but the mud and grit carried in suspension through the condenser cut away the tin lining in places, and it was at these places that the change of the metal occurred. It may be concluded that if the tubes had been coated with a metal electro-positive to the brass, or had not been tinned at all, they would have remained intact. At the present time galvanising has assumed the proportions of a very large industry, and is rapidly increasing now that steel of small

section is being extensively used for constructional purposes. As compared with tinning, however, galvanising is

A COMPARATIVELY NEW INDUSTRY,

having been worked in Europe only since the early part of the present century, and introduced into the United States from England. Messrs. Morewood and Rogers appear to have been the first to produce commercially galvanised sheets. In December 1846 they took out a patent for immersing articles in a bath of molten zinc, or an alloy of lead, zinc, and tin, or zinc iron alloy, the surface of the molten metal being covered with sal-ammoniac or chloride of manganese. To equalise the coating they employed rollers, revolving in a flux kept at a lower temperature than the melting point of the coating metal. The chief improvements effected in hot galvanising since its introduction have been in the construction and arrangements of the baths, and in the mechanical appliances for reducing the weight of spelter to the superficial foot. Rolled plates thus produced are not considered to be as good as flux plates, which have an average thickness of zinc of two ounces to the superficial square foot. Messrs. Davis and Sons, of Wolverhampton, have introduced

A SYSTEM OF WET ROLLING

the plates after annealing and pickling, the advantages claimed being a more uniform coating of zinc with a smaller consumption of spelter. Another innovation is gas firing, which is being experimented with in place of coke or coal. The term "galvanised iron," applied to iron that has been passed through a bath of molten zinc, is somewhat misleading, since it would seem to imply that the coating was effected by a galvanic current. It is intended, however, to apply to the nature of the protective influence, and not to the process. Lead also is sometimes used as a protective coating for iron, but, though lead galvanising is almost as old an industry as zinc galvanising, it has a very limited field, for two reasons. In the first place, it affords no better protection to iron than tin when once the coating is penetrated; and in the second place, its toxic properties render the indiscriminate use of lead-covered articles dangerous. The comparative inertia of lead to the chemical action of many acids has given rise to the contention that it should form as good a protection to iron as zinc, if not, indeed, a better one. But a piece of lead-coated iron or terne plate, cut from a sheet and placed in water, will rust badly in the course of twenty-four hours, the water and plate being discoloured with red oxide. The use to which

LEAD OR TERNE PLATE

(which contains a small percentage of tin added for the purpose of ensuring a more homogeneous coating) is principally applied, is for manufacturing boxes. Terne plate usually has about 3oz. of metal per superficial square foot. Attempts have been made to introduce lead-coated sheets for roofing and general purposes, but in several instances the plates were found to have rusted even before arriving at their destination. At one time a considerable quantity of lead-coated sheets were sent to Sweden to avoid the heavy duty of 66s. per ton on zinc galvanised goods, but no market was found for the sheets, and the enterprise was eventually abandoned. An American process, patented by T. J. Clamer in 1893, and recently brought over to England, was experimented with on a commercial scale for coating iron and steel. According to the inventor, "lead while in a molten state absorbs various gases from its surroundings and the atmosphere, the gases thus absorbed prevent the lead from adhering closely to the surface of metals, and cause the small holes and blisters so frequently found in a sheet of metal coated with lead in the usual way." Messrs. Neumann and Streintz found that lead absorbed about one-eighth of a volume of hydrogen when the dry gas was passed over the heated metal. Mr. Clamer's process consists of

FUSING THE LEAD

to be used as the coating metal, under powered charcoal, and to every 100lb. of lead

adding, first 3oz. of sal-ammoniac, secondly 1oz. of arsenic, then 1oz. of phosphorus, and lastly, 1oz. of borax or a similar flux. About the same time as Mr. Clamer's process was put on the market, a process, called "Dinizing," for coating articles with a lead alloy, was experimented with; the object being to render the lead electro-positive to the iron. Small quantities of sodium were mixed with the lead, ammonium chloride being used as a flux. Lead-coated wires have never been adopted by engineers, apparently on account of the electro-chemical difficulties, although manufacturers of steel wire ropes and cables for haulage purposes have on several occasions had their attention drawn to lead as a protective and lubricating coating. Lead galvanising does not reduce the tensile strength of wires like hot galvanising. The surfaces obtained by hot and by cold galvanising differ considerably in appearance. Hot galvanised articles are often covered with large spangles or crystals, which are obtained by adding small quantities of tin to the galvanising bath; but this attractive appearance is gained at the cost of the durability of the protection afforded to the underlying metal, as the spangles render the coating unequal in thickness and inferior in quality. For these reasons some of our leading engineers now specify that galvanised sheets shall be without spangle, and carry zinc to the weight of one ounce per square foot.

PAINT DOES NOT ADHERE

firmly to zinc surfaces, so to increase the tenacity a varnish containing a small quantity of alkali is applied, which gives a slight roughness or mat to the zinc surface. The zinc on electro-zincd articles coated by the usual methods has an unhealthy non-metallic look, which has created considerable prejudice against such articles when compared with the brilliancy and glitter of the spangles obtained by the hot process. The dull surface of the electro-deposited zinc can, by the adjustment of the current, be developed into a mat surface, which has been found especially suitable for the coating of nails, as it increases the holding properties, whilst, on the other hand, galvanising decreases the holding power. Galvanising roofing sheets is one of the largest, if not the largest, branch of the galvanising trade. Modern galvanising plants are generally fitted with a stretching machine to remove any buckles from the sheets before placing them in the galvanising bath. The average output of a galvanising bath is about 7 tons in twenty-four hours, or four baths working continuously would turn out about 270 tons per week.

THE COST OF ANNEALING

1 ton of sheets about 24 gauge is 2s. 6d.; and the cost of pickling, 7s. The percentage of wasters averages about 7½ per cent., due to improper cleaning, flux marks, and cracks which do not develop until after pickling. To surface-harden galvanised sheets, aluminium is sometimes added to the bath of molten zinc at the moment of dipping the iron sheets, whereby a compound surface of zinc-aluminium is formed on the articles under treatment. It has been claimed that the thin film of aluminium serves as a protecting coat to the molten zinc, reducing the formation of ashes and hard zinc to about half the amount usual where protecting covers of sal-ammoniac, fat, or glycerine are used. The addition of the aluminium also enables a thinner coat of zinc to be applied. According to the patentee of this process, metallic aluminium only enters into combination with zinc in the proportion corresponding with the atomic weights of the metals. Some galvanising workers complain that the use of aluminium in the galvanising baths gives them more zinc dross, though they say that with aluminium they can cover a larger surface and do brighter work. The formation of more dross by

THE USE OF ALUMINIUM

is probably due to two causes: first, an impure zinc, and secondly, to the excessive use of aluminium. Aluminium should be introduced gradually in the form of a five or ten per cent. aluminised zinc, and in a five ton bath

* A Paper read before the Society of Engineers, on October 3rd, 1898.

not more than half a pound of aluminised zinc should be added at a time, so that the total amount in the bath is kept somewhere about from three to six ounces of aluminium to the ton of zinc; but a very important point is that this aluminised zinc should be added gradually and not all at one time. The zinc iron alloy or dross which forms in the bath amounts in some cases to 25 per cent. of the whole of the zinc used. The quantity usually formed in the galvanising bath amounts to about one-third of the total amount of zinc used for a 24 gauge plate. The zinc iron alloy formed in the galvanising baths is sold to the manufacturers of alloys, or is subjected to distillation to recover the zinc. The zinc applied by the hot process usually contains lead, tin, and iron, and it has been found that iron above 0.13 per cent. makes the zinc too brittle to be properly bent. Lead up to about 1 per cent. is harmless, but above 1½ per cent. will not dissolve, and the excess collects and forms weak spots. Arsenic antimony, cadmium and copper also occur, but practically never in quantities sufficient to be injurious. Some zinc removed from a Siemens-Martin hot galvanised plate was found to be very brittle, breaking when attempts were made to bend it. Analysis gave the following results:—

Zinc by difference	49.2
Tin	2.20
Iron	3.78
Arsenic	Trace

The average thickness of the coating was 0.015 inch. On the other hand, zinc applied by the electro process is very pure, and it is found to resist the corroding action of a saturated solution of copper sulphate (Preece's test for Post Office telegraph wires), very much better than hot galvanised iron. A specimen of hot galvanised iron, having 1.42oz. per square foot, withstood three immersions, whilst a similar piece of iron, electro-galvanised, having 1.26 oz. per square foot, withstood five immersions, as shown in the table:—

RESULTS OF SULPHATE OF COPPER TESTS MADE ON SAMPLES OF CHARCOAL IRON, COATED WITH ZINC BY DIFFERENT PROCESSES.

Preece's Post Office Test.			
Process used to coat the Iron.	Grains per Square Foot.	Oz. per Square Foot.	Number of one minute Dips Samples stood without showing Metallic Copper.
Hot galvanising ...	648.5	1.48	3
Acid bath, ZnSO ₄ ...	446.4	1.02	4
Neutral bath, ZnSO ₄ ...	552.64	1.26	5

From this it may be inferred that with coatings of zinc of equal thickness the article coated by the electro process will withstand the ordinary corrosion due to atmospheric influence much better than steel coated by the hot galvanising process; or, expressed in other words, steel coated by the electro process will have as long a life as hot galvanised steel, with less zinc than would be necessary in the case of the ordinary hot process. In applying Preece's test, it should be remembered that copper, when first precipitated on zinc, whether from a weak or strong solution, is black, but in the latter case it becomes chocolate colour as it advances, or red if the action becomes more rapid. The saturated solution of copper sulphate should be made up with cold water, not hot, to ensure that no free acid is present. The process of electro-zincing is, however, not without its difficulties. The deposits obtained from zinc sulphate solution are adhesive only when great care is exercised in the preparation of the receiving surface. After pickling, the iron should be well washed in alkali, otherwise the acid is retained in the pores of the metal

and sows the seeds of decay. Other matters of moment are the

SLOWNESS OF ELECTRO-ZINCING

when working with a low current density, and the difficulty experienced in coating articles of irregular shape. Difficulty is also experienced from the want of adhesion, when the zinc has obtained a thickness beyond that corresponding to 1½oz. of zinc per square foot. Attempts have been made to overcome this difficulty by the method employed to make silver adhere to a baser metal, namely, by quickening, that is, immersing the copper or copper alloy to be silvered in an aqueous solution of mercury. As mercury will not amalgamate with iron, an electric current has to be employed. Dr. Leeson, in 1842, patented the use of mercury for preparing metallic surfaces for electro-deposition both by simple immersion and by the electro-deposition of mercury. The application of this process to the coating of iron with zinc is found to be too costly, the mercury also has a tendency to render the zinc coating brittle. To reduce the labour that would otherwise be necessary in zincing small articles such as bolts and nuts, successful attempts were made in 1870 to coat such articles by placing them in a revolving perforated metallic cylinder. A similar arrangement has been employed for coating steel bullet jackets with cadmium and zinc. Even when ironwork is to be painted,

A THIN PREPARATORY COATING OF ZINC

may be applied with great advantage. Engineers recognise the fact that the best results are obtained when the paint is applied direct to the iron surface, after the removal of all scale and before it has had time to rust, as the rust prevents the intimate contact of the paint, and induces chemical action which causes the paint to peel from the iron. Mr. W. John, on examining some small mounds of rust on the outside of a recently launched steel vessel, found that under each heap of rust there was a small hole in the paint, not larger than the size of a pin's head, and that beneath each hole was embedded a small particle of black oxide in a pit in the plate. No matter how many coats of paint are put on, they cannot arrest incipient oxidation, or that on the surface of a plate; four or five coats of paint fail to protect the metallic surface to any greater extent than two or three coats of anti-corrosive paint possessing a good body and texture. The system of attempting to prevent corrosion by an increased number of coats, and therefore increased thickness of paint, is a deceitful one, for by reason of the thickness of the paint any corrosion on the surface of the metal may not show through the paint by discolouring it in spots or otherwise as it will do if two coats are used. In the latter case it can be remedied, being evident, but an increased thickness of the paint may hide the oxidation that is proceeding, and the mass of coats of paint may yet have sufficient adherence

TO MASK THE DECAY

and give a false appearance of durability, until at length rust has formed to such an extent as to become detached from the surface of the metal, the paint ultimately falling off with the layer of rust attached to it. Experience shows that pigments, usually metallic oxides or carbonates, act as carriers of oxygen from the air from the underlying iron, causing it to rust. An ideal paint should have a toughness which does not depend on a perishable ingredient; its elasticity should not be diminished by cold, it should not soften but rather harden by heat, it should contain no solvents but turpentine, which experience proves to be safe, and it should contain nothing which would act as a carrier of oxygen to the metal. The durability of painted ironwork, therefore, largely depends upon the surface of the metal being properly cleaned and prepared. An excellent surface in this respect may be obtained at a very small cost by "zinc flashing," that is, coating the iron or steel after pickling with a thin coat of zinc, which will resist the effects of the weather, and retain a perfect surface for receiving a coat of paint until such time as it can be applied.

(To be continued.)

Surveying and Sanitary Notes.

THE London County Council is still building gaily its castles in the air. Its pet dream, as we all know, is to obtain control of the London water supply, and to do something colossal by establishing a new supply drawn from the Welsh valleys. The Water Committee recommend that Parliament should once more be asked to sanction these ambitious schemes, and this ingenious body, of course, takes care to point the moral of the "East London Water Famine." Had the Council been given control of the supply three years ago, it assures us, there would have been no scarcity this summer. To that the St. James's Gazette replies that, if the water in East London were not wilfully wasted, and if there were cisterns to store it in for a few hours, there would have been no scarcity, even in the late hot summer. East London, at the worst moment, received abundance of water. The real trouble was that, when the supply ceased to be constant, there was no means of storing it. That is the simple truth.

THE Herts County Council has decided to memorialise the Local Government Board as to the serious injury done to the water supply of the county by the enormous quantity of water daily abstracted by the London water companies. Sir John Evans at the last meeting strongly protested against the conclusions in the report of Lord Balfour's Commission, urging that they were totally wrong and unfair. The Chadwell Spring had failed, and the great spring at Woolmer's Park, Hertford, which formally discharged over 1,000,000 gallons per day, had gone dry, in addition to which other springs had totally failed or were greatly reduced in volume. The heads of rivers were lower down the valleys than they had ever been known. In numerous instances the wells on the highlands were completely dry, and the bore pipes in watercress beds had ceased to discharge. The Council also gave instructions for evidence to be collected as to the condition of the springs, rivers, and water supply generally, to enable protection to be secured against the disasters which it was alleged must follow if the report of Lord Balfour's Commission were allowed to stand.

THE resumed inquiry as to the value of the properties affected by the Tottenham Court Road Improvement Scheme of the London County Council, which scheme will be subject to "betterment," was held a week ago, before Mr. James Green, the arbitrator appointed by the Local Government Board. The cases dealt with comprised the Oxford Music Hall and the freehold and leasehold interests therein, and in Nos. 4, 14, and 16, Oxford Street, 1 and 1a, Tottenham Court Road, and part of 11, 12, and 13, Boziers Court. Professional evidence on both sides was given before the arbitrator, whose award will be published simultaneously with that in the Strand Improvement Scheme.

AT the Sheriff's Court, Red Lion Square, before Mr. Under-Sheriff Burchell and a special jury, a claim against the London County Council by the Clothworkers' Company was heard in respect of freehold wharf property on the Surrey side of Vauxhall Bridge, let on lease to Messrs. Francis and Co. Limited for a term, of which 52 years were unexpired, at a ground rent of £515 a year.—Sir Edward Clarke, Q.C., and Mr. Edward Boyle, Q.C., were counsel for the claimants, and they called Sir J. W. Ellis, Mr. Bousfield, and Mr. James Green, who all agreed that the value of the property, including the customary 10 per cent., was £22,660.—For the London County Council Mr. Littler, Q.C., and Mr. Morton were retained, and called Mr. Alderman Green, Mr. Farmer, Mr. Horsey, and Mr. Field, whose valuations were £14,162, including the 10 per cent.—The jury returned a verdict for the claimants for £22,660.

PRACTICAL CARPENTRY AND JOINERY.*

BY GEORGE ELLIS.

XI.—STAIRS.

THE construction of stairs is generally considered the highest branch of building joinery, although, as a matter of fact, there are many constructive problems, met with in high-class work, that are essentially more difficult to solve, and call for an equally educated eye and cunning hand for their execution; as, for instance, the panelled lining of a spherical niche, or the swelling frame of a polygonal pulpit; but as these and similar "teasers" happen but infrequently, and stair-building is an everyday occurrence, the craftsman who devotes his attention specially to this branch of his trade is tacitly placed at the head of the craft; and he certainly enjoys a privilege peculiar to himself of playing fast and loose with the architect's "plans"—an audacious proceeding which the latter views frequently with an equanimity strangely in contrast with his demeanour when any other tradesman ventures on a variation of his own. But possibly there are reasons for these things, for is it not written that a certain well-known architect did design and supervise the building of a large theatre, and did not discover until the scaffolding was struck that he had omitted to provide any stairs!

To make the following remarks upon the construction of stairs readily understandable, it will be advisable to give the definitions of the technical terms used to denote the various parts.

A *tread* is the horizontal part of a step. A *riser*, the vertical part—the two when fastened together at right angles with each other form a *step*. The portion of the *tread* overhanging the *risers* is termed the *nosing*, the moulding immediately under it the *scotia*. Steps that are parallel with each other are *fliers*; triangular ones, used to turn the direction of the stairs, *winders*; steps with curved fronts are *commodes*; a round-ended step is a *bullnose*; one with the end formed into a volute in plan is a *curtail* (Fig. 175).

The top step or finish of a flight is called a *landing*, further distinguished as quarter-

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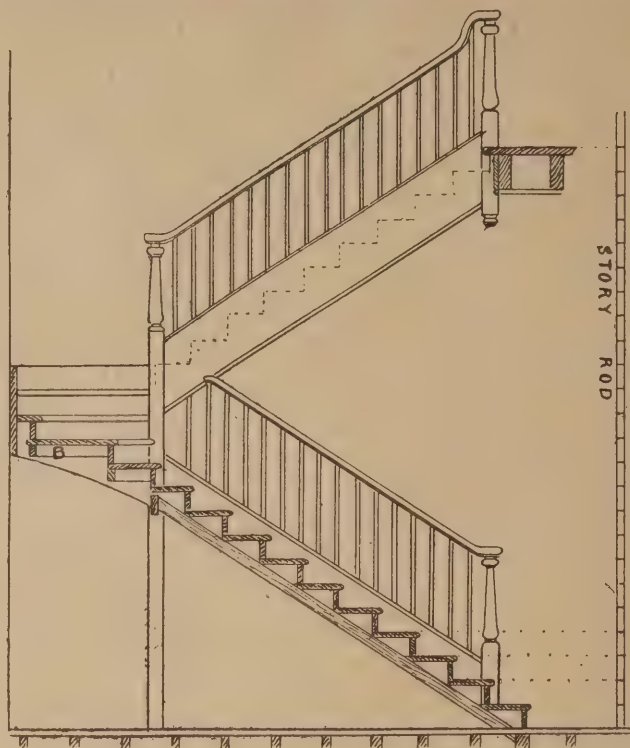


FIG. 168. ELEVATION OF DOG-LEGGED STAIRS.

space; if of the width of one flight, see Fig. 168, and half-space; if the width of both flights, as in Fig. 169. Strings are the inclined sides of the stairs, into which the steps are framed. When the strings rise above the steps, as in the elevation Fig. 168, they are termed *close* or *housed*; when they are shaped to fit the end of the steps as in Fig. 173, *cut* or *open* strings, these are further distinguished as bracketted; when the ends of the risers are mitred to an ornamental bracket, as at E Fig. 173. A *wreathed* string is one rising over the part or whole of a circular plan. A *flight* is a complete set of steps between a floor and landing, when applied to circular stairs, one complete revolution is termed a flight. The *going* is the horizontal distance between the faces of two adjacent risers. The *rise*, the vertical distance between the faces of two

treads. The *pitch-board*, a thin triangular templet, one of whose sides equals the going, the other at right angles, the rise, and the third giving the pitch of the stairs; it is used for setting out the strings. The *going of the flight* is the horizontal distance between the first and last risers of the flight; the *rise of the flight*, the vertical distance from floor to landing, or from floor to top flyer. *Nosing line*, an imaginary line touching the salient angles of treads and risers in any flight, used for setting out the strings and handrails. The line of nosings, a line drawn tangent to the nosings of the steps. *Staircase*, the trimmed opening for the stairs. *Apron linings*, the vertical linings of the exposed portions of the trimmers. *Well*, is the space between outer strings of successive flights. *Carriages* are rough timbers framed under fliers to stiffen the stairs. *Bearers*, similar pieces under winders, see B Figs. 168 and 169. *Rough brackets*, pieces of stuff, cut to fit between the step and carriage, see D Fig. 173. When the brackets are out of the solid, and the carriage dispensed with, they are then termed *rough strings*. *Spandrel* is the triangular space bounded by the under edge of the string, the floor, and the wall or other vertical member. *Newel* is a substantial post supporting the ends of string and handrail; *balusters*, the intermediate lighter posts guarding the ends of the steps. *Handrail*, the moulded rail supported by balusters and newels, and parallel with nosing line of stairs. The *core*, a thin iron rail sunk flush with the under side of and used to strengthen the handrail. *Turn* is a horizontal curve or change of direction in the rail. A *ramp*, a vertical, concave curve. A *knee*, a vertical convex curve. *Swansneck*, the two latter combined in one curve. A *wreath*, a helical curve in the rail. The wreath-piece is the circular portion connecting the straight rails in geometrical stairs. *Cap*, the top of a newel forming the termination of the rail; when placed over a curtail step, it is termed a scroll cap. The *story rod* is a staff used for taking the height of the stairs between the surfaces of two floors; it is shown in Fig. 168 with the risers spaced thereon.

WOODEN STAIRS are of two distinct classes. In the first of these the newel forms an essential part of the construction; in the second it is used merely as a subsidiary and ornamental adjunct to the handrail. To the former class belong the dog-legged, open newel, and circular newel forms; to the latter, the geometrical and the circular well. In the dog-legged variety (see plan and section Fig.

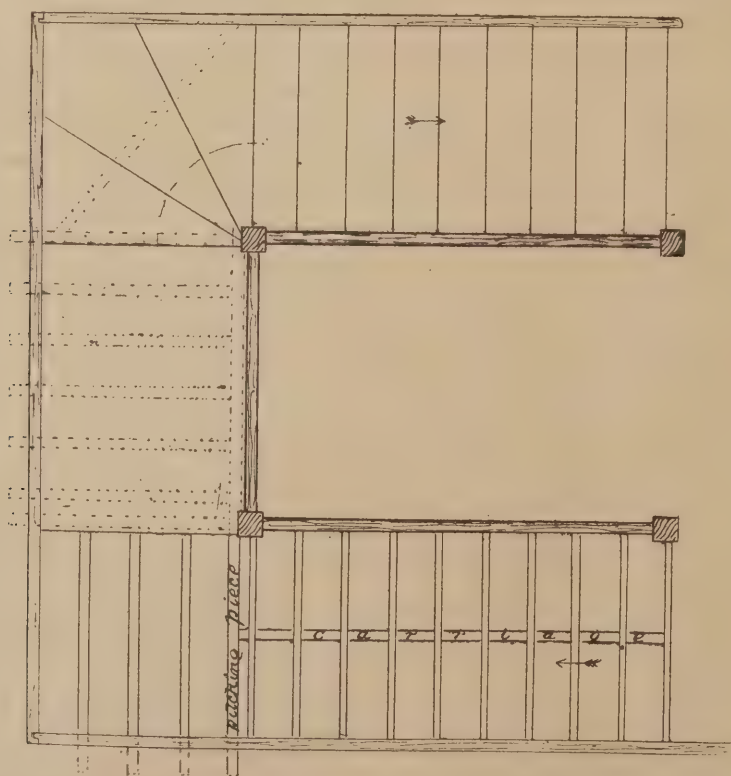


FIG. 169. PLAN OPEN NEWELLED STAIRS.

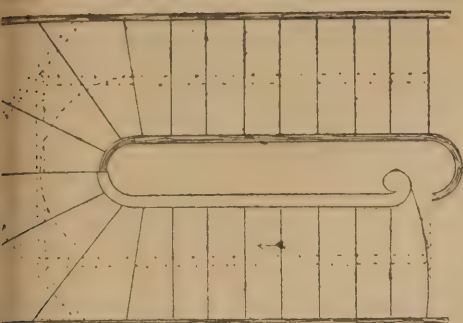


FIG. 170. PLAN OF GEOMETRICAL STAIRS.

68) the outer strings of successive flights are in the same vertical plane, both being framed into the same newel. Open newel stairs (Fig. 69) have rectangular plans, with a space or "well" between the strings, and a newel at every change of direction. Circular newel stairs have a circular plan, with the steps radiating from a solid newel running the entire height of the staircase (see Fig. 171). Geometrical stairs (so called because the construction of the strings and handrails necessitates a knowledge of solid geometry) are those in which the outer strings and handrail proceed continuously from bottom to top of the flights; their plans are always curved and symmetrical at the change of direction (see Fig. 170). Circular well stairs have continuous outer strings over circular plans, the plan of the wall string being rectangular or polygonal. See Fig. 172. A variety of these but little used, in consequence of their inherent weakness, is the self-supporting stairs; these have both strings continuous, and stand clear of all walls; their stability mainly depends upon iron bands, sunk in the strings. In the planning of stairs due attention must be paid to the position of windows and doors contiguous to the staircase, and the position of the trimmers should be arranged to secure the necessary head room; this should not be less than 7ft., measured vertically from the front edge of trimmer to the step immediately beneath. Stairs should be well lighted. A top light is best, but is seldom possible in dwelling houses; avoid, however, taking the string across a window; this is both unsightly and unsanitary. The start and finish should never be less than 12in. from a doorway. Landings at the turns are safer than winders, and should be used in preference, if the necessary rise can be obtained. In geometrical stairs the appearance of the rail is much better with the former than with the latter. A single step separating landings is very dangerous, and should be avoided. Landings must be of the same width as the stairs, and these should never be less than 2ft. 8in. in the clear. Winder risers in newel stairs are made to radiate from the centre of newel, but in geometrical stairs they are usually "balanced" on the string line to prevent the fall of the handrail being so steep. This is accomplished by cribbing a few inches from the first and last fliers of the two flights, and adding them to the narrow ends of the winders, thus increasing the width of the latter.

The method of spacing the winders is shown in Fig. 170, and is as follows: Having drawn the plan, and laid down the fliers as far as the springing line of the semi-circle, describe an arc from the centre of well at 18in. from the inside of string; divide this arc into as many equal parts as there are to be winders; set off on the inside of the string from lin. to 3in. beyond the springing, according to the width of treads, and divide the portion of string included into the same number of equal parts as the arc aforementioned, and draw the riser lines through the points so found. The first and last steps, not taking part in the turn, are not winders, but "diminished fliers;" only one step on each flight should be so treated, or an unsightly easing will be necessary in the handrail. Avoid, where possible, taking a winder into the angle of the two strings, as an excessively long step results, awkward to fit a carpet to or to keep clean.

(To be continued.)

A WONDERFUL ENGINEERING SCHEME.

M. BERLIER, the famous French engineer, is at present engaged on a scheme which will place Bombay within a week's journey of London. Of course, the chief difficulties in the way of a railway which should travel between London and Bombay in one direct route are the Channel and the Straits of Gibraltar. "The Channel Tunnel is a difficulty," M. Berlier has explained to a Daily Mail correspondent, "which seems likely, for political reasons, to remain insurmountable, but as far as the Straits of Gibraltar are concerned I have solved the problem. The depth of the Straits between the nearest points on the Spanish and Moroccan coasts, which are only a little more than eight miles apart was, I found,

TOO GREAT FOR A TUNNEL

to be built there, being no less than 1980ft., but a tunnel from Vaqueros on the Spanish coast to Tangier on the Morocco side, although nearly nineteen miles long, would be easy to build, the depth at this point being only about 1300ft., and the bottom good firm rock. I have a new system ready worked out for the removal of the debris in the building of my

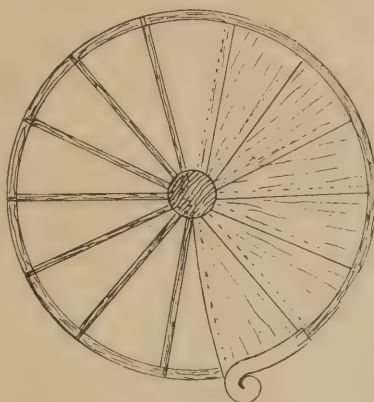


FIG. 171. PLAN OF CIRCULAR NEWEL STAIRS.

tunnel, which will enable me to get through the work with far greater rapidity than has hitherto been possible, and I intend, as far as possible, to employ Chinamen in its construction, as, indeed, in the construction of the whole line of railway. Now let us take our London-Bombay railway from the start. Look at this map, and follow me carefully. You will start, let us say, from Charing Cross, travel to Dover, and arrive, without accident I hope, in Calais. From the moment you have installed yourself in your carriage at the Calais pier station you need not leave it until you reach Bombay, where, if my calculations are correct—and I have every reason to believe them to be so—you should arrive within six days and ten hours after your departure from London. From Calais you would travel upon already existing lines through Paris direct to Madrid, and from Madrid direct to Gibraltar. Here you enter the tunnel, which will, of course, be

BRIGHTLY LIGHTED AND WELL VENTILATED

—in fact, we shall have to guard rather against excess of ventilation than the reverse—and which it should take you about forty minutes to traverse, and you will be on the African continent, at Tangier, without having left the carriage into which you got at Calais. From Tangier I propose building a line about 270 miles in length, which would connect at Tlemcen with the already existing Algerian railway, upon which you would travel via Constantine to Tunis. From Tunis you will travel in a direct line through Tripoli and Cairo to the Persian Gulf; but a small branch line, either at Cairo or at Akhba, will permit you, if you can spare the time, to make a detour, so as to include Jerusalem on your journey. From the Persian Gulf to Bombay is, as you can see on the map, perfectly plain sailing, or rather railing, and, as I said at the

start, you will arrive in Bombay six days and ten hours after you left London, having only had a single hour's sea journey since your departure, and that," said M. Berlier, laughing, "an unnecessary one if politics did not exist, and

THE CHANNEL TUNNEL

did. Of course, the gauge is not the same in France and in Spain as in England, but I have perfected an automatic 'chariot' which our trains will carry, by which the change from one line to another will hardly be felt at all. There will be no difficulty whatever with the Suez Canal. It is merely a question of a tube, through which the train will pass. I have often done more difficult work than that. In fact, I want you to understand that the whole construction of the tunnel and of the railway presents no difficulties whatever, and give me seven years, and the necessary money, and I will guarantee to carry you from Calais to Bombay without any trouble whatever. The whole undertaking won't cost much—my calculations figure it out at about ninety million pounds sterling—and considering what the future of such a railway may be, I think it is cheap at the price." So far this gigantic scheme is a scheme only—a wonderful scheme, though, for all that, and M. Berlier is a wonderful man.

Trade and Craft.

THE BRITISH CLAYWORKERS' MUTUAL INSURANCE CORPORATION LTD.

At the statutory meeting of the British Clayworkers' Mutual Insurance Corporation, held at the Offices, 43, Essex Street, Strand, on Thursday week, Mr. John C. Hill, the Chairman, stated that the result of their mutual insurance scheme, which was started in June last as a protest against the excessive charges of the tariff insurance offices, had proved an extraordinary success. They had a capital of something over £16,000, and up to that time had paid in claims only £100. The Corporation was formed for the insurance of brick, tile, and pottery makers in this country, under the management of Mr. H. Greville Montgomery.

An alarming accident happened at the new Kennington Theatre, which is in course of erection at Kennington Park Road. Two large joists—measuring 12ft. by 6ft.—had been placed in position in the stagework, but had not been fixed. While some men employed by Messrs. Cawdrey and Co., the contractors for the carpentry work, were engaged in carrying timber over the joists to other parts of the job, one of the joists snapped in the middle, causing the men carrying the timber to fall a considerable distance to the floor below.

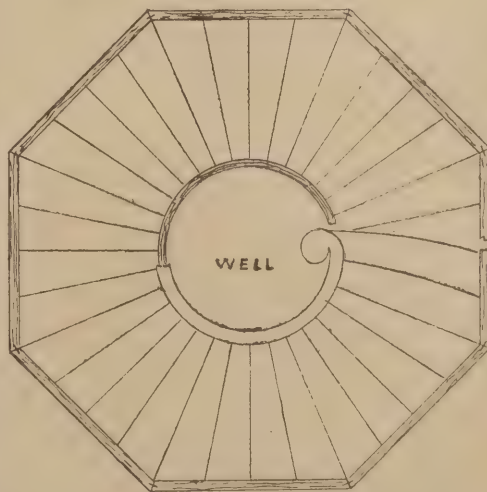


FIG. 172. PLAN OF CIRCULAR GEOMETRICAL STAIRS.

COMPLETE LIST OF CONTRACTS OPEN.

DATE OF DELIVERY.	WORK TO BE EXECUTED.	FOR WHOM.	FROM WHOM FORMS OF TENDER MAY BE OBTAINED.
BUILDINGS—			
Nov. 4	Barry—Fire Engine Station, &c.	Urban District Council	J. C. Pardoe, Council Offices, Holton-road, Barry.
" 4	Downpatrick—Press and Weighing Rooms	"	P. C. Cowan, Court House, Downpatrick.
" 4	Nottingham—Electricity Station	Electricity Committee	A. Brown, City Engineer, Guildhall, Nottingham.
" 4	Sowerby Bridge—Pavilion	"	H. Hatton, Town Hall-chambers, Sowerby Bridge.
" 4	Widnes—Extension of Hospital	"	F. W. Holme, Westminster-chambers, Dale-st., Liverpool.
" 5	Buckie—Attics	"	J. Perry, Buckie.
" 5	Dublin—Library	Public Libraries Committee	City Architect, Municipal-buildings, Cork Hill, Dublin.
" 5	Leeds—House	J. W. Reader	E. B. Johnson, 6, The Grove, Ilkley.
" 5	Macclesfield—Police Station	Corporation	E. E. Adshead, Town Hall, Macclesfield.
" 5	Windermere—Hotel	"	J. Banks, Surveyor, Kendal.
" 7	Edinburgh—Hotel	Caledonian Railway Co.	Peddle and Browne, 8, Albion-place, Edinburgh.
" 7	Haltwhistle—Institute	"	J. M. Clarke, Haltwhistle.
" 7	Walsall—Caretaker's House	School Board	Bailey and McConnell, Bridge-street, Walsall.
" 8	Hitchin—Town Hall and Offices	Urban District Council	E. W. Mountford, 17, Buckingham-street, W.C.
" 8	Presthorpe—Cottages	Great Western Railway Co.	Engineer, Wolverhampton Station.
" 9	Cardiff—Troughs	Corporation	W. Harpur, Town Hall, Cardiff.
" 9	Chatham—Works at Workhouse	Guardians	G. E. Bond, High-street, Rochester.
" 9-21	Sophia (Bulgaria)—Public Offices	Bulgarian Ministry of Public Works	Commercial Department, Foreign Office.
" 11	Isle of Wight—Chapel	"	F. Sprack, Branstone, Hale Common, Isle of Wight.
" 12	Launceston—Market	Town Council	C. B. Peter, Launceston.
" 12	Coventry—Pumping Stations	Corporation	J. Mansergh, 5, Victoria-street, Westminster.
" 14	Arbroath—Post Office	Commissioners H.M. Works	H.M. Office of Works, Edinburgh.
" 14	Cork—Offices	Electric Tramway and Lighting Co.	R. Walker, 17, South Mall, Cork.
" 14	Birkenhead—Baths	Corporation	C. Brownridge, Town Hall, Birkenhead.
" 15	London, E.—Conveniences	London County Council	Architect's Dept., General Branch, 13, Spring-gardens, S.W.
" 15	London, W.—Coroner's Court Buildings	London County Council	Architect's Dept., General Branch, 13, Spring-gardens, S.W.
" 18	Barrasford—School Additions	"	Armstrong and Knowles, Newcastle-on-Tyne.
" 18	Cardmarthen—Bridge	County Council	County Surveyor, Shire Hall, Carmarthen.
" 21	Poutlott—School	School Board	James and Morgan, Charles-street Chambers, Cardiff.
" 24	Bridgend—Chapel	"	Giles, Gough, & Trollope, 23, Craven-st., Charing Cross, W.C.
Jan. 24	London—Tunneling Works	London County Council	Engineer's Department, County Hall, Spring-gardens, S.W.
No date.	Aughton—Renovating Chapel	"	Rev. J. Wollerton, Westley-place, Howden.
"	Burnopfield—Shop Additions	"	Mrs. E. Wilson, Burnopfield.
"	Harrogate—Business Premises	J. B. Charles	Bland and Bown, Harrogate.
"	Leeds—Two Shops	Gibbs and Co.	W. Hill and Son, 25, Park-square, Leeds.
"	Liss—Residence	"	H. T. Keats, Petersfield.
"	Llandegveth—Rebuilding Bridge	Rural District Council	R. Derrett, District Surveyor, Usk.
"	London, S.W.—Flats	"	Tompkins and Barker, 41, St. Margaret's-road, Brookley.
"	Rotherham—Additions to Business Premises	W. Crooks	H. L. Tacon, 11, Westgate, Rotherham.
"	Ryhall—Repairing Bridge	Ketton District Council	R. M. English, Broad-street, Stamford.
"	Ulverston—Additions to House	"	Settle and Farmer, Ulverston.
"	Wealdstone—Stables, &c.	"	J. Hayes, Spencer-road, Wealdstone.
"	Bankfort, N.B.—Alterations to Church	"	W. Constable, 20, George-street, Edinburgh.
"	Clatterbridge—Workhouse Additions	Wirral Union	C. C. Francis, 5, Richmond-street, Liverpool.
"	Alcester—Workhouse Infirmary	Union	S. A. Gothard, Union Offices, Alcester.
"	Gateshead—Stone Premises	"	E. Bowman, 52, Westgate-road, Newcastle.
"	Larkhall—Additions to Houses	"	N. Dodd, Millheugh.
"	South Scarle—Works to Parish Church	"	Vicar, The Vicarage, South Scarle.
"	Lincoln—Shops and Offices	"	W. Mortimer and Son, Lincoln.
"	Canwich—Two Cottages	"	W. Scorer, Bank-street-chambers, Lincoln.
"	Darfield—Schools	"	A. B. Linford, Kelvin Cottages, Wombwell.
"	Bromley—Hospital Additions	Joint Hospital Board	J. Ladds, 7, Doughty-street, Mecklenburg-square, W.C.
ENGINEERING—			
Nov. 4	Hastings—Wells	Corporation	P. H. Palmer, Town Hall, Hastings.
" 5	New Shoreham—Repairs to Steam Tug	Harbour Trustees	Harbour Master, New Shoreham.
" 8	Fleetwood—Ferry Works	Urban District Council	R. T. Hayes, Town Hall, Fleetwood.
" 8	Manchester—Laying Telephone Pipes	Highways Committee	City Surveyor, Town Hall, Manchester.
" 10	Southend-on-Sea—Lake, &c.	Corporation	A. Fidler, Clarence-road, Southend.
" 10	Royton—Pumping Machinery	Urban District Council	T. S. McCallum, 4, Chapel-walks, Manchester.
" 10	Belem (Para, Brazil)—Water Supply	Government	Brazilian Consulate, England.
" 15	Hanley—Refuse Destructor	"	J. Lobley, Town Hall, Hanley.
" 16	Knowle—Engines, &c.	"	W. J. Taylor, The Castle, Winchester.
" 16	St. Dogmells—Cistern, &c.	Rural District Council	D. Davies, Town Clerk, St. Dogmells.
" 21	Ashton-under-Lyne—Precipitation Tanks, &c.	Corporation	J. T. Earnshaw, Town Hall, Ashton-under-Lyne.
" 21	Broadhaven—Pier	Office of Public Works	D. and C. Stevenson, 84, George-street, Edinburgh.
Jan. 6	Johannesburg—Carburetted Water Gas Plant	Town Council	R. Whyte and Co., 22, Bury-street, St. Mary Axe, E.C.
" 24	London—Tunnel	London County Council	Engineer's Department, County Hall, Spring-gardens, S.W.
No date.	Barrow-in-Furness—Boilers	School Board	School Board Offices, Barrow-in-Furness.
IRON AND STEEL—			
Nov. 7	London, N.—Lamp Columns	Hornsey Urban District Council	E. J. Lovegrove, Council Offices, Hornsey, N.
" 12	Taunton—Pipes	Corporation	Waterworks Manager, Municipal-buildings, Taunton.
Dec. 19	London, S.W.—Rails, &c.	"	Agent General for Victoria, 15, Victoria-street, S.W.
No date.	Glasgow—Iron Roofing	"	Wilks, Sloan, and Co., 112, Bath-street, Glasgow.
"	London, S.E.—Steel Joists	London County Council	W. Adams, Belvedere-road, Lambeth, S.E.
ROADS—			
Nov. 4	Whitwood—Steel Works	Urban District Council	A. Hartley, Carlton-chambers, Castleford.
Nov. 5	Hampton Wick—Road Material	Urban District Council	J. N. Horsfield, District Surveyor, Hampton Wick.
" 5	Swindon—Street Works	Urban District Council	H. J. Hamp, Surveyor to the Council, New Swindon.
" 7	London, N.—Road Works	Hornsey Urban District Council	E. J. Lovegrove, Southwood-lane, Highgate, N.
" 9	Church (Lancs.)—Setts	Urban District Council	Surveyor, District Council Offices, Church.
" 10	Batley—Street Works	Town Council	C. J. Kirby, Market-place, Batley.
" 10	Southend-on-Sea—Flints	Corporation	A. Fidler, Clarence-road, Southend.
SANITARY—			
Nov. 4	Deal—Sewerage Works	Corporation	B. Latham, 13, Victoria-street, Westminster.
" 7	Church—Sewering	Urban District Council	Surveyor, District Council Offices, Church.
" 7	St. Anne's-on-Sea—Sewers, &c.	Urban District Council	H. Bancroft, 88, Mosley-street, Manchester.
" 16	Aylesbury—Sewage Disposal Works	Urban District Council	G. Fell, 1, Rickford's Hill, Aylesbury.
PAINTING AND PLUMBING—			
Nov. 4	Consett—Painting Chapel	"	W. Clayton, West-parade, Consett.
" 5	Peterborough—Painting Workhouse	Guardians	J. G. Stallebrasse, North-street, Peterborough.
No date.	Dewsbury—Painting Ten Houses	"	T. Speight, 23, Boothroyd-lane, Dewsbury.

COMPETITIONS.

DATE DESIGNS TO BE SENT IN.	DESIGNS REQUIRED.	AMOUNT OF PREMIUM.	BY WHOM ADVERTISED.
Nov. 18	Sheffield—Board School	.....	J. Moss, School Board Offices, Sheffield.
" 24	Brightwell—Hospital	.....	Wellington Urban District Council.
" 31	Stockholm—New Stations	.....	Secretary, Royal Administration Swedish State Railways.
Dec. 1	Aberavon—Extension of Market	£21	Aberavon Corporation.
" 12	Morley—Schools	.....	Morley School Board, Gildersome-road, Morley.
Jan. 2	Harrogate—Pump Room	£50, £30, £20	Corporation of Harrogate.
" 2	Harrogate—Alterations to Old Pump Room	£30, £20, £10	Samuel Stead, Boro' Surveyor, Municipal Offices, Harrogate.
" 14	Burnley—School, &c.	.....	Burnley School Board, Ormerod-road, Burnley.
No date.	Maidstone—Electricity Supply Works and Refuse Destructor (Assessor)	£100	Herbert Monckton, Town Clerk, Maidstone.
"	Wibsey—Fountain	.....	Walter North, Wibsey.

Property and Land Sales.

Sales for the Year 1898.—Telephone No. 669 Bank.—Telegraphic address, "Akaber, London."

MESSRS. BAKER & SONS beg to announce that their SALES of LANDED ESTATES, Investments, Town, Suburban, and Country Houses, business Premises, Building Lands, Ground-rents, Reversions, Shares, and other Properties will be held at the Mart, Tokenhouse-yard, E.C., on the following Fridays during the year 1898:—

October 28 | November 11 | November 25 | December 9
Auctions can be held on days besides those above specified.—11, Queen Victoria-street, E.C.

By order of the Bridge-house Estates Committee of the Corporation of the City of London.—A highly valuable Building Site, covering an area of considerably over an acre in the heart of the City.

MESSRS. BAKER and SONS are instructed by the Bridge-house Estates Committee to LET by AUCTION, on Building Lease, for a term of 80 years, at the Mart, Tokenhouse-yard, on FRIDAY, OCTOBER 28th, at TWO o'clock, to be offered in one lot, and if not so disposed of in four lots, the important BUILDING SITE, comprising Nos. 5, 6, and part of 7, West-street, Nos. 36 to 48 (inclusive), Finsbury-rows, Nos. 2 and 4, Circus-place, Nos. 101 to 116, Ondon-wall, and Albion Hall, with warehouses, &c., adjoining, occupying a total area of 49,000ft., and possessing frontages of about 750ft., offering magnificent sites for the erection of bank, insurance, and other offices, shops, professional or business premises, well worth the attention of builders, capitalists, and others, affording an opportunity seldom obtainable of acquiring prominent building sites in the City.

Particulars, plans, and conditions of sale of the CITY COMPTROLLER and CITY SURVEYOR, Guildhall, E.C.; and of the AUCTIONEERS, 11, Queen Victoria-street, E.C.

Strawberry-hill, Middlesex. Within eight minutes' walk of the Station on the L. and S.W. Railway.

MESSES. TOPPIS and HARDING will SELL by AUCTION, at the MART, E.C., on FRIDAY, NOVEMBER 11th, at TWO o'clock, actually:—

The valuable FREEHOLD PROPERTY known as Nos. 5 and 6, Waldegrave-terrace, Strawberry-hill, Middlesex, producing rentals, actual and estimated, amounting to £60 per annum, together with a plot of FREEHOLD BUILDING LAND adjoining, ripe for development, and having a frontage to Waldegrave-terrace of about 55ft., a depth of about 154ft., and an area of about one-third of an acre.

Particulars, plans, and conditions of sale may be had of the Mart, E.C.; of F. G. MELLOWS, Esq., Solicitor, Finchchurch-buildings, E.C.; and of Messrs. TOPPIS and HARDING, 66, Cannon-street, E.C.

ALTHAMSTOW, ESSEX.—93 PLOTS of exceedingly valuable FREEHOLD BUILDING LAND, free from the land and tax, being a further portion of the Rectory Manor Estate, having commanding frontages to Forest-road, and the new roads leading therefrom to Church Hill, within a few minutes' walk of Hoo-street Station on the G.E.R., from whence there is an excellent train service during the day, and half-hourly throughout the night. Fully ripe and immediately available for the erection of shops and private residences, thus affording an excellent opportunity for the creation of ground rents.—FOR SALE by AUCTION, on behalf of

THE BRITISH LAND COMPANY Limited, at the CHEQUERS, High-street, Althamstow, on THURSDAY, NOVEMBER 10th, SIX for SEVEN o'clock in the evening. Free conveyances. Purchase money payable by a deposit of 10 per cent., and the balance by easy instalments extending over nine years. The new roads are well made, coped kerbed, and good drainage provided.—Particulars, plan, and conditions of sale may be obtained of a SECRETARY, 25, Moorgate-street, E.C.; and at the office of sale.

AYLEBONE.—By Order of the Trustees of St. Luke's Parochial Schools.—Corner Building Plot, TO BE LET by AUCTION, by

NEWBON, EDWARDS, and SHEPARD (Newbon and Co.), at the MART, on THURSDAY, NOVEMBER 10th, at TWO precisely, on a Building Lease for 80 years, the valuable CORNER PLOT BUILDING LAND, having a frontage to Marylebone-lane of about 18ft., and to William-street of about 14ft., with a total area of about 1150ft. Particulars, with plans, of the AUCTIONEERS, 275, Upper-street, N.

EDWIN FOX and BOUSFIELD, At the AUCTION MART, on WEDNESDAY, NOVEMBER 16th, at TWO. Order of the Trustees of the late Edward Dewick, Esq., and another.

CITY of LONDON.—Walbrook.—FREEHOLD ESTATE, comprising No. 31, Walbrook, and No. 1, Bond-court, covering superficial area of 10ft., well lighted and possessing the conspicuous site on the upper stories of about 38ft., with a depth of 53ft., thus affording scope for the erection of handsome modern building for commercial or professional purposes. The site is at present covered with a very substantial five-story premises, for many years occupied by Messrs. Herring, Dewick, and Hardy, sole stationers, and is thoroughly sound, each or carrying heavy weights. Possession on completion of the purchase. The property is thus available for occupation in its present form, for investment by letting, or for more profitable utilisation by creating ground rent on building lease, or devoting capital to the erection of such a noble pile as will ensure a large return.

Particulars at the Mart; at Messrs. EDWIN FOX and BOUSFIELD's Office, 99, Gresham-street, Bank, E.C.; and of the Vendor's Solicitors, Messrs.

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FOR SALE, a compact and valuable FREEHOLD PROPERTY of 53 acres, with a frontage to the main Brighton road of 2000ft., and perfectly ripe for development, with residences of a good class. Prettily timbered. Gas and water mains along the frontage. Would be divided.

Plans and full particulars of the owner's agents, Messrs. GREEN and SIMES, Auctioneers and Estate Agents, Blenheim Mansions, Queen Anne's-gate, London, S.W., or Mr. W. M. LEACH, Auctioneer and Estate Agent, Crawley, Sussex.

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Three splendid SITES for orphanage or any large institution, or for villa residences, greatly in demand; all corner sites, with magnificent frontages to made roads; almost adjoining main line station; FOR SALE cheap; owner going abroad.—JENNINGS and FELL, Land Agents, 3, Broad Street-buildings, London, E.C. 2

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R. I. B. A., SOCIETY of ARCHITECTS, and CIVIL SERVICE TECHNICAL EXAMINATIONS. Preparation by correspondence, in residence, or personally.—MIDDLETON and CARDEN, 19, Craven-street, Strand, W.C.

PLANS, SPECIFICATIONS, QUANTITIES, &c., carefully prepared by young Architect. Moderate terms to those about to build.—ARTISTIC, 1, West-terrace, Whitby. 8

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ARCHITECT'S ASSISTANT WANTED. Well up in construction, detail, and design.—Apply, stating, age, terms, qualifications, and reference, to W. H. WARD, Architect, Paradise-street, Birmingham.

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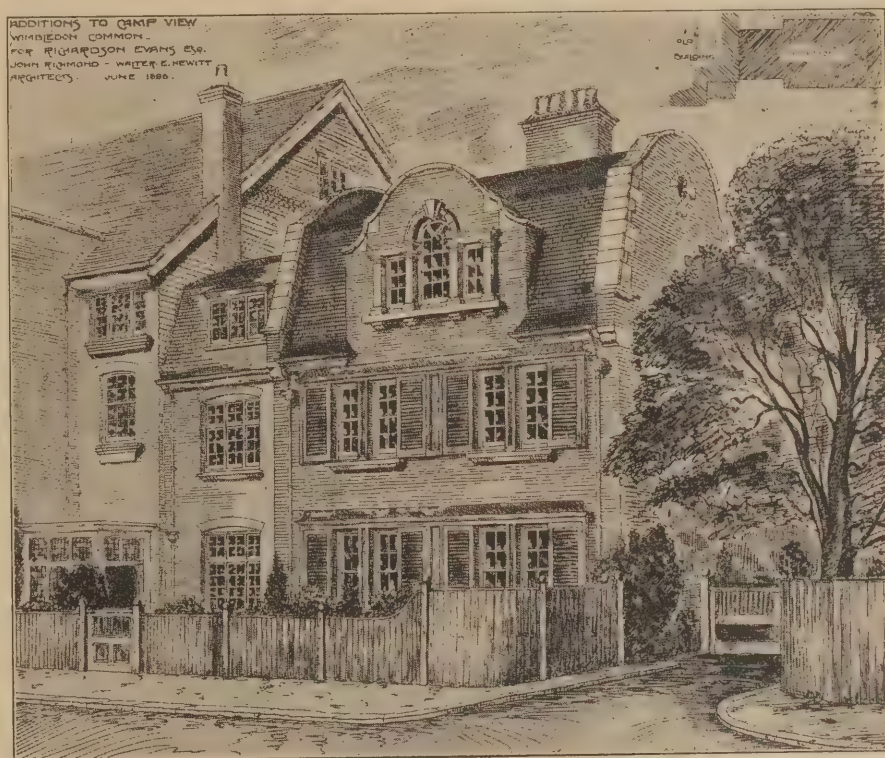
Case for the "Horny-handed Sons of Toil."

THE letters of "A London Architect" to the daily Press upon the subject of the idleness

and insolence in the building trades, and the remarkable corroborations and amplifications they drew from various London builders, and others whose word may be held to be authoritative upon the matter, must have attracted wide attention among those concerned with the affairs of building, and awakened no inconsiderable interest and curiosity in the mind of the general public. No one who may have read the epitome we gave of the case against the bricklayers and plasterers could remain unimpressed by the justice of the indictment brought against them. One would even go so far as to assert that everyone who has had intimate dealings with the building trades must have noticed at times the existence of a systematic conspiracy of indolence, and it is common for those who are for the first time brought into personal relations with the workmen to express astonishment at the extraordinary attitude of independence and nonchalance with which, for the most part, they regard the trade that brings them their daily bread. For oneself, however, it was with a sort of pride and a deep satisfaction that one realised the perfect freedom, and the untrammelled individuality of the English artisan, as exemplified in the various building crafts. It gratified and warmed one's sentiments of patriotism and justice to know that in England the "horny-handed son of toil" was no son of toil at all; that he was a free agent, and that he was, perhaps, less embarrassed by the harsh facts of destitution and starvation than happens in the other pursuits and professions wherein men rely upon their own personal activity and abilities to keep them fed and clothed; that he toiled only when it served his purpose to do so, and not perforce under the coercion of capitalism; that, when he wished it, he dawdled; that, when he felt inclined to afford it, he took a holiday; that, should he so choose, he might be merely a dilettante in bricklaying and plastering, and remain free to educate his reason and his perceptions in the pursuit of his favourite hobby. One rejoiced to think that in England alone, of almost all the civilised nations of the world, the "son of toil" was no serf or drudge or peasant labourer, but a physical triumph of the human species, and as free to perfect the humanity given him by the Almighty as any lord in the land. If in some cases these splendid privileges are abused, more's the

pity; the privilege remains. One felt a patriotic pride to know that it was due to the liberal laws and wide justice of the English race that it was possible for the workman to withstand the coercion of the capitalist, and snap his fingers in the faces of those who would enslave him. It is regrettable that the independence of the artisan now touches upon the domain of positive despotism; a new-found power is all too readily abused. In these connections, however, the rule of life seems to be: *prey, or be preyed upon*. When the balance has been exactly adjusted between give and take, why, then will come Elysium; but from a humanitarian point of view, at least, it is surely better to see an employer at his wits' end to meet his engagements than his employés supine under the yoke of the devil of competition. And if we consider what has occasioned this strained attitude between employers and employed, as though

of their members, the individual members are as widely sundered in their proclivities as are the individual members of other classes of life. Here are two pictures, each of a workman employed upon the same identical building. The remainder lay between these two extremes of merit and demerit, but, it should be said, with a more marked affinity to the former extreme than the latter. The first was a slater. He came on to the work after the builder had been some days looking out for another hand. He said his tools were in pawn, and wished to be paid in advance that he might get them out. This the builder refused; but he acceded to his request for boots, took him home and fitted him with an old pair of his own. He also gave him a few shillings to carry on with. The man handled himself well and worked hard, having borrowed other people's tools. On Saturday he drew his pay, but he did not bring his tools on the following Monday. He brought, however, a sodden face and bleared eyes, and grumbled and asked for an advance to enable him to get



ADDITIONS TO CAMP VIEW, WIMBLEDON COMMON. MESSRS. JOHN RICHMOND AND WALTER E. HEWITT, ARCHITECTS.

the workman's worst enemy was the man who gave him work, it will be found to be a reaction by the employed against the tyranny of their employers. It was a wide, sincere, and deep-rooted discontent that provoked the activity of the labour organisations, and established the various trade unions which might meet the employers, and combat them, upon something approaching to equal grounds; and it is the security offered by the trade unions which makes the organised idleness and insolence of a certain section of the bricklayers and plasterers and their fellows possible, for it is only a certain clique or section which thus abuses the power afforded by the unions. The letters in the Daily Telegraph and elsewhere, being for the most part written with the direct object of showing the degradation to which the members of the building trades have fallen, emphasise unduly that particular aspect of the case, and give an impression as though all workmen were seriously affected with these derogatory qualities. The fact is, however, that, although the trades unions have a bad effect on the morals

his tools out of pawn. This was again refused. On Tuesday he came on the job, and did some work, and on Wednesday he also appeared, but in the middle of the morning he returned the tools he had borrowed and asked for his money. He said he was ill. He took his day and a half's pay, and could be seen hurrying down the street with one hand on his back to give an air of plausibility to his stated ill health. He turned the corner towards the public-house, and was not seen again.—The second was a foreman working bricklayer. He was fifty-four, had bright eyes like a boy, slept only four hours a day, worked through a day and a night and the next day without rest, and had twice worked three days and two nights without any sleep. He was ambidexter—could work indifferently with either hand as was most convenient to the job in progress, and would change about to rest himself. He kept ten or a dozen bricklayers to their work, and did all the awkward corners and difficult and nasty jobs with his own hand. He had worked for his employer between twenty and thirty years. B. C.

THAT the British workman is an incompetent, idle, worthless sot has long been an article of faith with the shoddyocracy of this country, but that this belief is not shared by the powers that be in foreign countries is best attested by the fact that a British workman is usually paid from two to six times the native rate, and when any undertaking of exceptional difficulty or extent is entered into his services are immediately requisitioned both to perform and superintend. To old stagers in the building trade the stereotyped charges made by "A London Architect" and his supporters in the public press will be easily recognised as old familiar friends with new faces; this time it is the bricklayer and plasterer who come under the lash—generally the sinners are the carpenter and mason, that curled darling of the scientific architect—yelept the plumber—not yet having outlived his popularity. It would serve no useful purpose to retaliate upon the "architects," "builders," and "surveyors" who have joined in the chorus of condemnation that their own houses are far from being in order, as the records of the metropolitan hospitals, police-courts, and the County Council will amply prove; but it will be well to examine some of the statements to see how far they are born out by evidence. First let us tabulate the heads of the indictment: (1) the men in question are paid "full" wages and beyond the union rate; (2) they absent themselves from work on Mondays and Tuesdays; (3) they discharge themselves at short notice; (4) they threaten to strike if their demands are not complied with; (5) plasterers object to carpenters doing plasterers' work; (6) they do as little as they possibly can, and "make the work last." To deal with these charges *seriatim*: 1st—The law of supply and demand is stronger than the most powerful trades-union, whether that of employer or employee; if men are paid higher than the current market rate it is in consequence of temporary pressure, and the fact of such payment is proof positive that it pays the capitalist to do so, because he builds not for philanthropy, but for profit. Further, if such were not the case, he would not waste time writing to the papers, but would cease building, and invest his money in some more profitable undertaking. 2nd—There may be some truth in this charge, in respect of what may be called the camp-followers of the army of labour, wastrels and devil-may-cares, samples of which may be found in all classes of society; but it is absurd to level such a charge at the head of the great body of self-supporting and self-respecting craftsmen; and so far as the complaint is justified, the employers have the remedy in their own hands, viz., promptly to discharge the offenders. They must, however, remember that human nature will assert itself; in times of slackness they are very tyrannical, discharging men relentlessly if half an hour late, or absent through any cause; in times of briskness it is their turn, and like good Britons they should "grin and bear it." 3rd—The short notice was enforced by the employers in 1867. The men would probably revert to a week's notice with pleasure. 4th—This is their birthright, but the counter-moye is held by the employer. 5th—Do not architects object to builders and surveyors "working without plans?" And after all the man trained to the trade is most likely to produce satisfactory work, if stick and rag can be so-called. 6th—Task work in the concrete will infallibly lead to this, and if employers are dissatisfied with the result of their own arrangement, why not cease snarling, and co-operate with the wealth producer; well-managed, his capabilities may be fully and fruitfully developed.

G. E.

TOPICAL NOTES.

These notes will be a regular feature of future issues. The innovation has been called for by the need of fuller comment on matters of professional and topical interest than is made in our "Architectural Causeurie" columns. "Topical Notes," we think, will add an interesting page to "The Builders' Journal."

The Reigate Competition.

WE publish to-day, the report of our Special Correspondent on the result of the competition for the proposed municipal buildings at Reigate. The buildings in question comprise municipal offices and fire and police stations, and the cost is not to exceed £15,000, but the site is unpopular with the majority of the ratepayers, and it is unlikely that the designs secured will ever be executed. It will be remembered that we called attention to the monstrous unfairness of the conditions of this competition (published in this journal on September 7th), and to the presumption of the Town Council who framed them in such terms. The premiums were in no just proportion to the value of the work, and considerably below those which are usually offered in competitions of the importance of this one, but, in spite of this, it was stipulated that the three premiated designs should remain the absolute property of the Corporation; no promise was given that the successful or any competitor should be commissioned to direct the work, and it was expressly stated that the "assessors" reserved to themselves the right to alter any of the designs as they might deem advisable, and to withhold one or more of the premiums in the event of only a few designs being submitted, or if in their opinion the prizes were not merited. The "assessors" are, it seems, a Committee of the council, for the instructions to competitors began: "Each drawing shall consist of—(a) a general section, (b) a general elevation," and so forth. A reference to our correspondent's report will show that the result of the competition has fulfilled the promise of its inception. It was only to be expected that the award of the "assessors" would indicate the bias of a local and personal preference, and this seems to have duly occurred. This is hardly creditable on the part of the Reigate Town Council, although under the terms of the conditions, and as a strict matter of business, they were entitled to make any selection they might choose, but it seems to us that in this matter the gravest discredit lies with the Profession. At the time the conditions of competition were first made public, a correspondent to this journal wrote with great justice and pertinence when he said: "I consider that any architect sending in a design under such conditions is giving his vote and influence to the degradation of himself and his professional brethren." As we have pointed out on several occasions, the abuses of the competition system and the disrepute into which the Profession has fallen through this humiliating usage by the public, is not so much the fault of the promoters who, as business men, are entitled to ask as much as they can get for their outlay, but is rather due to the lack of public spirit, *esprit de corps*, and professional dignity among the architects themselves. This instance of the Reigate Competition is a case in point. The conditions drew forth wide ridicule, and the universal condemnation and repudiation of the Profession, and yet, although the exact number is not stated, the circumstances indicate at least a fairly large number of competitors. We heard a little time ago that some one had delivered a lecture on "Professional Etiquette." We do not think that lecture was a very long one.

OUR readers will have been sorry to learn that it has been deemed necessary to reconstruct the fine bridge at Kew to meet the needs of increased traffic, and we now regret to hear that the sum estimated by the engineer of the London County Council, Sir J. Wolfe Barry, and granted by Parliament for the work, is much below the price named severally in the tenders, and that it has been suggested that the design should be modified, and a reduction of cost effected by the substitution of internal brickwork or concrete in place of stone. This is a principle of economy that is met with all too frequently in these days, and it is indeed a pity that the successor to old Kew Bridge should be the object of official parsimony. We notice that Sir J. Wolfe Barry attributed the heavy prices quoted in the seven tenders to the new Employers' Liability Act, and the attitude taken by the London County Council on the subject of terms of labour. We rather expected that he would have burst out into animadversions on the "conspired indolence and brutish callousness of the bricklayers and plasterers," or used language to some such effect.

WE are glad to see that it is intended that the work of building the nave of Mr. Pearson's masterpiece shall begin next year. £27,000 have already been subscribed for this work, and it is hoped that the fact of building operations being renewed will call attention to the work, and increase the flow into the exchequer. Truro Cathedral will hold a unique position in posterity. As it will be the largest achievement of the Gothic Revival, so it will be also the last, for the whole tendency of church building at the present time is opposed to the principles of the Revivalists. It is well that this should be so, for, sincere as the enthusiasm of these men was, their's was an ideal which cramped and falsified the true impulse and privilege of Art.

THE London County Council has, under its new General Powers Bill, just availed itself of the highest prerogative of its institution, and has voted £1000 to the completion and erection of the late Mr. Thomas Thornycroft's statue on the Embankment by Westminster Bridge. Under the advice of Mr. T. G. Jackson, R.A., the site upon which the plaster model now stands has been approved, but the pedestal is to be some 5ft. higher than that upon which the model now set. To our mind the group would have looked better in a position in which it might be seen readily against the sky, and at such a distance as to emphasise its full value as an Architectural Sculpture, an object it was avowedly designed to effect, and which it effects, we think, almost to the exclusion of all appeals to the æsthetic sense.

CAMP VIEW.

WE illustrate on our front page an addition to a house at Wimbledon. The house is built of brick and slate. Lawrence's red bricks are used for facing, the slates are Tilberthwaite's, and brown Portland stone is used for the dressings and parapets. The architects are Messrs. John Richmond and Walter E. Hewitt.

THE training classes held by the Home Arts and Industries Association for voluntary teachers and others at the Royal Albert Hall have now opened for the autumn session. Bookbinding and leather embossing, carpentry and carving, inlay and marquetry, metal repoussé and basket-making, &c., are taught. Particulars can be obtained from the Secretary.

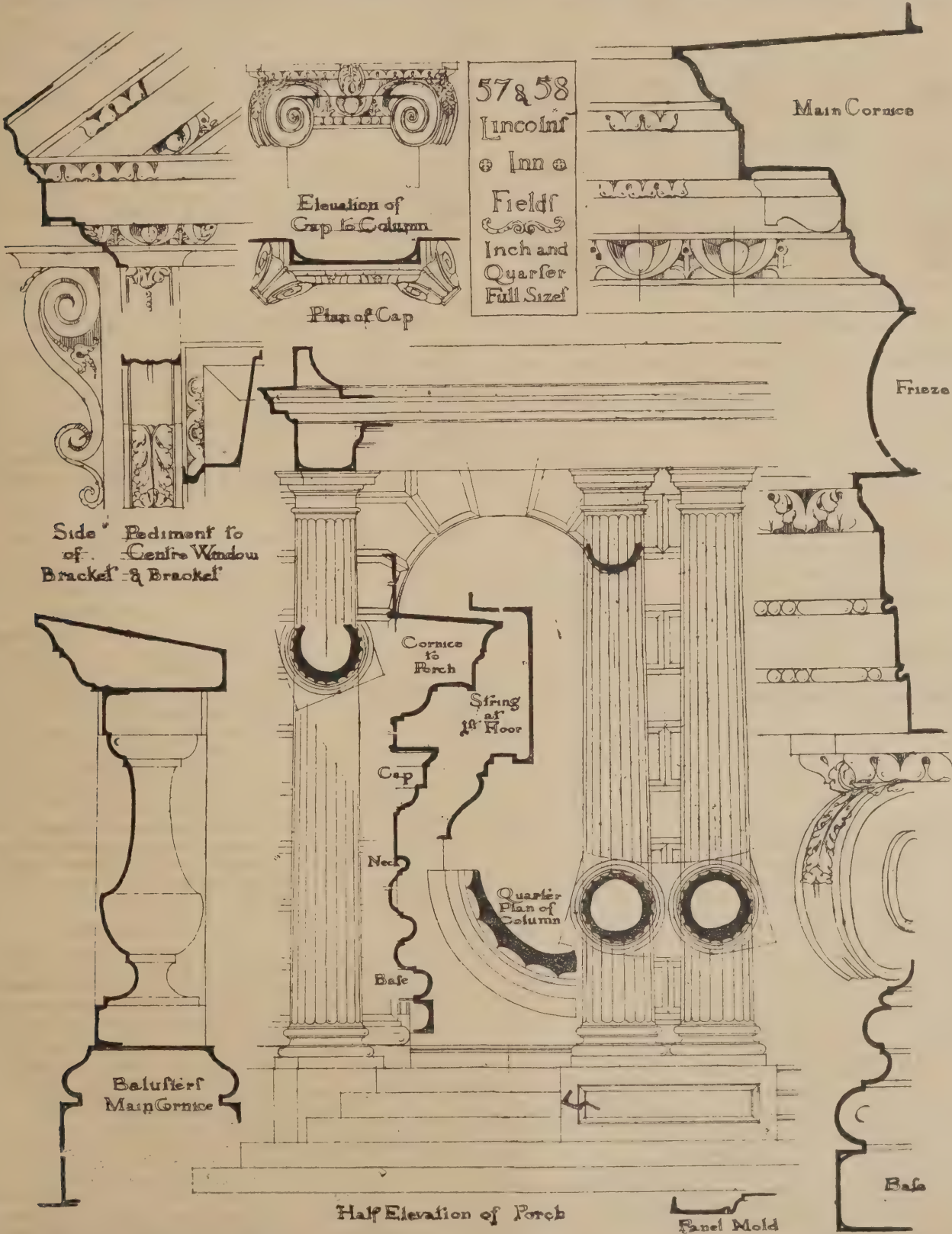
THE A.A. MEASURED DRAWING AWARDS.

BY OUR OWN CRITIC.

THE sheets of drawings submitted in competition for the Architectural Association Measured Drawing Prize in no degree approach in merit the work which was produced by candidates for the A.A. Medal, whose designs we have fully reviewed. Five alternative subjects were given in the instructions to intending competitors, comprising:—The Pedestal and Statue of Charles I. at Charing Cross; St. James' Club, corner of Bride Street, Piccadilly; the organ, St.

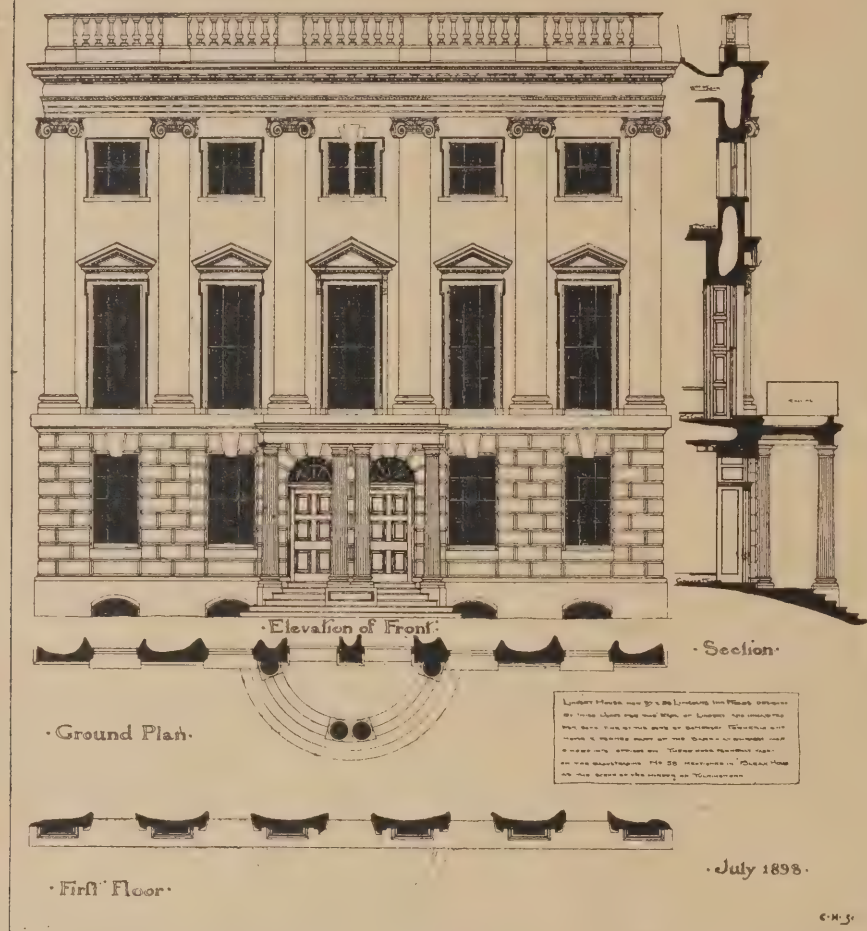
Lawrence, Jewry; the chimney-piece at The Charterhouse; and Nos. 57 and 58, Lincoln's Inn Fields, a design attributed to Inigo Jones. Of these the two latter proved themselves the most popular, and the prize, as we announced some weeks back, has been given to Mr. A. M. Torrance for his measured drawings of the Lincoln's Inn Fields House, while Mr. J. G. N. Clift has won Honorable Mention with his drawing of The Charterhouse chimney-piece. We publish both these drawings, necessarily much reduced in size, in our present issue. They show accurate and careful work, but little or no distinction of manner, and lack that precision and vigour which should always characterise a good architectural drawing. Mr. Torrance's measured notes showed a neat and well plotted elevation, but in making his final drawing he would have been better

advised to have used a heavier line, and he has tried to show more of the detail in the decorated parts of the design than could possibly be fully indicated in a 1/2 in. scale drawing of his subject. The power that enables an experienced draughtsman to make a good small-scale drawing relies as much upon his knowing what to leave out as in his knowing how to draw what he puts in. In an architectural drawing, as we see from the work of the present acknowledged masters of the art, the line should not vary appreciably in width or density throughout, and it is the sign by which we know an inexperienced draughtsman when we see the more intricate parts of the drawing delineated in a thinner line, or treated in a different manner, to the remainder. In places, Mr. Torrance's line shows the widening



57 & 58, Lincoln's Inn Fields, W.C. 6
Quarter-Inch Scale Drawing

Inigo Jones' Archt.
circa 1630



A.A. MEASURED DRAWING PRIZE. ELEVATION OF 57 AND 58, LINCOLN'S INN FIELDS.
FIRST PRIZE. BY A. M. TORRANCE.

and shrinking touch of his steel nib; the best draughtsmen do not allow this to appear, and their freehand line has a free equal contour, as though it had been traced with a stylo. It is a good plan to rub the point of the nib lightly on an oilstone till a line of the right gauge can be drawn without pressing upon the pen, or appreciably opening the cleft of the nib.

These latter remarks apply also to Mr. Clift's subject, which, though easier to measure and involving somewhat less drawing, has called for a good deal of freehand drawing of a difficult order. Mr. Clift's drawing in particular is marred by the flexible point of the steel pen he used, with which it is almost impossible to draw a long sharply curving stroke in a satisfactory way, as the thickness of the line will always vary with the direction in which the point of the nib is moving. Next time Mr. Clift has any such work to be finished let him blunt the point of his pen as above described, or use some other expedient to a similar end, and trace over his pencil lines with a free wrist and the pen held loosely and lightly in his fingers. His manner of drawing the grotesque, masks, and heraldic figures is also not very good. He has put too much work into them, and nervously touched them up and shaded them so that they look as though they were alive, and some of the lions' heads appear like human faces in pain. Such things as these are among the most difficult to draw in line so that their character be presented, and the material in which they are carved well suggested, but the broad, equal, flowing line, which should distinguish the rest of the drawing, will also be best used here.

There is another point upon which we would

call both these gentlemen to order, namely, upon the subject of their printing. The labour, pains, and thought expended upon it are indeed most praiseworthy, and, in the case of the prize-winner, it has been given as much attention as the drawing itself, for it has been enriched with scrolls and crossed palm branches, more voluptuous than anything in Inigo Jones's design. But why set so much store by an acquirement which, as here practised at least, is a mere feat of mechanical dexterity? It will be found that men of the most distinguished merits in Architecture do not elaborate their printing in this way. The point typifies very aptly the modern misconception of the significance of good draughtsmanship, wherein a high value is ascribed to mere manual facility, a facility which in general, indicates a mechanical and uncreative mind. The drawing of architects should be dashing, broad, sketchy, and suggestive, without deviating from the architectural demand for strict accuracy. We have wondered also why Mr. Torrance, having all the languages of the world to choose from, and any cypher or combination of words or signs he could remember or invent, for the motto which should distinguish and identify his design, selected a word which was invented to popularise a hair renovator, and has been elevated to the catchphrase of a music-hall song. We remember the same irrelevant spirit in a competitor at the R.I.B.A., who, some years ago, called his Soane design "Charley's Aunt!" This sort of thing is frivolous and unbecoming, to say the least, and might justly have prejudiced the assessors, and turned the balance of their decision against "Tatcho."

RIEVAULX ABBEY.

THIS Abbey (called Rivas by the natives) is some twenty miles beyond York as the crow flies, in the North Riding of Yorkshire. Bolton Abbey, in Wharfedale, has always appeared to me (says a writer in the Manchester Weekly Times) to be peerless for situation and perfect in all the features which go to make up a picture—wood, water, and bounding fells for background. I would unhesitatingly place Rievaulx Abbey next in point of beauty and interest. In several features this abbey surpasses Bolton Priory. It is more extensive and of more imposing and beautiful Architecture. Leaving Leeds by the North-Eastern Railway train, we soon quit the smoke and grime of this prosperous northern city for Helmsley. This little rural town of about 1500 inhabitants has much that is quaint about it. Its great market square or place is entered by three roads. In the centre stands a handsome stone monument of beautiful design, a Gothic shrine enclosing a full length marble figure of the present Earl Feversham's father, erected some thirty years ago. The church, the most imposing of the Ryedale churches, is a neat structure, carefully restored in the sixties. There are many antiquities in and around it.

THE CASTLE RUINS,

upon a wooded knoll, have a very imposing appearance, and are intensely interesting to the antiquary. They carry us back to the Norman times. The keep of solid and good quarried stone is very impressive. Its most notable owner was a Walter L'Espee, who fought successfully in the Battle of the Standard. It was this warrior knight who built and endowed Rievaulx Abbey in 1131. He afterwards became its Abbot. Helmsley Castle was built by one De Ros whilst Yorkshire still wept the Norman Conquest. Helmsley has a few ancient houses covered with thatch, though the majority are covered with red fluted tiles. A stream runs through its main street. There are a market cross and several old comfortable inns in the square. Two miles from Helmsley we find a wicket gate by the side of the road, with notice board indicating the way to the Abbey and

THE TERRACE.

We visit the famous terrace, a piece of exquisite lawn, over half a mile in length, forming an irregular curve. Through openings we obtain, as we slowly proceed, charming glimpses of the Abbey seated in the vale below. At either end of this noble terrace, which art has skillfully fashioned from a natural mound, is placed a Greek pavilion and a Tuscan temple. The latter contains some magnificent mural frescoes, painted by a distinguished Italian, representative of the salient features of Greek mythology. On the coved ceiling is depicted, in all the wealth of colour and wonderful realism, Apollo as sun god in his chariot drawn by three fiery chargers. Aurora, the Goddess of the Morning, is opening the aerial portals of the dawn. The first view we get of

THE ABBEY

is not soon to be forgotten. There below the steep declivity, embosomed by wooded hills, stands the ruin, lovely and beautiful in its desolation. Its name indicates its position, viz., the Abbey of the Rye Valley (Valle, Vaulx, or Vaux). From one point of view we see the choir, which is entire, being one of the most perfect parts of this interesting ruin. It is of light colour, almost gleaming white in the brilliant sunshine; and we are astounded as we try to realise what must have been the magnificence of the whole pile in its prime. Other portions come into view as we proceed, and soon we see the hamlets, the thatched and tiled "huts where poor men lie," scattered in delightful irregularity. We leave the terrace by zigzag paths into the dell below, and winding amongst the few scattered houses we reach the ruins, amidst whose columns and broken arches we wander long and leisurely. Seated on a

broken fragment within the great enclosure, at a point where the transept intersected the nave (now vanished!), we gaze admiringly up the choir,

WITH ITS MAGNIFICENT WINDOW of three long lancet compartments, below which are three others of similar form. Through these six openings is seen the wooded slope of the terrace. Below, railed off around, near where the altar once blazed in gold and precious stones, is an abbot's tomb. On each side are rows of magnificent clustered pillars, richly capitolled, fresh as from the mason's chisel. Above these are two tiers of simple arched windows, with lovely columns at each side. Singular to say, this building points north and south. It is in the Norman and Early English style of Architecture. The monks who occupied it were of the Cistercian order, and it is the first abbey erected in Yorkshire, and the second in England. We must not forget the refectory, the whole of whose walls are still standing. The stone recessed lectern in the hall where the reading brother sat during meals still remains. What was once the cloister court is now grassy paddock, shaded by noble ash trees. In this ruin,

SO LOVELY IN DECAY, we see an eloquent link between the present and the past. Over seven centuries have rolled down the stream of time since the era of strong religious fervour which marked the twelfth century—the age of Peter the Hermit and of many a saintly character. It was an age which saw the building of stately abbeys, and the transforming of many a sterile vale into fertility and plenty. Above all, it was the age which gave birth, in the sunny clime of Southern France, to Barnard of Clairvaux. Bernard sent a small body of his monks to this district. They found this part of Yorkshire a vast howling wilderness. Their beneficent labours transformed it into a paradise. Rievaulx Abbey is one of the 160 which he founded.

ST. MARY'S CHURCH, Woodbridge, has lately been beautified by the presentation of two excellent stained-glass windows.

BRITISH ARCHÆOLOGISTS IN GREECE.

AT the annual meeting of the subscribers to the British School (of Archæology) at Athens, Mr. Hogarth, Fellow of Magdalene College, Oxford, the director, stated in his report that the functions of the school were twofold—education and research. The first divided itself into education in aesthetics and education for research. Neither in his view was a primary object of the school, the first being really not archæology, though often mis-called so. The second ought to be well-nigh completed before students come to Athens at all—at the Universities and English museums. As a matter of fact, the functions of the school were limited—first by its small staff. If the British School was to be a teaching institution it must provide itself with such an organisation as the German School had. It should also be remembered that few men could afford such a luxury. The supply of such students would always be small. The second function—research—was the one which both in theory and practice, the school performed best. In fact, last year a majority of the students represented this side. The research might be—(a) Individual, for which the school provides trained advice, a library, and all possible facilities; but the researchers, mostly graduates of full age, took their salvation in their own hands. Again, their numbers could never be large owing to want of endowment for long terms of residence abroad—English students not being supported by their Government—and to want of endowments at home, professorial chairs, museum places and the like. The school had only a very small and uncertain nucleus of men working at archæology as a profession. On the increase of this would depend

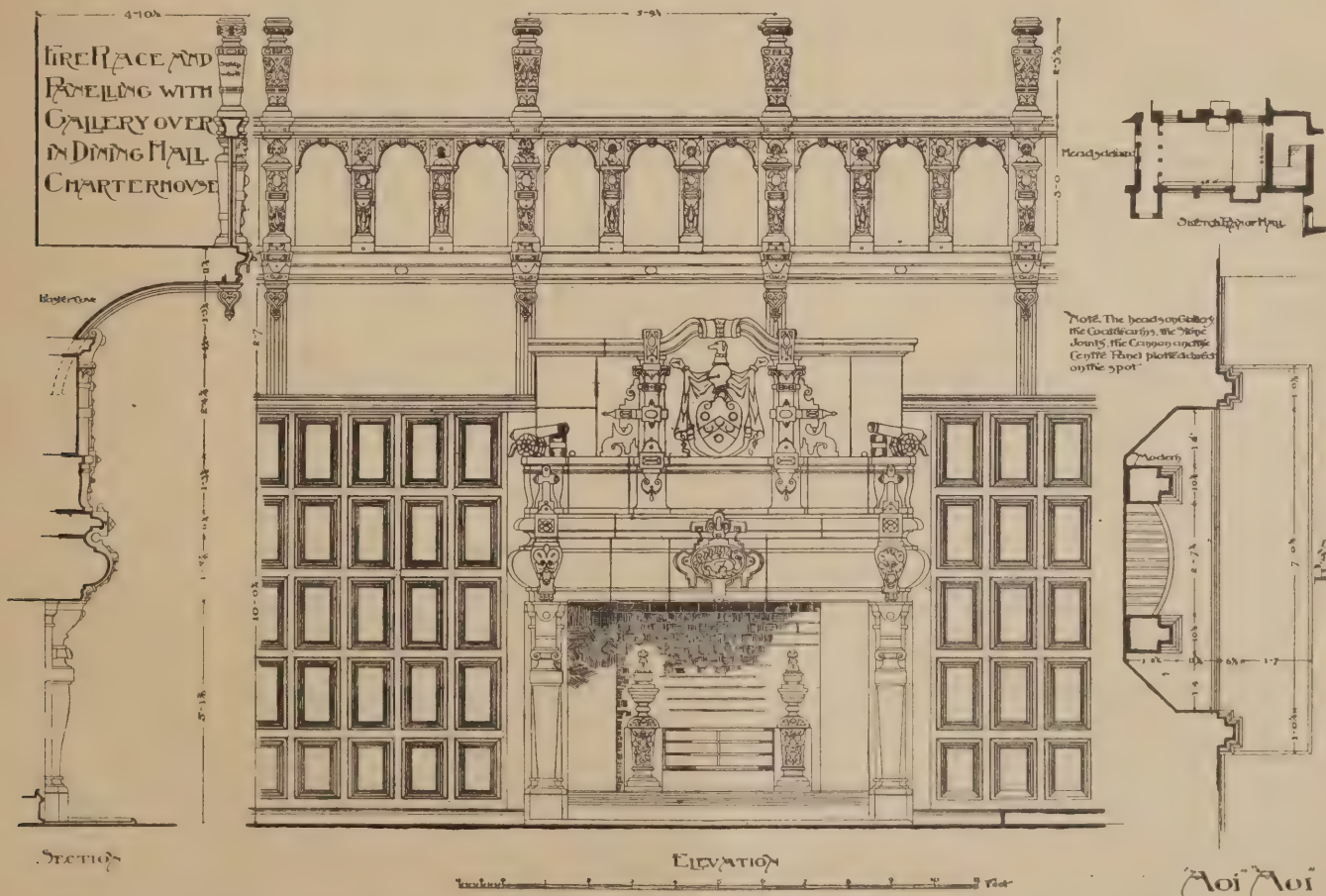
ITS INTERNATIONAL REPUTATION.

(b) Collective, undertaken by the school as such. This was principally by excavation.

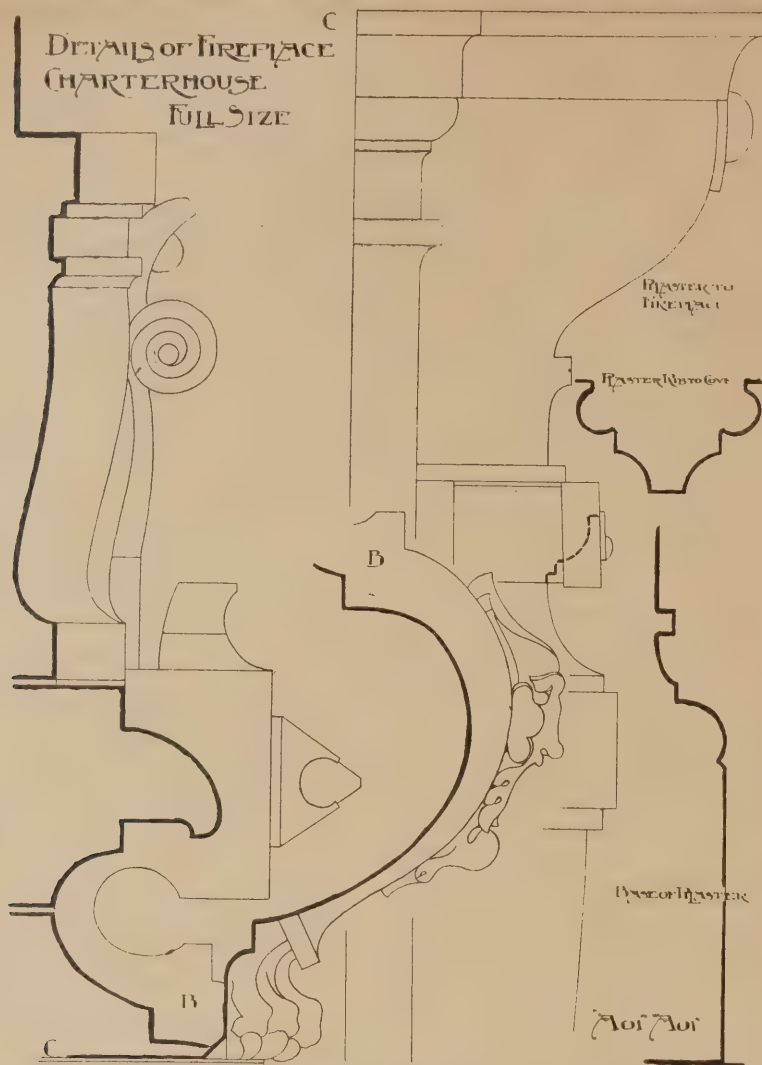
The scene of action during the past season had been the most important pre-historic capital of the island of Melos, discovered at Phylakopi, on the north-east coast, by Ross, and reported on by Dummier. The school began to excavate it in 1896, little suspecting its great importance. It was proving a second Hissarlik, an undisturbed repository of the products of the primitive civilisation of the Ægean from the "Mycenaean" age back to the Neolithic period. Much has been eaten away by the sea, but what was left was equal in extent to Tiryns. Mr. Hogarth picked up the work where Mr. Cecil Smith left it, and, after determining the limits of the city on south and east, and digging test trenches to obtain a relative chronology of the potsherds, in which the site was marvellously rich, proceeded to open out the great barrack-like structures on the north and west. Here were

REMAINS OF THREE SETTLEMENTS,

divided by layers of débris, the middle and lower ones being singularly well preserved. The best rooms were on the higher ground to the west. The blocks were divided by narrow lanes with covered drains down the centre. The depth varied from seven metres to three metres. In the two lower settlements was found a mass of pottery, and almost as many vessels, complete or little broken, as in a large cemetery. These covered the whole development of the potter's art up to the fine Mycenaean work. Fabrics, shapes, and decorations were in many cases new. The most notable vase was pipe-shaped and decorated with four scantily-clad figures, bearing fish in either hand. This was about the most interesting primitive Ægean vase in existence. In several rooms painted frescoes were found, in one case white and gold lilies on a red ground; in another a beautiful scene of the sea with flying fish and marine growths and a man working a casting net. Of the primitive symbols now attracting so much attention on Cretan stones, &c., over fifty distinct examples were found scratched in clay before baking. Many fine steatite vases, clay lamps (unknown previously on early sites), and other stone utensils and implements came to light. There was a little bronze and bone, but no gold or silver.



A.A. MEASURED DRAWING PRIZE. CHIMNEYPIECE AT THE CHARTERHOUSE. HON. MENTION. BY. J. G. N. CLIFT.



A.A. MEASURED DRAWING PRIZE. CHIMNEYPIECE AT THE CHARTERHOUSE.
HON. MENTION. BY J. G. N. CLIFT.

NEW PUBLIC BUILDINGS FOR REIGATE.

A COMPETITION, AND A COMPLAINT.

BY A SPECIAL CORRESPONDENT.

THE designs were delivered on Thursday, October 6th, and on the following Tuesday the designs placed first, second, and third were publicly exhibited, but no intimation of the exhibition was given to the competitors—at least to the unsuccessful competitors. Exception must be taken to the exhibiting of the winning designs only. The great value of a public exhibition is that it allows the public and the competitors to see that everything is above board, and in the case of this competition it is obviously impossible to know if the best designs have been chosen.

With regard to the three designs that were exhibited, it would seem that the design placed third had secured its position through some curious mischance, as in every way—in planning, design, and draughtmanship—it is an indifferent piece of work. The first premiated design, under motto "Pro bono publico," is by Messrs. Balham, Limited, and is shown by drawings executed in black-and-white, cut out and mounted on grey-tinted cards. In this design both the police superintendent's residence and the fire-station are detached buildings, the former being so required by the conditions of competition. The main block of buildings, containing public offices, council chamber, police court, and offices are placed facing the proposed new roadway, with one principal entrance to the whole. The building is narrow and very elongated, this necessitating long corridors.

The second premiated design, "Efficiency

with Economy," is by Mr. Arnold B. Mitchell, and is admirably shown by a spirited perspective, the design being well thought out; and, as in the first premiated design, the police superintendent's residence and the fire-station are distinct from the main block. The plans are more compact than in the first premiated.

The third premiated design needs little or no description, save that it is by an assistant in the Reigate Borough Surveyor's Office, and was sent in under the motto of "Labor Omnia Vincit."

One more word. The way the competitors have been treated leaves something to be desired. The unsuccessful designs have not, at the time of writing, been returned; and not a line of information has been sent out as to how or by whom the award has been given.

THE freehold of the Manchester Hotel, along with a number of shops in Aldersgate Street, was submitted for sale at the Mart, Tokenhouse Yard, last week. The bidding started at £100,000, and rose to £163,000, when the property was "bought in" for £175,000.

The past week has been one of great activity at the Tokenhouse Yard Mart, and almost every investment offered was disposed of, in some cases keen competition being displayed. Ground rents were in active demand. A number of these secured upon property at Blackheath realised very high prices, as much as 96 years' purchase being paid in one case, and the total amount of the sale reached nearly £69,000. In the way of land the only transaction was in regard to some 14 acres on the Greenwich marshes, which realised about £500 an acre. The total returns for the week amounted to £185,521.

MARTELLO TOWERS.

ONE of the old Martello towers which form such picturesquely conspicuous objects on the East Coast, right away from the mouth of the Thames down to Aldeburgh, is in process of demolition. Many of these curious fortifications have been destroyed already. In the books of reference which contain any allusion to the subject at all, they are described as obsolete and unserviceable for purposes of national defence, and that fact was indeed recognised long ago by the War Office authorities, when the forts were dismantled and allowed to be put to all manner of strange uses. Some were taken down, as already stated, and it is said that a single structure provided sufficient material

FOR THE BUILDING OF SIXTEEN COTTAGES;

the larger number were for a long time occupied by coastguardsmen; and one tower has been converted into a Catholic Chapel. The question arises whether those towers are not historical relics well worthy of preservation. The Martello towers were built in the early years of the present century, when Bonaparte was making preparations for the invasion of England. In some topographical work, a sarcastic statement appears to the effect that these extraordinary buildings must have been put up as a puzzle to succeeding generations, the inference being that no sensible or acknowledged plan of defensive fortification was followed in their erection. But this was not by any means the case. In Dr. Brewer's "Dictionary of Phrase and Fable," the explanation is given that circular towers of a like character were placed all along the Mediterranean Coast as a means of protection against pirates, and that the name they received arose from the method of sounding an alarm, by striking a bell with a "martello" or hammer. The tower under notice stands

IN THE VILLAGE OF BAWDSEY

and is one—the advance guard, as it were—of a group of five which were intended for the protection of Hollesley Bay. It is apparently for the sake of the bricks, which are employed for the "inside" work of some new cottages for coastguardsmen, that the old Martello tower is being pulled down; and they must be very dear bricks, for the labour and trouble of the process is something prodigious. The walls are about 16ft. thick at the bottom, and 10ft. thick at the solitary entrance door; there is an immense central pillar, upon which and the outside wall a heavy vaulted roof is supported, and the men have up to the present gone little beyond throwing down the stone parapet and peeling off some of the external surface. To do this deep holes of about 2in. in diameter are drilled in; a foot of the space is crammed with gunpowder; and the charge is exploded by means of a fuse. The materials of which the walls are made is

A KIND OF KENTISH BRICK,

all bound together with cement between the inside and outside facings. Apart from any historic interest, the tower is a remarkable structure—exactly like all the rest, it may be said, except that there is no fosse or ditch around it, as is the case with that example which stands on the hill near the Bath Hotel at Felixstowe. The one entrance is at a considerable height; it is very narrow, and is closed by a heavy door, with an iron bar fitting into staples. It leads to a single circular apartment, lighted by two small windows, having an outlook towards the sea. This was used as a casement for troops, and would have been a safe place of refuge in olden times, when the largest guns were but toys in comparisons with the inventions of to-day.

THE Bristol Municipal Sites Committee are considering the question of a site for new municipal buildings.

A VERY curious relic of old Paris is about to be removed—the house in the Rue de Venise, built in 1402 by the celebrated alchemist, palmist, and philanthropist, Nicholas Flamel.

A LEEDS BUILDING SCHEME.

THE aspect of Briggate, the principal thoroughfare of Leeds, is about to be improved. The old commercial hotel, the Bull and Mouth, and some adjoining property, has been acquired by a private company. This company is about to develop the estate, which covers an area of 4900 square yards, and which includes not only the Bull and Mouth Hotel, but two shops on the north and one on the south side of it. To Briggate there will be a frontage of 120ft., and to Kirkgate one of 121ft. Backward from Briggate, the estate extends to within 40ft. of New Market Street. The buildings upon the ground are very old, and at the rear consist of dilapidated cottages and sheds. The whole is to be swept away, and entirely new buildings erected. The promoters hope that in carrying out the scheme the Corporation will see their way

TO MAKE A NEW STREET

from Duncan Street to Kirkgate, 42ft. wide—a continuation of the recently constructed thoroughfare known as Central Road. For this purpose no less than 1900yds. of the ground is offered by the Company, and negotiations with a sub-committee are now going on. Plans of the new structures have already been prepared, and it is evident that the Company are going to carry out the enterprise on a palatial scale. Briefly stated, the new buildings will comprise a large hotel, an immense emporium, and a large number of shops and warehouses. The Briggate frontage will be in the French Renaissance style of Architecture, and rise six stories. The principal ornamental features will include a number of richly decorated circular columns. Marble and granite will be extensively used. It is said, indeed, that there will be no more imposing structure in Briggate, and it will be surmounted by a handsome turret, with illuminated clock, 120ft. high from the street level. The main entrance to the hotel will, of course, be in Briggate. It will be approached through a colonnade 75ft. long and 20ft. wide. This will lead directly to a large central hall, 94ft. long and 30ft. wide, with a balcony running round the first floor level and a handsome lantern roof. The hall is to be elaborately treated, and will probably surpass in elegance and dimensions anything of the kind in the provinces. Access to all parts of the hotel will be had from it. On the ground floor will be a buffet, 75ft. by 25ft. A ball-room, 90ft. long by 45ft. wide, and 25ft. high, will have a beautiful oriel window, overlooking Briggate. In the basement will be situated a billiard saloon. The public bedrooms will number 130.

THE EMPORIUM,

which has already been let on lease for twenty-one years, likewise forms a very extensive part of the enterprise. It will have a frontage to Briggate of 74ft., an area of 95ft. by 75ft., and a large lantern roof. Four or five tiers of galleries will run round the interior. The basement will be constructed so that it can be flooded to a depth of 2ft. The establishment will be on the lines of Lewis's emporium in Liverpool. A promenade will overlook Briggate. For the entertainment of customers a fine band will perform during business hours, and light refreshments will be served. The emporium will be the enterprise of a Company. The new shops and warehouses are to number twenty-one. Each will have a frontage of about 18ft. At the rear the old Red Lion Hotel, now approached from Kirkgate, will be rebuilt. It is expected that the carrying out of the scheme will occupy about three years. The architects are Messrs. J. Holmes, Greaves, and Co., of London, Leeds, Pontefract, and Castleford.

SOME time ago the London County Council agreed conditionally to lease a site at the southern approach to the Tower Bridge for the erection of a theatre. The Corporate Property Committee of the Council, however, now report that the conditions of the Council have not been complied with, and recommend that the resolution be rescinded.

THE FEUDAL PRINCIPLES OF REAL PROPERTY LAW.*

BY WILLIAM H. STACPOOLE, LL.D.,
Barrister-at-Law.

II.

IN the contemplation of our law, all the land in the Kingdom is held, mediately or immediately, of the Sovereign. The thing holden is, therefore, styled a tenement, the possessors thereof tenants, and the manner of their possession a tenure.† The feudal principle of this will appear from what I have said in the last article.

There were, among our ancestors, four principal species of lay tenures, to which all others may be reduced; the grand criteria of which were the natures of the several services or renders, that were due to the lords from their tenants. The services, in respect of their quality, were either free or base services, in respect of their quantity and the time of exacting them, were either certain or uncertain.†

From the various combinations of these services have arisen the four kinds of lay tenure which subsisted in England till the middle of the seventeenth century; and three of which subsist to this day.† They were:

1. Knights' service; where the service was both free and uncertain.
2. Free socage; where the service was both free and certain.
3. Pure villenage; where the service was base in its nature, and uncertain as to time and quantity.
4. Villein-socage; where the service, though base, was reduced to a certainty.

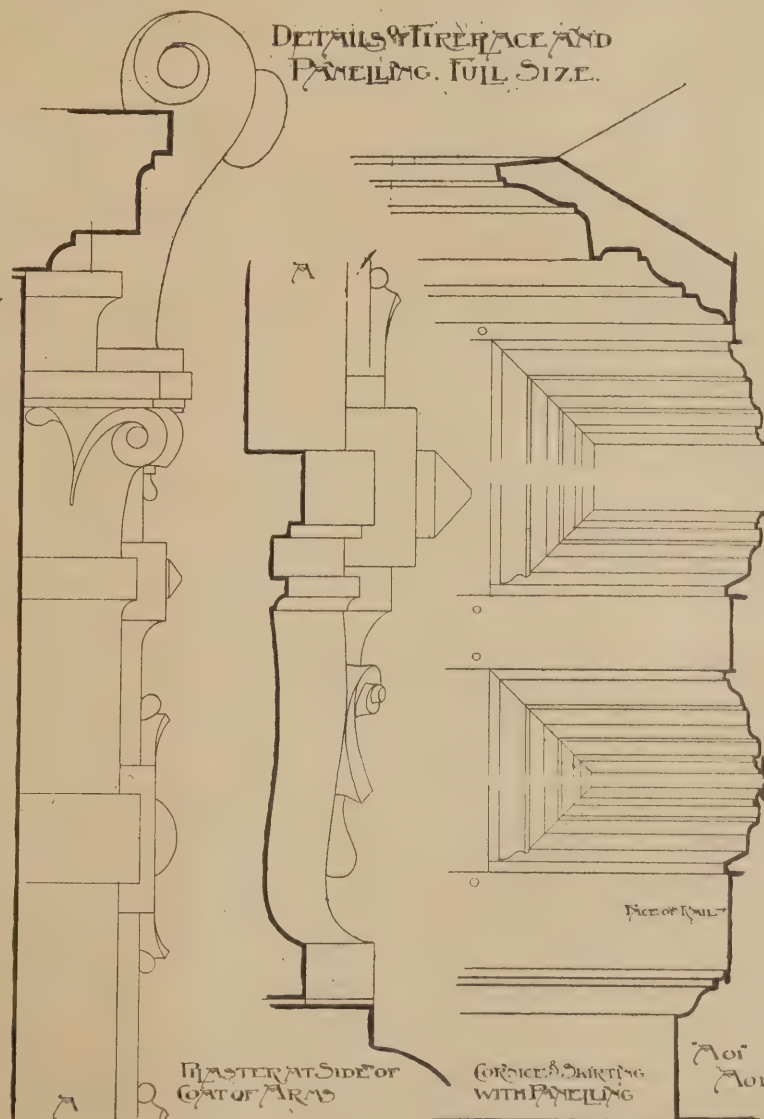
* Continued from page 75.
† 2 Bl. Com. Ch. 5.

Until the restoration of the monarchy in 1660, most of the land in England was held by the tenure of knight's service, and that principally of the King *in capite*, or directly from the King. There were instances in which the tenant in knight's service held from a middle lord, who, again, held mediately or immediately from the King. Cases of this kind were examples of what is called "subinfeudation." But any such estates must have been created before the eighteenth year of Edward I., when a celebrated statute, called, from its opening words, the statute of *Quia Emptores*, was passed to put an end to subinfeudation, or the fresh creation of the relation of feudal landlord and tenant. Of this I shall have more to say presently, when we consider the nature of an estate in fee simple.

The tenure of knight's service was abolished, or rather it was changed into free and common socage, by the 12 Car. 2, chap. 24, passed in the year 1660. We must not, however, suppose that the principles of the feudal system were abolished by this Act, which touched, not the system itself, but only certain incidents that arose from it. Socage, into which all tenures (with certain trifling exceptions, to be noted presently) were converted by the Act, is itself a feudal tenure, and, before we proceed to consider its nature, it will be well to glance briefly at the more ancient and purely feudal tenure of knight's service, "since," says Blackstone, "it is that alone to which we can recur, to explain any seeming or real difficulties that may arise in our present mode of tenure."*

To make a tenure by knight's service, a determinate quantity of land was necessary, which was called a knight's fee, the value of

* 2 Bl. Com. Ch. 6.



A.A. MEASURED DRAWING PRIZE. CHIMNEYPIECE AT THE CHARTERHOUSE.
HON. MENTION. BY J. G. N. CLIFT.

which, in the reigns of Henry II. and Edward II. was £20 per annum.* A certain number of these knight's fees made up a barony. The tenure was transferred by livery of seisin, which means delivery of the feudal possession (and which I shall explain more particularly when describing the conveyance of real estate) and was perfected by homage and fealty.

Fealty was a profession of faith to the lord, which corresponded to the more modern oath of allegiance. Homage was a ceremony that was performed by the new tenant in the presence of the old tenants upon his investiture. It is thus described by Blackstone:—"The vassal or tenant upon investiture did usually homage to his lord; openly and humbly kneeling, being ungirt, uncovered, and holding up his hands both together, between those of the lord, who sat before him; and there protested that 'he did become his man, from that day forth, of life and limb and earthly honour,' and then he received a kiss from his lord, which ceremony was denominated *homagium*, or manhood, by the feudists, from the stated form of words, *devenio vester homo*." Homage was abolished by 12 Car. ii., ch. 24.

The seven principal consequences of the tenure by knight's service, or in chivalry, were as follows:—

1. Aids. — These were originally mere benevolences granted by the tenant to his lord in times of difficulty, which, however, came in process of time to be considered as matter of right, and not of discretion. They were chiefly three—first to ransom the lord's person if taken prisoner, an obvious consequence of the feudal relation between them. Secondly, to defray the expense of making the lord's eldest son a knight, so as to provide for the better defence of the nation. Thirdly, to give a suitable portion to the lord's eldest daughter. The feudal principle of this was that the lord could not acquire money by other means, being for the benefit of the nation wholly conversant with matters of arms, and from the nature of his tenure unable to charge his lands with this or any other incumbrances.†

2. Relief. Originally, as we saw in the last article, the feudal tenant only held his estate for his own life, that is to say, during the time that he was able to perform the services in consideration of which he held it. Gradually it became customary to appoint the eldest son to succeed the father, because, having been trained by the father, he seemed to be the person who on the decease of the father would be most likely to properly perform his duties. Relief was a fine (of one year's rent where the rent was fixed) which the heir paid to the lord for admitting him to the feudal tenure which his ancestor had possessed. But it was only payable if he were of age on the death of the ancestor, for if under age he became liable to "wardship" and "marriage."

3. Primer seisin was the relief paid by the heirs of the King's tenants *in capite* if of age at the death of the ancestor. It amounted to one whole year's profits of the lands if they were in immediate possession, and half a year's profits if they were in reversion, expectant on an estate for life.

4. Wardship. If the heir were under twenty-one years being a male, or fourteen being a female, when the ancestor died, the lord had the custody of the body and lands of such heir, without any account of the profits, till the age of twenty-one in males, and sixteen in females. The law supposed the male to be unable to perform knight's service till twenty-one, but the female was supposed to be able to marry at fourteen, and then her husband could perform it. If she were fourteen on the death of the ancestor, the lord had no wardship, but if he once got her into wardship, owing to her being under fourteen, he could keep her in wardship till sixteen. The feudal principle of wardship was to give the custody of the feud to the lord, that he might, out of the profits arising from

the land, provide a fit person to supply the infant's services, till he was of age to perform them himself.

When the male heir reached the age of twenty-one, or the female sixteen, they might sue out their livery, or ousterlemain, as it was called; this meant sue for the delivery of their lands out of their guardian's hands. For this, they had to pay a fine of half a year's profits of the lands, but, as I have intimated, in consideration of the land having been in ward, they were excused relief or primer seisin. It was to deal with questions of this kind that the celebrated Court of Wards and Liveries was instituted by Henry VIII., in the thirty-second year of his reign.

If the heir held a knight's fee, he had, on coming of age, to receive the order of knighthood, or pay a fine to the King. Edward VI. and Elizabeth are particular instances of sovereigns who exercised the royal prerogative of compelling the vassals to be knighted (a matter of great ceremony and expense) or pay a fine, as a means of raising money. It caused great dissatisfaction when attempted to be enforced by Charles I., and was abolished by a statute passed in his reign, 16 Car. i., ch. 20.

5. Marriage. While the infant was in ward, the guardian had the power of tendering him or her a suitable match, without *disparagement*, or inequality; which, if the infants refused, they forfeited the value of the marriage, *valorem maritagii*, to their guardian; that is, so much as a jury would assess, or anyone would *bona fide* give to the guardian for such an alliance: and if the infants married themselves without the guardians' consent, they forfeited double the value, *duplicem valorem maritagii*.** This right of selling the ward in marriage, or receiving the value of it, which was expressly declared by the statute of Merton (20 Hen., 3, c. 6), seems to have been one of the greatest hardships of the tenure by knight's service.

6. Fines for alienation were paid to the lord when the tenant made over his lands to another person. This depended, like relief, on the nature of the feudal connection between the lord and his tenant, by which they were reciprocally bound to each other, so that neither side could alienate without the other's consent. Therestrain, however, wore away more quickly in the case of the lord than in the case of the tenant, and even in the case of tenants, fines for alienation were only exacted from the King's tenants *in capite*, at least since *Magna Carta*, and *Quia Emptores* (18 Edw. I., Ch. I.).

7. Escheat. Where the mutual bond between the lord and the tenant was dissolved, either because the tenant died without leaving heirs of his blood, or because by the commission of some atrocious crime his blood was considered to be so corrupted that every inheritable quality was blotted out of it, the land was said to escheat, or fall back, to the lord. The feudal reason of this was that the tenant was construed to hold of the lord on the implied condition that he would not be a traitor or a felon.

"These," says Blackstone, "were the principal consequences of the tenure by knights' service: a tenure by which the greater part of the lands in this kingdom were holden, and that principally of the King *in capite*, till the middle of the seventeenth century; and which was created, as Sir Edward Coke expressly testifies, for a military purpose; viz., for defence of the realm by the King's own principal subjects, which was judged to be much better than to trust to hirelings or foreigners."

The grand point to notice about these consequences of the tenure by knight service is that, depending as they did upon emergencies, they were necessarily uncertain as to their quantity or duration. Knights' service involved the personal attendance of the tenants, and this becoming troublesome and inconvenient in many respects, the tenants gradually compounded for it by first sending others in their stead, and, at last, by making a pecuniary satisfaction in lieu of it. This pecuniary satisfaction came to be levied by assessments, so much for every knight's fee, from which the tenure was called *escuage* in Norman French, *escuage* being derived from the Latin *scutum*, which was then a well known denomination for money.

"By the degenerating of knights' service, or personal military duty," to quote Blackstone again, "into *escuage*, or pecuniary assessments, all the advantages (either promised or real) of the feudal constitution were destroyed, and nothing but the hardships remained. Instead of forming a national militia, composed of barons, knights, and gentlemen, bound by their interest, their honour, and their oaths, to defend their King and country, the whole of this system of tenures now tended to nothing else but a wretched means of raising money to pay an army of occasional mercenaries. In the meantime, the families of our nobility and gentry groaned under the intolerable burthens, which (in consequence of the fiction adopted after the Conquest) were introduced and laid upon them by the subtlety and finesse of the Norman lawyers."

"For, besides the scutages to which they were assessed by themselves in Parliament, they might be called upon by the King or lord paramount for *aids*, whenever his eldest son was to be knighted or his eldest daughter married; not to forget the ransom of his own person. The heir, on the death of his ancestor, if of full age, was plundered of the first emoluments arising from his inheritance, by way of relief and primer seisin; and, if under age, of the whole of his estate during infancy. And then, as Sir Thomas Smith very feelingly complains, 'when he came to his own after he was out of wardship, his woods decayed, houses fallen down, stock wasted and gone, lands let forth and ploughed to be barren,' to make amends he was yet to pay half a year's profits as a fine for suing out his livery; and also the price or value of his marriage, if he refused such wise as his lord and guardian had bartered for, and imposed upon him; or twice that value if he married another woman. Add to this, the untimely and expensive honour of knighthood, to make his poverty more completely splendid. And when, by these deductions, his fortune was so shattered and ruined that perhaps he was obliged to sell his patrimony, he had not even that poor privilege allowed him, without paying an exorbitant fine for a licence of alienation."*

At last, but not until the first year of the actual reign of Charles II., an Act was passed (12 Car. II., Ch. 24) which enacts "that the court of wards and liveries, and all wardships, liveries, primer seisins, and ousterlemaines, values and forfeitures of marriages, by reason of any tenure of the King or others, be totally taken away. And that all fines for alienations, tenures by homage, knight's service and *escuage*, and also aids for marrying the daughter or knighting the son, and all tenures of the King *in capite*, be likewise taken away. And that all sorts of tenures, held of the King or others, be turned into free and common socage, save only tenures in frankalmoign, copyholds, and the honorary services (without the slavish part) of grand serjeantry."

Of this statute Blackstone declares that it "was a greater acquisition to the civil property of this Kingdom than even *Magna Carta* itself; since that only pruned the luxuriances that had grown out of the military tenures, and thereby preserved them in vigour; but the statute of King Charles extirpated the whole, and demolished both root and branches."

Grand serjeantry was a species of knight's service, only that the tenant, instead of being bound to attend the King generally in his wars, was bound to do some special honorary service to the King in person, as to carry his banner or sword, or be his champion at his coronation. Tenure in frankalmoign is that by which a religious corporation holds lands of the donor to them and their successors for ever. It is distinguished by its immunity from temporal services, even from the obligation to fealty, because the divine service which the corporation renders for its lands is of a higher and more exalted nature than any other. Most of the lands of the Church are held in frankalmoign. Of copyhold, the remaining tenure that was excepted by the Act, I shall speak when we consider the nature of manors.

(To be continued.)

* Ib.

† Id. ch. 4. "The tie which created the relation of lord and tenant, at all events tenant by military service, was homage." Digby, "History of the Law of Real Property," ch. 2. "This tie was dissolved by felony, failure of heirs, or repudiation of duties on either side."

‡ Bl. Com. Ch. 5.

* 2 Bl. Com. Ch. 5.

* Ib.

The Advancement of Architecture.*

By PROF. AITCHISON, R.A.

I THINK we may be congratulated on the improvement that is taking place in the appearance of London. It is a great triumph for architects to think that they are converting a rather dull city, mostly composed of brick walls with holes in them, into a town almost as picturesque and varied as the old towns of France or Flanders. I think it was in the forties that Professor Cockerell, at the Royal Academy, gave the approximate number of new churches and public buildings that had been erected in the preceding thirty years; but that list, astonishing as it was, would dwindle into insignificance beside the new buildings that have since been erected in and around London within the same lapse of time. Of very important buildings in the centre of London there have necessarily not been very many, but in the outskirts numberless town halls, technical schools, and other municipal buildings have sprung into existence; and, though I am afraid we can hardly claim for most of them that they have rivalled the picked examples of the world's Architecture, they mostly have some stateliness, picturesqueness, or originality. I regretted to read the remarks of Mr. Norman Shaw, who has been acting as one of the assessors on the designs for the buildings of the Californian University. He said that "The competition had been held in the hopes of

DISCOVERING SOME ARCHITECTURAL GENIUS, but in this it had failed," and he felt "a twinge of national regret when no English name appeared among the selected eleven;" the plans selected were, without exception, of the French school. "Architecture," said Mr. Shaw, "is more thoroughly taught in France than in England; at the same time French teaching destroys individuality." It is a matter for regret that an English-speaking race should have to go to our neighbours for their Architecture, but that may be because there is more architectural genius among our neighbours across the Channel than amongst the English-speaking countries on both sides of the Atlantic and in the Pacific; yet it is peculiarly unpleasant that a celebrated English architect can justly speak of a more thorough teaching being given in France. One naturally asks, Why is this? For one would think that what is teachable could and ought to be as well taught in England, America, and Australia as it is in France; at any rate, the first thing that the English architects should do is to see that this inefficiency is corrected. I can hardly believe that teaching, if not carried far enough to stifle independent thought, can extinguish individuality, for certainly some of our great poets were the best educated men of their day. As far as we know, we cannot give ourselves genius, but it is most probable that, if a large number of persons will acquire that which

A GOOD ARCHITECTURAL EDUCATION can give them, there will be a genius among them; and, surely, a well-taught genius is better than an ill-taught one. There is a most interesting book written by M. Edmond Demolins, who says that the education given to the English has peculiarly fitted them to be successful colonists. Whether this method of education was deliberately chosen, or whether it was stumbled into through the natural bent of the people, does not appear; but we can only hope that, either by accident or design, we may find as successful a method of teaching Architecture; for every English-speaking man in the world must wish that we could produce buildings that would vie with those produced in the most brilliant epochs of Greece and Rome, of France and Italy, and with the best Saracen buildings, and with the Gothic ones that pervaded Europe during the Middle Ages. We cannot hope, however, to equal the excellence of

monuments that sprang into existence after stirring times, in nations where there was an adoration of the beautiful, particularly when one of these nations is believed by some philosophers to have possessed faculties as superior to those of the nations of Europe as the faculties of European nations are superior to those of the negro. Architecture is

THE POETRY OF CONSTRUCTION,

and the noblest poetry, is naturally found in buildings that are applied to the highest transcendental uses. A certain amount of comeliness is necessary to every building, except such buildings as are required to create fear, horror, or a sense of ignominy, such as castles, gaols, gallows, and pillories. A building is an organism created by man for his own needs that should emulate the organisms of Nature. To take man as the highest organism, we may say that the man of the most striking appearance is not a perfect organism if he has some incurable internal defect; and so in a building, no beauty will wholly compensate for its want of answering the purpose for which it was built, and even if it answer its purpose, and has a beauty that is quite incongruous with its use, it becomes as ridiculous in the eyes of judges as a man in a State dress acting as a scavenger. In some of the modern buildings that at first sight affect us strongly, from their size, mass, or ornamentation, if we see that this size and this massiveness are not necessary, that these embellishments are not consistent with the uses of the building, we merely despise the factitious effects. As our knowledge of the strength of materials, of the strains and stresses that result from the different forms of buildings becomes more accurate, it will naturally affect the shapes of the different parts of the building, and I think we must look very much to this for future advancement in Architecture. We want to mark those portions of buildings that have special duties to perform with that architectural emphasis which is given by mouldings, and these mouldings have to produce

THE EFFECT WE WANT IN OUR OWN CLIMATE.

To use mouldings that were designed for climates different from our own, and consequently do not properly answer their purpose, is really to declare ourselves indolent or incompetent; we have plenty of plausible excuses, i.e., that the Romans used the same mouldings whenever they built, and that their Renaissance imitators did the same, and that the archaeologists, our masters, would be shocked at any architect who attempted to think, but neither excuses or bad examples will avail us, if our sole object is to advance our art. We have, too, to consider the purposes to which our buildings are to be put, the ratio of strength we must allow when a building is merely for a temporary purpose, or to last as a record for future ages. According to the uses which the building is to subserve we must consider the ornaments that are to be given to it by the sculptor, and whether their forms are to be taken from vegetable life only, or are to include animals or man. Where buildings are to be used for the highest intellectual or moral ends it is perhaps difficult to find even figure sculpture that will sufficiently express their high use. In classic and mediæval times at least, sculptors employed for this purpose mythical or symbolic figures. In the present day we have almost given up all symbolic and emblematic forms, and have trusted purely to words, which do not strike the multitude, and have not, in the bare form in which they are mostly given, the same effect on the mind as symbolic forms.

SCULPTURE IS WANTED ON ALL BUILDINGS,

but its use should be imperatively called for by the people for all public buildings, for the sculpture, if properly designed, would more completely show the use of the building, and surely the public who pays for these buildings should be informed of their use; and this is particularly called for when the buildings are for benevolent purposes, such as hospitals, asylums, workhouses, rests, refuges, and homes. The speaking arts of sculpture and painting are particularly wanted for enlightening the

people on the advantages of living in a free and advancing country. It is for statesmen to consider how much more contented the population of this country would be if the Fine Arts were used to proclaim the advantages the people enjoyed. The subject of colour is one that has of late years fallen greatly into disuse, but, as far as I can comprehend, very unnecessarily; for as Nature colours all her works, and produces every sort of emotion from the combination of form, light and shade, and colour, it can hardly be inappropriate for man to do the same; and all architects know that monumental colouring may be as well marked as monumental form. Hitherto the proportions used, or, as the ancients more properly called them, symmetry, which forms so important an element in Architecture, has been almost confined to those taken from

THE HIGHEST TRANSCENDENTAL BUILDINGS OF THE PAST;

but we see in Nature every conceivable proportion, and most of these are good; consequently it is only from want of observation and want of skill that we confine ourselves to the proportions of Greek, Roman, or mediæval work; for Egyptian, Assyrian, Arabic, or Indian Architecture has found no great favour in Europe. The thing we want most is the advancement of Architecture, but who is to show us the way? A deceased architect of marked ability said we must wait for another irruption of barbarians, and probably if they were barbarians of improvable quality they might solve the problem; but it would be a drastic measure that most of us at least would pray might not occur in our time. I think the greatest obstacle to the advancement of Architecture is the fact that the bulk of Englishmen do not care about it in the least, and, as far as I can judge, the Fine Arts are not likely to improve if no one cares for them. So every architect should be ready to point out what Architecture does for a nation, and so help to create the want. Architecture—and by that I mean good Architecture—must even, from the size and importance of its monuments,

CREATE SOME SORT OF EMOTION

in the beholder; and the least reflection will show him the vast army of various men that have been employed to get all those materials, and to bring them together, the thousands of craftsmen wanted to fashion them and put them in their places; and according to the stateliness, the impressiveness, or the beauty of these buildings will the power, wealth, and grandeur of the nation that has erected them be brought before his mind. If these buildings are for the highest purposes and clearly express their character, deep emotion will be excited in him, and he will also think of the science that these buildings presuppose, the artistic skill of the architect and artists employed, and of the artistic tastes of the nation at the time in which they were built. As the late Charles Garnier said, "Architecture is an obtrusive art." Its masterpieces thrust themselves upon you, and cannot be hid in a corner, and as long as they remain they call from the people who wish to see them a journey to the land of their creation; so if we want a good account of our time to be given to posterity, we must pick out good architects, encourage them to do their best in erecting important, well-built, and æsthetic structures; at any rate, if this is neglected the age in which we live will be lampooned.

(To be continued.)

THE Roman Catholic community in Carnarvon has decided to erect a pro-cathedral at a cost of £10,000. The scheme has the support of Bishop Mostyn.

THE first meeting of the session of the Auctioneers' Institute was held in the Lecture Hall of the Institute, 57, Chancery Lane, yesterday, the 8th instant, when a paper was read by Mr. Alexander Macmorran, Q.C., upon "The effect of recent decisions on the liabilities and rights of owners in respect of the drainage of buildings." The chair was taken by the President, Mr. Edward Dobson.

* The opening address, delivered by the President of the Royal Institute of British Architects, at the first general meeting of the session 1898-99, held on Monday, November 7th, 1898.

EXCAVATIONS AT THEBES.*

BY JOHN E. NEWBERRY, A.R.I.B.A.

(Continued from page 203.)

THE ruins of the porch to the sanctuary of Hathor are of Ptolemaic date, and lead to a hall with semi-circular vaulted roof and two chambers beyond; the westernmost chamber is a restoration by Euergetes II., in which the reliefs and inscriptions compare very unfavourably with the masterly sculptures of Queen Hatshepsut. The western wall of this central court is built against the steep cliff of the mountain and pierced with a series of niches. In the northern wall is a doorway leading to a vestibule which had three sixteen-sided columns in it. Opposite the door is a small niche, the upper part and ceiling of which had been displaced by falls from the cliffs above, and which I have rebuilt. To the west of the vestibule is an open court in which is found

THE ONLY ALTAR THAT HAS COME DOWN TO US

from Egyptian antiquity. A door in the north wall of this court admits to the funerary chapel of Thothmes I., consisting of two chambers built into the cliff. The Hall of Amon, to the west, is approached only from the upper court, and part of its flat ceiling still remains in position. On the south side of the central court are several chambers, now in ruins and a well-preserved sacrificial hall, with a portion of the semi-circular vaulted roof still standing. This part of the temple was not completely cleared until the season after I left, and I am unable to describe it completely. All the excavations in Egypt are regulated by the Governmental Department of Antiquities. The permit granted to M. Naville on behalf of the Egypt Exploration Fund, I believe, stipulated that the Society should undertake to completely uncover the whole temple, and also do any building work that might be necessary for maintaining or re-erecting the old walls. This is not the usual method in which private excavations are carried on in Egypt. A series of trenches is often all that is required

TO EXPLORE AN ANCIENT SITE,

and discover all the antiquities that may be buried upon it. But in our case it was necessary to remove the rubbish and dust, accumulations of centuries, to a considerable distance from the temple; and it was also found that when the support of the surrounding earth was taken away from some of the walls that they required strengthening. Owing to the kindness of M. de Morgan, the then Director of the Department of Antiquities, we had all facilities granted us for carrying on the work; and he placed at M. Naville's disposal a quantity of Decauville trucks, and quite half a mile of tram line, with all the necessary curves and points for making a complete railway. The general view of the temple taken before our excavations will show that the mounds rose very considerably towards the west; it was therefore necessary to arrange a system of tram lines on three different levels, each of them having only a slight gradient, and some 20ft. above one another. The rubbish was taken in trucks from the highest mounds and tipped on to the next level; from thence it was loaded up again, and tipped down to a lower level, where another system of trucks carried it some quarter of a mile away from the temple to a natural hollow called by the Arabs "birket," or lake. During the two seasons that I was in Thebes a matter of

60,000 CUBIC METRES OF RUBBISH AND STONES

were thus carried away from the temple, a feat that would have been impossible without the aid of a tramway. This arrangement, necessitating the loading up of our trucks three times over, was criticised by some of the visitors that came to the temple, but I do not see how it could have been much improved upon. A steeper gradient would have been dangerous with such workmen as we had to

deal with, who, in spite of all warnings, would push their trucks too fast, and thus run them off the rails, damaging themselves and our rolling stock at the same time. Here, at Deir-el-Bahari, the diggers, drawn from Theban villages, have many of them been tomb-robbers from their infancy, and, consequently, have lynx eyes for small antiquities. The actual digging is done by men with an implement like a short hoe or adze, called a "tooriye," with which they scoop the dust and rubbish into their palm-leaf baskets. Boys then carry these baskets to the trucks, which are drawn up close by, and bring them back to be filled again. Three or four men were in charge of each truck, and pointsmen were stationed at various places. These latter posts were a good deal sought after, as the man in charge had only to push or pull the rail with a hooked stick. He could thus pass his whole day seated and smoking. We employed, on an average, 250 men and boys a day, with eight reises or overseers, one head reis to manage the railway—a clever Pyramid Arab—and a Coptic scribe, who entered the names each morning and kept the accounts. The wages were, for a day lasting from sunrise to sunset, boys, $1\frac{1}{2}$ piastres ($3\frac{1}{2}$ d.) per day; men, 2 piastres (5d.), and 3 piastres ($7\frac{1}{2}$ d.) for the reises. Occasionally the order was given to search each man before he left the works, as

A PREVENTIVE AGAINST THEIR STEALING SMALL ANTIQUITIES,

but we did not succeed in finding anything concealed upon them. Another general view of the temple, taken after our excavations in 1895, shows the magnitude of the work and the degree of success that has been attained. It may be interesting to note here that the great tomb cave in which the celebrated find of royal mummies was made is always spoken of as being at Deir-el-Bahari, but it is nearly half a mile to the south, between the hills of Sheikh Abd-el-Gournah and the cliffs of the Libyan mountains. In the XXth dynasty, during a time of political trouble, it was resolved to protect the royal mummies from the chance of robbery by interring them altogether in this tomb cave. Corpses of the ruling dynasty were also placed here, and all left in peace until 1875, when some Arabs discovered the well hidden resting place. The fellaheen kept their secret until 1881, when they were traced, and Brugsch Bey had all the mummies conveyed to Gizeh. A few yards north of the lower court is a square well-shaft forming the entrance to the common tomb of Theban priests of the XVIIth to XXth Dynasties, which yielded a rich treasure to the Gizeh Museum in 1891. During our first season M. Naville and myself lived in an Arab house in the village of Gournah, a good mile from the temple. This was found to be very inconvenient, and as the work was estimated to take several years for its accomplishment, the Egypt Exploration Fund decided to build

A HOUSE QUITE CLOSE TO THE TEMPLE, which should be the headquarters of the staff. I accordingly designed a building which had a central courtyard with a dining-room overlooking the temple, five bedrooms, two store-rooms, kitchen, and bathroom arranged around it. The foundations were of rubble stones laid in Nile mud mortar, the walls of mud brick, some of them being brought from the monastic buildings that we had to pull down to clear the temple. These in their turn had been pilfered from a XXVth dynasty building some 500yds. away. We found a few of them bearing the name-stamp of an officer of the XXVth dynasty, known from an inscription at Karnak as "the fourth prophet of Amon, the Prince of Thebes, the Governor of the South, Mentuemhat." The bricks measured 12in. by 6in. by $4\frac{1}{2}$ in. thick, and probably only one in every hundred or thousand was stamped. The roofs were flat and ceiled with rafters and boarding, on which was laid a layer of mud bricks on chopped straw, and the whole plastered over with mud mortar. The walls were roughly plastered inside with a mixture of lime, sand, and chopped straw, the lime having been burned in a native kiln, which I had made close by. The floors were of ancient red brick,

floated over and set with a mixture of powdered burnt brick and lime. The joinery, with a few exceptions, was entirely of native make, the doors and windows being hung on wooden pivots, the former being fastened with beech-wood locks and keys. As the house has been used every season since it was built in 1893 by members of the staff of the Egypt Exploration Fund, it has well justified its existence. The great work of copying all the reliefs which cover the temple walls is not yet finally completed, and Mr. Carter, the artist, has already taken up his abode at Deir-el-Bahari for another season's work. In considering some of the details of the temple, we may begin with the lower terrace, on a part of which are a few stones depicting the transportation of two great granite obelisks. Various fragments belonging to this most interesting scene have been discovered in the Coptic buildings which had to be removed, and it is now possible to piece them together sufficiently to show that the obelisks were placed on a great, boat-like barge. This was towed by thirty large rowing boats, arranged three abreast and in lines of ten. There were thirty-two oarsmen in each boat, so that adding officers and steersmen, the crew which towed these obelisks from Assuan to Thebes numbered quite a thousand men. A diagram showing a partial restoration of this scene, drawn by M. Naville, appeared in the Archaeological Report of the Fund in 1895-96. Whether these obelisks were destined for Karnak, this temple, or elsewhere I cannot say.

ONE OF HATSHEPSUT'S OBELISKS AT KARNAK

is still standing. It weighs about 300 tons, and the inscription mentions that these two monoliths were quarried and erected complete in seven months. Professor Petrie believes the pair at Deir-el-Bahari to have been put up by Thothmes III., and identifies the top of one of them at Constantinople. He calculates the weight of each obelisk at the enormous figure of 800 tons. We now ascend to the middle platform, and examine first the sculptures on the southern half of the terrace. The twenty-two square pillars which supported the ceiling are of a slightly tapering form, with delicately-rounded arrises. The scenes on the walls commemorate an expedition to the Land of Punt, which is supposed to lie on the west coast of the Red Sea, corresponding with the modern Somali coast. Incense, panther skins, ivory and ebony were amongst its chief exports to Egypt. A village in Punt is shown, the houses of which are built on piles over water, amongst palms and incense trees, and ladders lead up to the doorways. We see the Egyptian fleet setting sail, and above, its arrival in Punt. Farther on the Queen, followed by her guardian spirit, dedicates to Amon the spoils of the expedition. Cattle are shown feeding beneath delightfully conventional trees. Gold and electrum is weighed, and incense is measured in the presence of the gods. On the corresponding northern half of the same terrace, the scenes refer to the birth of the Queen, but unfortunately in every case the figure of the Hatshepsut has been defaced, though that of her mother Ahmes has been respected. Her admirable portrait is probably

THE FINEST PIECE OF WORK REMAINING

in the whole temple. Though, like all the sculpture, it is in very low relief, the admirable modelling of the delicate and refined features, and the smiling expression, give to the face a beauty which bears witness to the skill of the Egyptian artist, and makes one regret that so little has been left of the original work. A great feature in this temple are the so-called Proto-Doric columns. Those in the Hypostyle Hall are sixteen-sided, measuring 2ft. 7in. in diameter just above their shallow circular bases, and they are 15ft. 9in. in height, tapering to an upper diameter of 2ft. 4in. The abacus is square and flush with the shaft, and a simple band of hieroglyphics appear on one face. Prototypes of this form are to be found in the rock-cut tombs of Beni Hasan, which differ only in having fifteen of their sides fluted like a Greek-Doric column, and one left flat to receive the dedication inscription. This Hypostyle Hall, which forms a

* A paper read before the Architectural Association at a meeting held on Friday, October 28, 1898.

vestibule to the Shrine of Anubis, is in a very perfect state;

THE FLAT STONE CEILING

resting on massive architraves, and the supporting columns, are all intact. The ceiling is painted blue and powdered with yellow stars. The spacing of the columns is wider in the centre, so as to form a better approach to the chambers beyond. The granite doorway leading to the central court is one of the most striking features of the upper platform. It is specially interesting in that it shows clearly the erasures around the cartouches which bore the Queen's names, "Ma-ka-ra, Hatshepsut," but which now read "Ra-men-Kheper, Tehutimes," the names of Thothmes III. Where these alterations occur one can see plainly that the surface of the granite has been rubbed down to admit of new signs being inscribed. But, irrespective of erasures, Egyptologists are able to prove that the Queen's cartouches must have been there, by the fact that the surrounding inscriptions are in the feminine gender. That great doors were once hung here is shown by the pivot and bolt holes on the inside. A somewhat similar granite portal on the further side of the central court leads to the sanctuary, a narrow hall with a semi-circular stone roof. These

CURVED VAULTS

occur in several parts of the building, and are not true arches, but built with horizontal joints, forming really a series of corbels curved on the inside. Nevertheless, it appears quite certain that the Egyptians understood the principle of the arch, and used it in brick buildings. The so-called granaries of Rameses, behind the Ramesseum, are notable instances of arched constructions of the nineteenth Dynasty; but last season Professor Petrie unearthed a mastaba, or built tomb, at Denderah, with three ring brick arching to it, which belonged to a prince named Adu, who lived under Pepy II. of the sixth Dynasty—at least 4000 and perhaps 5000 years ago! The great stone altar which stands in the middle of the Altar Court is one of our most interesting finds. It is a rectangular structure of fine white limestone, measuring about 16ft. by 13ft. At the western end is a flight of ten steps leading to its upper surface, 5ft. 2 in. above the floor. It is crowned with the usual bold cornice so common in Egyptian Architecture, consisting of a large bead and cavetto moulding, and a similar bead to that on the cornice is worked on each angle of the altar mitring with the cornice bead.

THE PROPORTIONS OF THE STEPS

leading up to the altar are worth mentioning, having a rise of 6' 2 in. and a tread of 19 in.; but the treads are not level, being "kilted," or inclined, as much as 1' 85 in. The height of each riser is thus only 4' 25 in. The Altar Court was evidently always open to the air, and its walls are consequently uninscribed and quite plain. They are built to a batter, as are most walls in the temple, and were finished with an overhanging cornice. I carried out some considerable repairs here, consisting of rebuilding portions of the walls and altar, and forming rough retaining walls against the loose and friable cliffs on the north. In the middle of the north wall of the Altar Court is the doorway leading to the Funerary Chapel of Thothmes I., a chamber at right angles to the court, and measuring 17ft. 3 in. by 5ft. 2 in. wide, and roofed with a curved ceiling of elliptical form with horizontal joints. At the north end is a stone seat, and above it is a much mutilated scene. It represented on the left a shrine, in which stood the symbol of the god Anubis, a skin on pole. Before the shrine stood the Queen, now completely defaced, and behind her Thothmes I., her father, whose cartouche reads "Aa-kheper-ka-ra." In the upper part of the scene were two jackals, also emblems of Anubis, each couchant on a shrine. In the centre is the cartouche of the Queen, "Ra-ma-ka," or "Ma-ka-ra" as it is now reads. At the north end of the chapel and on the western side is a niche for the reception of offerings. In the passage between the southern enclosure wall and the retaining wall

of the middle platform, not far from the Hathor shrine,

AN INCLINED PLANE CUT IN THE ROCK

was discovered, leading to the entrance of a large tomb. The rubbish was here quite untouched, and when the doorway was cleared disclosed a large shaft, well cut in the rock, and opening into a larger chamber. In the middle was a square space for a stone sarcophagus, but, instead of the surroundings of an important burial, there was only a poor wooden coffin with bones in it, which seemed to have been disturbed. No inscription or ornament of any kind was to be seen except a few hieratic signs. M. Naville thinks it probable that this tomb was prepared by Hatshepsut for herself, but was never used owing to the hatred of her nephew, Thothmes III. In this same passage a large foundation deposit was discovered in a rock-cut pit, about 3ft. deep. It was covered with mats, under which lay first a few pots of common earthenware, then about fifty wooden objects, models of an implement which, for the want of a better name, have been called winnowers. M. Naville says that they may be sledges used for threshing corn. Each bears the cartouche of the Queen. Lower down were fifty wooden hoes, four bronze plaques, a hatchet, a knife, eight wooden models of adzes, and eight larger adzes with bronze blades; at the bottom were ten little pots of alabaster and ten baskets, stands for the pots. All these objects were, as usual, buried in fine sand. In every Egyptian temple the sanctuary contained a shrine or naos, in which were hidden

THE EMBLEMS OF THE GOD

to whom the temple was dedicated. They were generally made of wood, so that they could be moved and either placed on sacred boats, or carried by means of staves, as was the ark of the Israelites. All the wooden shrines have perished, except a very small one, but 12 in. high, which is now in the Turin Museum. During our first season we found one side of a large ebony shrine, the panel measuring 5ft. 7 in. high, 3ft. 7 in. wide, and 1 in. thick; also one leaf of the doors of the shrine, which is 2ft. 5 in. high, 12 in. wide, and 3 in. thick. On the inside of the shrine one can see the mortises and part of the adjoining panels. As ebony can only be obtained in small sizes, the whole is pieced together of little bits, and held by pegs of the same wood. The angles or styles are cut out of solid pieces, 2 in. square, to which are framed the top and two middle rails of the same width as the angles, but only 1 in. thick, thus dividing the whole into three panels. The bas-reliefs represent Thothmes II. making offerings to Amon-Ra, the erasures being probably owing to Akhenaten. Underneath are a series of magical signs, arranged in pairs, and the symbols of stability and duration. At the bottom is a range of the so-called false or "Ka" doors. Externally the panel is divided into six divisions, two of the rails being only thin pieces of ebony pegged on, forming what we should term a sham. Rows of the same emblems are arranged in the panels, and the styles or rails are

BEAUTIFULLY CARVED WITH DEDICATORY INSCRIPTIONS

of Thothmes II., part of which reads "He made a sacred shrine of great value of ebony of the mountaineers (of Nubia)." On each of the horizontal lines it is stated that Thothmes is a worshipper of Amon-Ra, who dwells in "Serui," the ancient name of the temple. The small leaf of the double door is also made of irregular-shaped pieces of ebony, doweled together, and having eleven small ledges pegged on to one side, each of them about 3 in. by 1 in., and rounded on the back. The pivot side of the door is also rounded, and the bolt side rebated for the other leaf. Four bronze staples for the bolts are still in position. A description of this temple, however slight, would be incomplete without a reference to its celebrated architect, Senmut. It seems that though Hatshepsut, like Queen Elizabeth, was not beloved of her relations, yet she had the same power of drawing to herself great men.

Of such a man, Senmut, the architect of her temple, we have many records. To quote the *Edinburgh Review*: "The many sidedness of Michel Angelo was nothing compared to that of Senmut—the Queen's architect—who himself superintended

THE QUARRYING AND CARVING OF THE QUEEN'S OBELISKS,

was tutor to the Queen's daughter Neferura; he was keeper of the temple of Amon; keeper of the granaries of Amon; royal seal-bearer; keeper of the palace; keeper of the heart of the Queen (to which title Petrie compares keeper of the king's conscience or Lord Chancellor), priest of Aahmes; keeper of the queen's cattle." Besides his great work at Deir-el-Bahari, he directed the erection of Hatshepsut's two granite obelisks at Karnak and superintended architectural work at the temples of Karnak, Mut, Luxor, and Erment. A kneeling statue of him was discovered by Miss Benson in 1896 at her excavations at the temple of Mut. The inscription states that it was "presented by favour of the queen," and some further interesting particulars of his life will shortly appear in her book on this temple. My brother had the good fortune to discover his tomb high up on the north-east of the Gournah hills. It had been very magnificent, but the

PAINTED FACING OF THE WALLS

is now almost entirely destroyed. A clear white glass bead, inscribed Senmut, was found at Deir-el-Bahari, as well as a fragment of a statue of him. My brother has a carefully-worked piece of black marble inscribed with his name, which appears to have been a paint-muller, and may have been used by him for mixing up his Indian ink. It is recorded that he was a man of the people, for "his ancestors were not found in writing," and his portrait-statue gives no very high-bred features, but an ugly, capable, complacent face. In conclusion, I must acknowledge my indebtedness to the various publications of the Egypt Exploration Fund, by M. Naville, which I would refer you to for further information on this interesting and beautiful temple; also to Professor Flinders Petrie's "History of Egypt," and Professor Steindorf's edition of Baedeker's "Guide to Egypt," 1898.

The president, Mr. G. H. Fellowes-Prynne, opened the discussion, and Mr. R. Phené Spiers proposed a vote of thanks to Mr. Newberry. Mr. Spiers said they owed a great debt of gratitude to the Egypt Exploration Fund, to M. Naville, and to Mr. Newberry. He had, however, to traverse Mr. Newberry's statement when he said that "it was reserved for the Egypt Exploration Fund, under the able guidance of M. Naville, to bring to light one of the most interesting temples of Egypt, of which up to 1893 two-thirds were covered by mounds of rubbish that reached to a height of 40ft. in places." The real discoverer of the temple was Emmanuel Brune, a Grand Prix man, who measured, with some slight assistance from the speaker, the whole of the temple, and made some astonishing drawings for the Institute of France in 1867. Mariette borrowed these plans and published them, but forgot to acknowledge his indebtedness to Prof. Brune. Prof. Brune, who was dead, was one of the most remarkable men of his time, and he (the speaker) felt bound, as his friend and companion, to take up his case.—Mr. Alex. Payne, in seconding the vote of thanks, expressed his opinion that this temple was a sort of cemetery or mortuary building.—The Chairman put the vote of thanks, which was carried.—Mr. Newberry, in reply, said he had purposely not dealt with the restoration. He did not think that M. Naville could have made such a claim, because when he (the speaker) first went to Deir-el-Bahari, the greater part of the architectural details of the southern side of the temple were already exposed to view, and the Hypostyle Hall was accessible, though one could only just creep in between the architrave and the rubbish.—The Chairman announced that the next meeting of the A.A. would be held on November 11th, when Mr. H. Wilson would read a paper on "Arts and Crafts."

Bricks and Mortar.

EFFINGHAM HOUSE, ARUNDEL STREET,
November 9th, 1898.

"I know what it is to live in a cottage with a deal floor and roof, and a hearth of mica slats; and I know it to be in many respects healthier and happier than living between a Turkey carpet and a gilded ceiling, beside a steel grate and a polished fender. I do not say that such things have not their place and propriety; but I say this, emphatically, that the tenth part of the expense which is sacrificed in domestic vanities, if not absolutely and meaninglessly lost in domestic discomforts and incumbrances, would, if collectively offered and wisely employed, build a marble church for every town in England; such a church as it should be a joy and a blessing ever to pass near in our daily ways and walks, as it would bring the light into the eyes to see from afar, lifting its fair height above the purple crowd of humble roofs."—JOHN RUSKIN.

To estimate the cost of putting a fresh coat of paint on a building would appear to be a very simple matter indeed to anyone in the trade. Apparently, however, the very reverse is the case. The other day the Main Drainage Committee of the London County Council invited tenders for the repainting of their pumping stations, and the most surprising difference was shown in the prices submitted. Thus, one firm offered to undertake the work for £2092, and another was only willing to accept the contract if a sum of £4872 was paid. To what can this wonderful discrepancy be attributed?

THE completion of Truro Cathedral will continue, says a local contemporary, to be the object of ambition with Churchmen of Cornwall for many years to come. The ambition, we may add, will by no means be confined to the county. The Diocesan Conference is of opinion that building operations should be resumed next year with a view to the erection of the nave. Funds to the amount of £27,000 have been raised, and though a considerable amount is still needed, it is thought that the present state of the finances justifies the step which is now contemplated. In regard to the cathedral, it is assumed that the resumption of building operations will encourage those interested in the work to contribute the funds necessary to enable it to be continued. Certainly it would be a lamentable thing if, when the work is once in progress, it is either stopped or its noble proportions cut down for want of money. It would be better to put off building for another generation than to diminish in any way the glory of the completed structure.

ONE by one Sir Christopher Wren's smaller churches in the City of London are disappearing. That these churches were needed when he built them, and are now superfluous, shows what immense changes have come over London life in the last two centuries. The latest church doomed is St. Michael's Bassishaw, in Basinghall Street, just behind the Guildhall. This church was completed by Wren in 1679. It replaced a structure that had perished in the Great Fire. "Bassishaw" may be read as Basing's-haugh. The Basings had a mansion in the neighbourhood in the thirteenth century, when certain Basings were sheriffs, and one, Solomon Basing, Lord Mayor. But even Stow could write: "This family is worn out, and hath left the name to the place where they dwelt." St. Michael's Church—which has been condemned under the Union of Benefices Acts—has one peculiarity. It is insulated; you can walk completely round its walls. In Basinghall Street the east front looks down

on a broad pavement, where two plane-trees and a pillar-box stand in symmetrical decorum. The other three sides approach so closely to the surrounding buildings as to leave only narrow pathways. But the little square is a veritable lagoon of quietness. The monuments in St. Michael's Bassishaw are not remarkable. The living will henceforth be joined to that of St. Lawrence Jewry, the well-known church at the south-west corner of the Guildhall Yard. St. Lawrence's is another of Wren's churches; it numbered Isaac Barrow among its preachers and Samuel Pepys among its worshippers.

THE fate of the Church of St. Mary, Moorfields, the only Roman Catholic place of worship in the City, is now being decided at Rome, whither the Rev. Dean Fleming has gone to lay the whole of the facts of the case before the ecclesiastical authorities. Various circumstances have conspired to raise the question of the desirability of disposing of the church and its site, and erecting a smaller church elsewhere with part of the proceeds, the freehold being valued at as much as £200,000. One of the chief causes of uneasiness to those who would prefer the church to remain is the growing necessity to widen the thoroughfares upon which it abuts. Already the neighbouring building, the Royal London Ophthalmic Hospital, has been acquired for street improvements, and its removal leaves the schools attached to the church in a very precarious condition. If additional width is to be given to the rest of Blomfield Street the handsome portico will have to come down. In the meantime, too, the question of underpinning the sacred edifice is a matter of considerable urgency. An appeal for the £1000 necessary to complete the work has been made, and it is stated that "only the generous indulgence of the City Surveyor in extending the period for which the timber supports may remain has enabled the Dean to keep the church open for public service." These various causes have made the future of the church a matter of discussion, with the result that Cardinal Vaughan has decided in favour of a sale. An appeal to Rome is permissible in such cases, however, and it is for this purpose that Dean Fleming has gone to the Holy City. If the final authority supports the Cardinal's view, the existence of the church will be terminated; but if other counsels prevail, it is anticipated that no difficulty will be experienced in raising the funds for meeting the requirements of the City Surveyor.

THE church, which is said to have cost £26,000, is in the Italian style. At the back of the high altar is raised a screen of six fluted marble pillars of the Corinthian order, the gift of Pope Pius VII. Behind is a fresco painting of the Crucifixion, of world-wide renown, by Signor Aglio, painted by him in 1820, and restored by him in 1837. This striking panoramic view of the great scene is 55ft. in length and 33ft. high, and contains upwards of fifty chief figures of more than life size in the foreground, whilst the background is formed of a distant view of Jerusalem. The removal of the church would mean the destruction of this remarkable fresco. Under the church are vaults and passages divided into catacombs.

THE evils of overcrowding and bad housing make themselves felt in the spread of disease, increased death rate, physical and moral degeneracy, and in other ways. The Housing Committee of the County Council considered that in London, where over two hundred thousand people live in one-roomed tenements, and where, in some districts, accommodation is inadequate, and rents always high, the Council should do something more to relieve the pressure. Up to now the Council has only built dwellings for part of the people displaced through the clearance of insanitary areas, or the execution of improvements. It has not provided more accommodation. The committee thought that as land can be bought cheap on the outskirts of London, the Council might find it expedient to build on a large scale, so as to draw the people from the over-

crowded centres. It has power to do this under Part III. of the Housing Act.

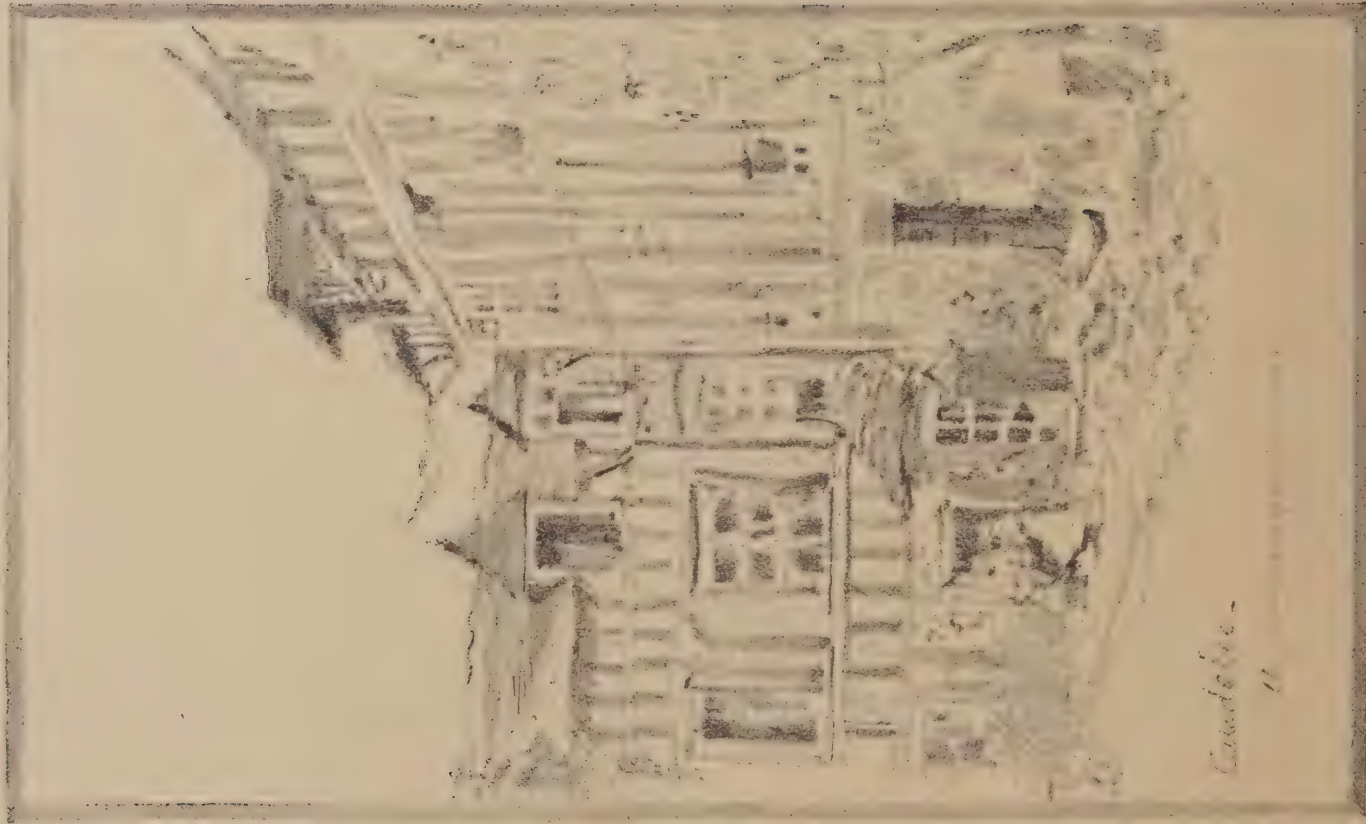
THE chief officers of the Council were consulted, but did not encourage the scheme. The architect thought it would not pay; the medical officer reported that if the Council started to build on the borders of London, private builders would stop, and the Council would never be able to build fast enough for the demand. The valuer considered that cheap transit, through electric tramways, will draw people from crowded centres to the suburbs. It was also pointed out that building was going on fast enough in the suburbs, where there was little or no overcrowding, but that in more central districts, where it is convenient or necessary for working-men to live, building had ceased, and every year the encroachments of business premises increase the overcrowding and send up the value of land and the rents. The Housing Committee considers that there is scope for a new development here, and recommends the Council to buy vacant land where opportunity offers, and build, so long as no loss is incurred, and that without regard to any previous displacement. This is an improvement.

A CORRESPONDENT writing to the Chronicle says: "When I was in Oxford lately I was asked to sign a petition to the municipality of Florence, praying it to refrain from the destruction of its beautiful and historic city. I did so with pleasure. Yet I should, with even more pleasure, have signed a petition to a government nearer home, praying it to take measures for the preservation of our own beautiful and historic cities, at the head of which stands Oxford. A few days later I heard that a charity is on the point of disfiguring the corner of St. Aldate's, opposite Christ Church, by the destruction of the picturesque end of Pembroke Street, and the erection of a block of buildings, described as 'workhouse-like.' This block was originally intended to stretch beyond the old houses, and to cover the site of the tree at the corner of the churchyard. Christ Church has intervened in favour of the tree; but exactly how far the offending block has been curtailed I do not know.

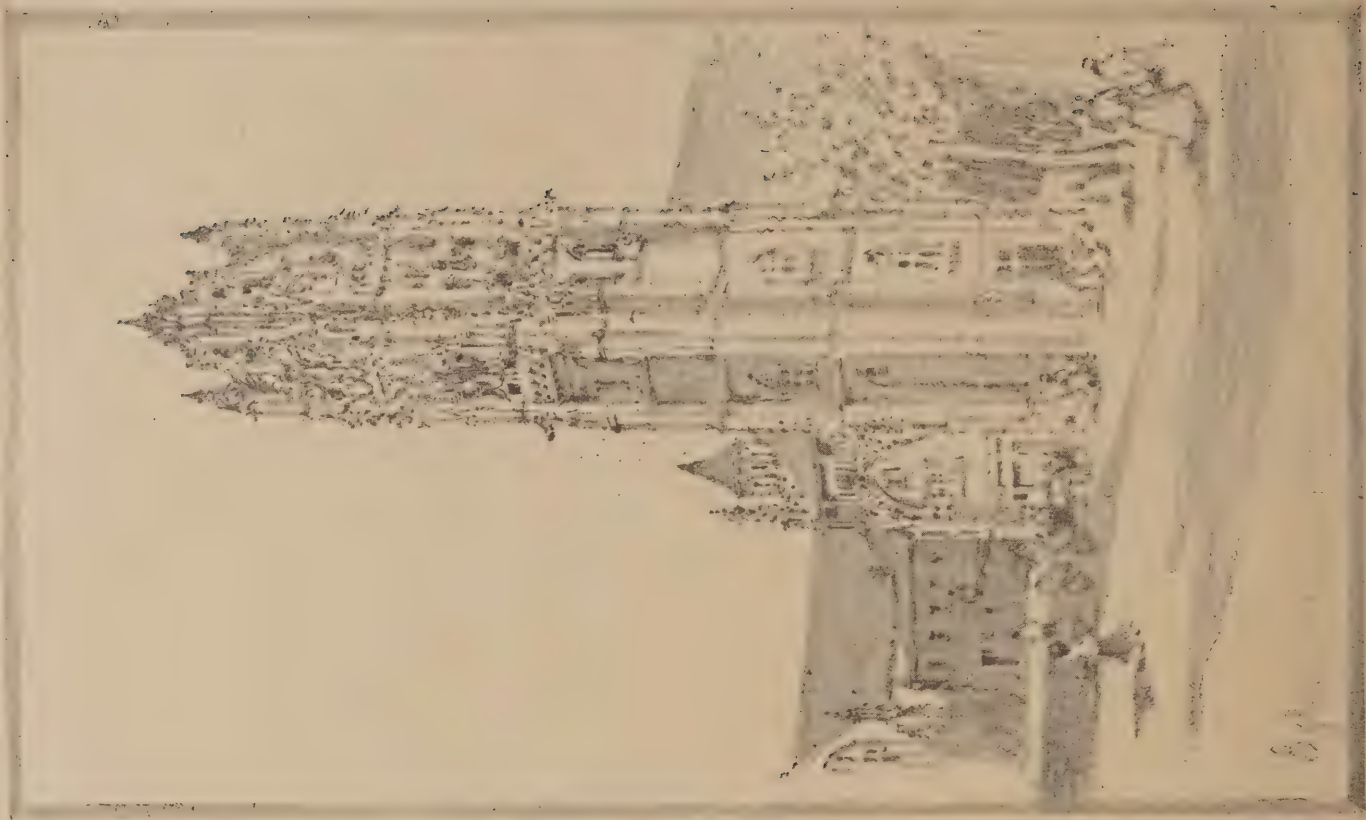
"THE action of the charity will be defended on the grounds that, firstly, it is a charity; secondly, that the houses in Pembroke Street are of no importance. On the first point it may be said that the architectural beauty of Oxford is a matter of public interest as much as the beauty of a Raphael or a Titian, and that a charity has no more right than another body to increase its revenue without regard for such interests. This was the view taken by the Press and the public three years ago, when the Trinity House proposed to pull down their beautiful old almshouses and sell the site for building purposes. A vigorous and effectual protest was made, and the scheme quashed. Secondly, the houses in Pembroke Street have a value as being among those fragments of the mediæval city which modern vandalism has so far spared. Every one of such fragments is precious. . . . The city council has recently shown by its refashioning of Carfax how a modern improvement may be carried out satisfactorily as such, yet with good taste and entire reverence for the spirit of Oxford. . . . The destruction of the ancient city of Oxford, deplored as deeply by visitors of every nationality as that of the ancient city of Florence, is not the inevitable result of the necessities of modern life."

THE decision of the Executive Committee of the Gladstone Liberal Memorial Fund to commission Mr. F. W. Pomeroy to execute the statue of Mr. Gladstone which is to be placed in the Houses of Parliament, is one that it would scarcely be possible to praise too highly. We have few sculptors (says the Globe) so well qualified to deal with a work which will call for a peculiar combination of skill and discretion, and few artists who have given such unquestionable evidence of the possession of the kind of knowledge required for the production of a statue which must hit the happy mean between realistic portraiture and idealised

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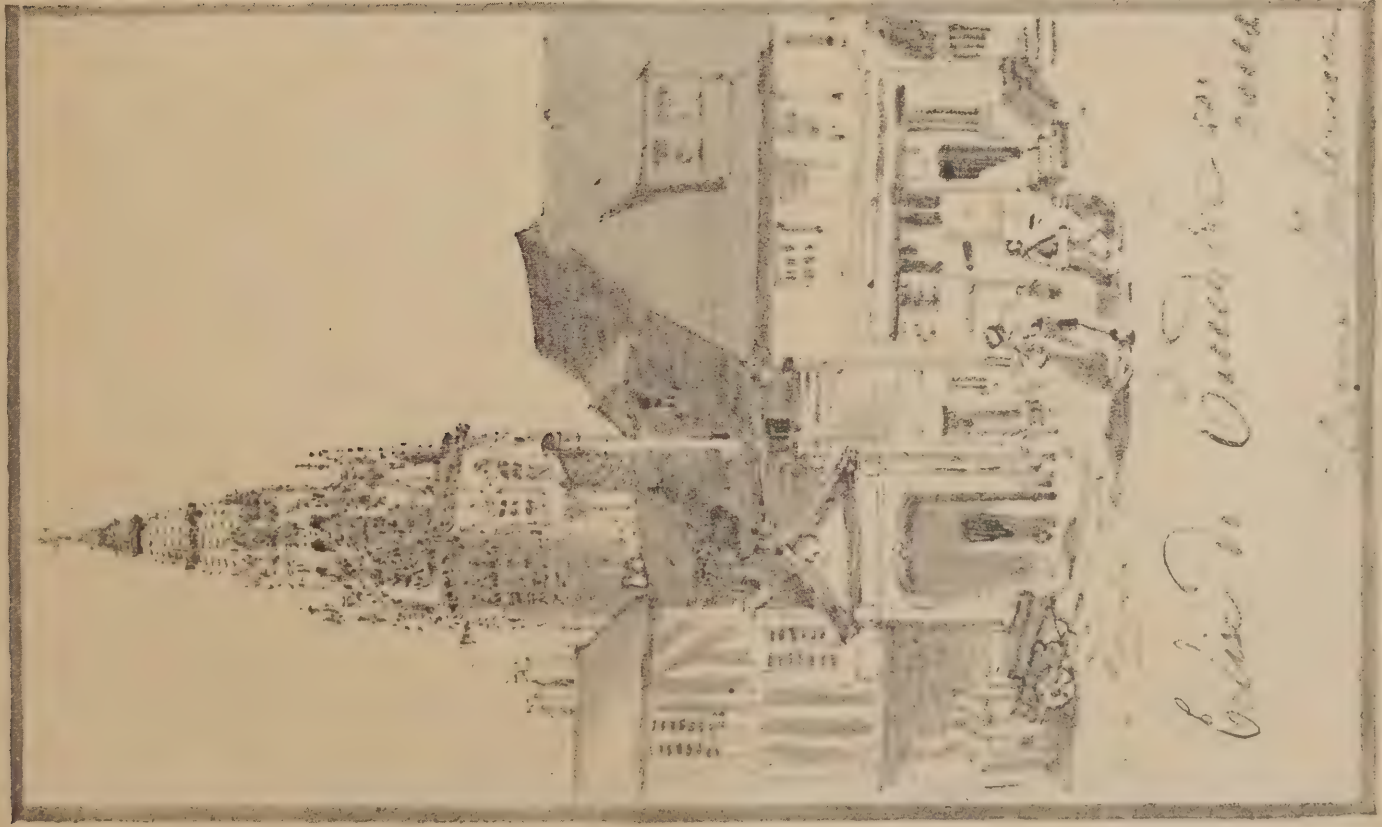


A PICTURESQUE CORNER IN CAUDEBEC.



TOWER OF ST. LAURENT, ROUEN.

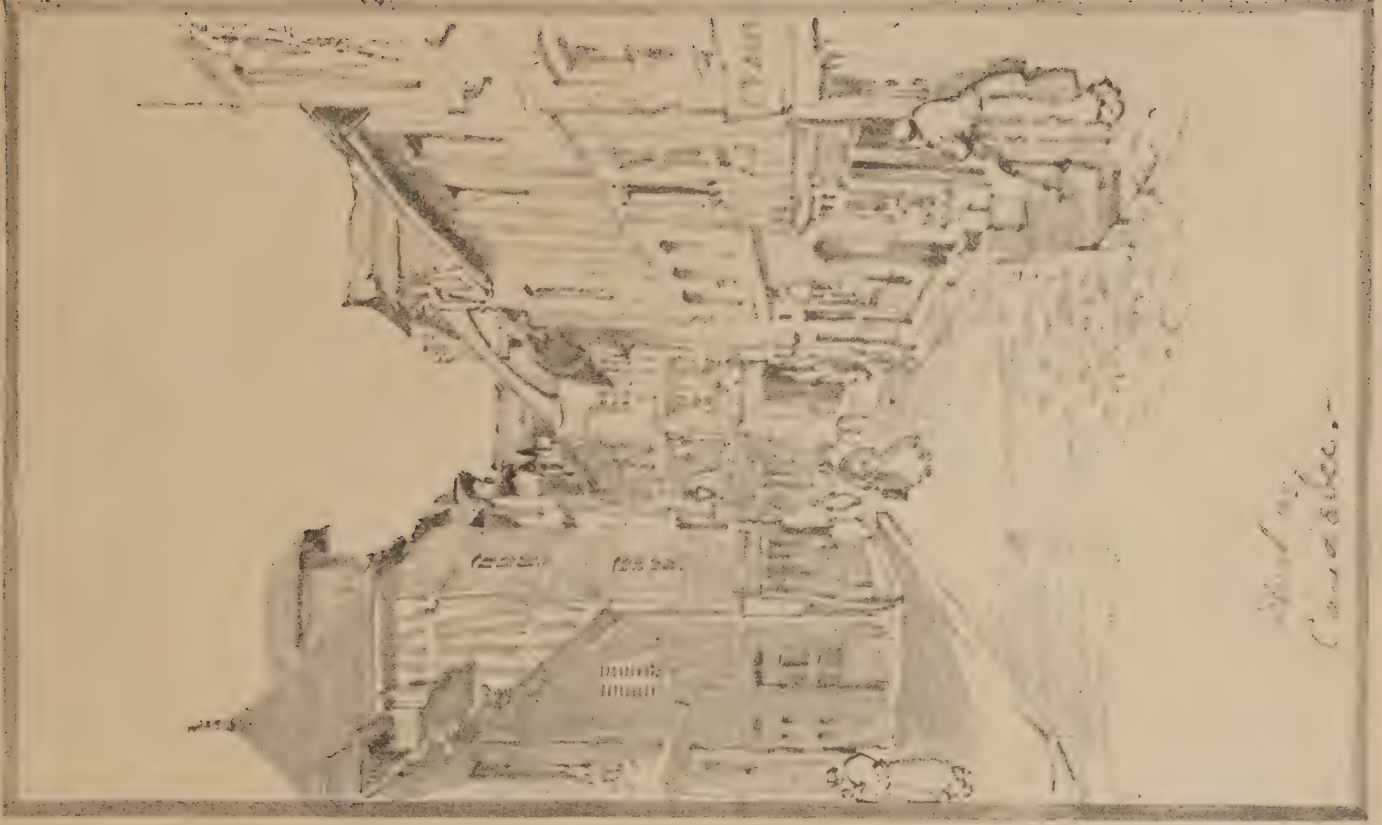
SKETCHES IN NORMANDY. BY GEORGE W. COLLINS.



View of Caudebec tower
from the river

A VIEW OF THE CHURCH TOWER AT CAUDEBEC.

SKETCHES IN NORMANDY. BY GEORGE W. COLLINS.



Street in Caudebec

A STREET IN CAUDEBEC.

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personification. We can feel sure that in his hands the memorial will be fully worthy of its subject.

MR. POMEROY'S statue of "Perseus," which occupied the place of honour in the sculpture room at the last Academy Exhibition, proved most emphatically how great an amount of sound appreciation he possesses of what constitutes true dignity of design, and his Burns memorial recently erected at Paisley showed his originality in the treatment of a subject which might very easily have been made uncouth or even grotesque. He may well be expected to combine in the Gladstone statue both dignity and originality, and to make the most of an opportunity greater than often comes within the reach of a young artist. It is a pity, though, that the Committee should have decided upon a design representing Mr. Gladstone in the unpicturesque garb of the present day. Such a limitation very seriously diminishes the sculptor's chances of a great success.

ANOTHER work which will have a very remarkable interest both on account of its subject and because of the reputation of the artist who is to produce it, is the statue of Lord Tennyson, which has been undertaken by Mr. G. F. Watts. His fitness to attempt such an exacting task is most complete, for he has painted many portraits of the poet, and knew him intimately for something like half a century. At the same time, one cannot but wonder at the energy of the artist who, despite his advanced years, does not hesitate to commence a new undertaking of this serious importance.

THE General Committee of the Belfast Cathedral has just considered the report of the Architects' Sub-Committee. It was as follows: "(1) That they believe Mr. Drew's original design is impracticable from want of funds, and the difficulties arising from defective foundation and surrounding property. (2) They approve Mr. Drew's second design, as described by him, and as shown by a ground plan and sketch presented by him, the total accommodation to be ultimately provided being about 3000, and the cost, including foundations and internal fittings, £47,500. (3) They recommend that as a first instalment of the work the nave and side aisles only should be built, to accommodate, with part of the present church, 2000 people, the cost of which, including foundations, Mr. Drew estimates at £14,000. (4) They consider that what Mr. Drew strongly urges—namely, the extension of the church eastward, to include the crossing of the transepts to provide a space for the choir, but not the full extension of the transepts—should be favourably entertained, and, if funds permit of it, adopted. This would increase the first cost by about £7000. (5) They recommend that the building of the tower, north and south porches, chancel, vestries, and extension of transepts should be postponed for the present, and that no purely ornamental or decoration work be undertaken, except a west doorway, or some portion of the west front, in order that a sample may be given of the sort of ornamentation which it is hoped may in future characterise the entire cathedral." This report was unanimously adopted.

THE Finance Committee of the Middlesex County Council, on behalf of the joint committee of Surrey and Middlesex, presented supplementary estimates to the extent of £35,000 for the rebuilding of Kew Bridge. The report of the joint committee showed that while the estimate of the total cost of the widening, given by their engineer—Sir J. Wolfe Barry—was £118,000, the lowest of seven tenders received for the work, that of Mr. Easton Gibb, of Skipton, Yorkshire, was £169,288. In reply to a request for an explanation, Sir J. Wolfe Barry reported at the last meeting that his estimate was based on the prices paid for similar work at the Tower Bridge, with a considerable addition. He suggested that the cost of all work in the neighbourhood of London had been steadily increasing during the past two years

owing to the obligations imposed by the Employers' Liability Act, the action of the London County Council with regard to the terms of labour, and the great demand for materials at the present time. He estimated that £20,000 to £25,000 might be saved by the substitution of internal brickwork or concrete for stonework. The committee further reported that they had ascertained that a reduction of about £20,000 might be made on Mr. Gibb's contract in the way suggested, and they recommended that the tender should be accepted for a sum not exceeding £150,000, and that a Bill be promoted to authorise the additional borrowing.—Mr. Burt, of Highgate, moved as an amendment to the report of the joint committee that the council should not entertain the proposed additional expenditure, but should refer the matter back to the joint committee with a view to bringing the total cost of the bridge approximately within the amount authorised by Parliament, and this was agreed to.

A PROPOSAL is on foot for utilising part of the site of the Brighton Aquarium for the construction of a winter garden. This will involve various structural alterations, regarding which, according to the terms of the Company's Act of Parliament, the Brighton Town Council have certain rights. In order to facilitate the negotiations, it is contemplated by the syndicate that has the matter in hand to offer the Town Council opportunities for materially improving the marine parade, or at any rate that portion of it which runs the entire length of the Aquarium Company's building, that is to say, from the Old Steyne eastwards to the site of the now vanished Chain Pier. At this latter point the broad esplanade that runs from the eastern boundary of the borough (Kemp Town) is checked by the flight of steps that lead to the beach, and thenceforward to the Steyne become much narrower. The proposals now under consideration have as their object the widening of this part of the esplanade, which, instead of following the concave shape of the cliff, would be brought out into practically a straight line, being thus widened by from 15ft. to 25ft. Skeleton erections have been placed *in situ*, so as to indicate the important improvement which would thus be effected. A sub-committee of the Council has the matter under consideration. Meanwhile, progress is being made with the new Palace Pier opposite the Aquarium. The pier has already been carried out to about 1600ft.

SUBURBAN theatres increase so rapidly that soon no populous district will be without a dramatic temple of its own. The latest addition is the Crown at Peckham, which is a two-tier house. The ground space is considerable, and there are no less than twelve exits, two being provided for every part of the house. The architect is Mr. Ernest Runtz. The tiers, like the staircases, are of fireproof material. Special attention has been bestowed upon the ventilation and warming of the building, and the electric light is adopted throughout.

MESSRS. BAKER AND SONS, acting on the instructions of the Bridge House Estates Committee, offered by public auction, on a building lease for a term of eighty years, the building site abutting upon Finsbury Circus and London Wall, about which so much has been said and written. It will be remembered that an attempt was made at the last meeting of the Court to induce the City Corporation to rescind its previous decision to let the land in one block. The Corporation as a body, not being blind to its own interests, wisely declined to do so. The land, which comprised nearly 50,000ft., was accordingly offered as a whole. Bidding started at £10,000 a year, and was quickly run up to £17,000 a year, at which price it was purchased by Mr. Neumann, of Warnford Court.

A BOULDER of extraordinary dimensions has been unearthed on the farm of Mr. E. F. Horton, Little Leigh, between Northwich and Warrington, part of the estate of Lord Leigh. It measures 12ft. 8in. in length, 7ft. 7in. in breadth, and 6ft. in depth, must weigh close

upon forty tons, and is certainly one of the largest boulders ever discovered in this country, exceeding many that have been mentioned in the records of the various learned societies of the kingdom, which include three on grounds attached to Leasowe Castle, Wallasey, the residence of the late Lieut.-General Sir Edward Cust. The Crosby and Manchester boulders, which have been carefully preserved, are small compared with this discovery.

THE London County Council having, by its General Powers Bill of this year, obtained power "to erect and maintain or contribute towards the provision, erection, and maintenance of works of Art in London," will shortly proceed to erect upon the approved site, at the extreme end of the Victoria Embankment wall, by the corner of Westminster Bridge, the Boadicea statuary group of the late Mr. Thomas Thornycroft, which has been presented to the Council by Mr. J. I. Thornycroft. The Highways Committee, at the last meeting of the Council, asked for the sum of £1100 to cover the cost of placing the group in position, and the expense already incurred in putting up and removing the temporary platform upon which a plaster cast of the group was recently exhibited. Mr. T. G. Jackson, E.A., who has been in communication with the Council's architect on the matter, has submitted a sketch, which has been approved by the Highways Committee, of a pedestal for the group. The height of the base of the group is shewn upon this sketch to be about 11ft. 2in. above the top of the Embankment steps—that is, 5ft. higher than the temporary platform for the plaster model. A joint report from the Council's engineer and architect suggests that the inner portion of the pedestal should be constructed of brickwork, and the upper part faced with Portland stone and the lower part with granite—as this mode of construction would be less expensive than the use of granite throughout; and that the cover of the pedestal upon which the group will stand should be bronze. The estimated cost of this mode of construction, which the Highways Committee adopt, will be £1000.

A SCORE of paintings from the exhibition at 35, New Bond Street, and all of them—save the enormous canvas of "Christ Entering Jerusalem," by M. Paul Philippoteaux—are from Gustave Doré's hand. But these pictures (including the Philippoteaux)—"great," at any rate, in one sense—are not strangers to the London public. They were here long and left us late. After a successful time on tour in America, "Christ Leaving the Prætorium," "The Vale of Tears," "The Ascension," "The Dream of Pilate's Wife," &c., are back again in their old quarters.

SKETCHES IN NORMANDY.

THE sketches reproduced in our inset supplement were made during a short holiday in Normandy. They represent subjects which may, no doubt, have been sketched and described many times, situated as they are in a country so full of interest to the artist and student, rich examples of architecture and picturesque bits abounding in every direction.

Caudebec is a very old and interesting town, its picturesque streets and timbered houses supplying the artist with ample material. The principal feature is, of course, the church, a beautiful specimen of the fifteenth century, exhibiting the Flamboyant style in all its perfection. The tower is divided into three stages, with rich buttresses and windows, and is surmounted by an open worked stone spire (the subject of one of these sketches) of the most delicate workmanship.

One of the most beautiful towers is that of St. Laurent, in the Rue Thiers, Rouen, built at the end of the fourteenth century; the upper part is exceedingly rich in appearance, crowded with flying buttresses and pinnacles. The church itself, or rather the remains of it, is now used as a workshop. The small balcony at the side has a very quaint appearance.

Professional Items.

BATTERSEA, S.W.—A literal palace, standing in its own grounds of 8½ acres, in connection with the temporary home for lost and starving dogs at Battersea, was formally opened by the Duke and Duchess of Portland at Hackbridge, near Mitcham, Surrey, on Saturday week. This branch home has been provided at a cost of £6171, including £3194 for the land and £1197 for the kennels, the architect being Mr. Edward Crutchlow.

BIRMINGHAM.—A church in connection with the Parish Church of Edgbaston, Birmingham, to be known as St. Mary and St. Ambrose, in the Pershore Road, has just been consecrated by the Bishop of Worcester. The building, which was commenced about September of last year, has been built by Messrs. Collins and Godfrey, of Tewkesbury, from the designs of Mr. J. A. Chatwin, at a cost, exclusive of fittings, of about £8000. The building is not yet finished, for the tower, spire, and tubular bells are not expected to be completed before Easter next. The church, which is near Calthorpe Park, has from every aspect a pleasing appearance. The exterior is of brick and terra-cotta, and the interior of plain red brick, with Bath stone columns, capitals, and chancel arch.

BLACKROCK, N.B.—On Saturday week, the memorial stone was laid of St. Andrew's Presbyterian Church, Blackrock, N.B. The plan of the building is somewhat unusual, showing an octagonal building arranged to form an auditorium. It measures 50ft. in diameter internally, and is covered by a large cupola, with lantern light at apex. A square tower, 80ft. high, terminating with an open belfry and pyramidal roof, adjoins the side of the octagon next to Mount Merriem Avenue, and on the opposite side an apex has been formed to contain the pulpit, communion table, and font, which will be placed on a raised platform. The lower part of the tower forms a porch, from which side passages lead to circular turrets, containing the gallery stairs, and an organ gallery is provided immediately over the porch. The style of Architecture is Romanesque. Mr. J. C. Murray is the architect.

BRECHIN.—The Gardner Memorial Church is now rapidly approaching completion. The church, which occupies a site at the corner of St. Ninian's Square and Damacre Road, completes the improvements that have been carried out there by the Town Council. The church runs parallel with Damacre Road, while at right angles to the church a hall and vestry are provided, running up Southesk Street. At the junction of the church and hall building a massive square tower has been erected, upon which, facing the square, the city arms have been cut out in relief, the whole forming a beautiful piece of sculpture. The church consists of an aisle and a nave.

BRISTOL.—The Edinburgh Life Assurance Company have recently erected new offices at the corner of Baldwin Street and Marsh Street, Bristol. They are constructed of red brick with pennant and Bath stone dressings, the roof being covered with Bangor slate. The style of Architecture is Georgian. The building is fireproof, and has wood block floors with the exception of the ground floor, entrance-hall and passages, which are of marble mosaic. The building comprises five floors, a speciality having been made of the lavatory and sanitary arrangements. The entrance hall is panelled out with tiles of an exceptionally pleasing character. The premises on the ground floor, which will be used as the Company's offices, are panelled with teak, and all the doors and chimney pieces are also of teak, and the floors are marble mosaic and oak block. The electric light fittings, door furniture, name plates and tablets are of a special kind of red bronze, and are very effective. The staircase is in oak. Mr. A. J. Beaven, of Dean Street, is the builder. The architect, who has superintended

the erection of the buildings, is Mr. James Hart, of Corn Street. The sanitary appliances have been provided by Mr. A. S. Scull, of 17, Redcliff Street.

DUBLIN.—A memorial window has just been erected at the United Presbyterian Church, Dublin. The tracery of the window is of an Early English pattern, and the glass ornamentation, which follows the style of the famous Albert Durer, has been designed with a view to preserving a harmony between it and the masonry. The work has been executed by Mr. Joshua Clarke, of North Frederick Street.

LEEDS.—Considerable progress has been made with the building operations of the new Queen's Theatre, Holbeck, Leeds, which were begun barely a year ago. Now the roof is on, and it is expected that the place will be opened on Christmas Eve. The situation—at the corner of Jack Lane and Meadow Road—is an admirable one of its kind, embracing as it does an area of nearly 1000 square yards, with streets on practically all sides. The principal entrance is at the corner of the thoroughfares above mentioned, and the façade is semi-circular in consequence, the red brick and stone dressings being crowned with a dome. It is being built for Messrs. Dottridge and Longden, of Oldham, and Messrs. Morell and Mouillot, of London; and the plans are those of Mr. W. Hope and Mr. J. C. Maxwell, architects, of Newcastle-on-Tyne. While the exterior is likely to greatly improve the aspect of Meadow Road, the interior has been designed to meet every modern requirement as regards comfort and convenience. A good part of the skeleton of the seating accommodation (more than 3500) is in position, but a great deal remains to be done. Mr. S. F. Davidson, of Newcastle-on-Tyne, is the contractor.

LONDON, W.—The foundation stone was laid last Monday week of the new front blocks of the St. Marylebone Workhouse, now being erected in Marylebone Road, which, when finished, will complete the institution. The buildings in course of erection will comprise two large double-ward blocks, each of which will be three stories in height above the ground floor, with a fourth story in the centre. There will be provided wards, dormitories, day rooms, bath rooms, officers' rooms, and, in the basements, a complete set of workshops. The total accommodation will be 555 beds for old and infirm men, eleven male and ten female imbeciles, and three male and three female lunatics. The work, which is expected to be finished about March or April next, is being carried out at a cost of £52,100. The buildings are being erected by Messrs. G. H. and A. Bywaters and Sons, the architect being Mr. A. Saxon Snell.

LONDON, E.—The "Passmore Edwards" Public Library for the parish of St. George-in-the-East was opened on Saturday week by Lord Russell of Killowen. The building is notable in a neighbourhood where attractive buildings are few, and it contains an excellent general reading room about 50ft. square, which will be a great boon to the inhabitants of the congested dwellings and depressing streets of the East end of London. The Library has been erected in Cable Street, on a site adjoining the Vestry Hall, at a cost, including that of the site, of £10,125. The architect of the building is Mr. Maurice B. Adams, F.R.I.B.A., who has designed many of the public buildings erected by Mr. Passmore Edwards.

NEWPORT.—A new church has been erected at Newport. The building, which it is estimated will cost between £10,000 and £12,000, is in the Early English style, of blue pennant stone, quarried near Risca, with Bath stone traceries, windows, piers, and dressings. There are nave, north and south aisles, organ chamber, spacious choir and clergy vestries, lavatories, and heating chambers. The nave is 92ft. in length and the chancel 39ft., or a total length of 131ft. The width is 61ft., and the height to the apex of the nave roof 62ft., the chancel being 46ft. high. The handsome tower

at the north-western end is 120ft. high from the floor level to the tall crocketed pinnacles which surmount it. The main entrance is below the tower, which is well built, and capable of carrying a peal of eight bells. For the present, however, a single bell, which will form the treble in the peal, is placed in position. The roof of the building is of pitch pine, open, whilst the floor mainly consists of wood blocks, the exception being the sacarium and porches, where tessellated tiles are laid. Like the exterior of the building, the view of the inside is exceedingly fine. The nave is divided into six bays, which, with the quatrefoil-shaped piers, are of Bath stone. The altar, reredos, pulpit, and lectern are of brown, unpolished oak, richly carved. The reredos represents the Lord's Supper, and the east and west windows are filled with painted glass, the subject of the east window being the Ascension of our Lord. The font is of Caen stone, treated in the Early English style, to correspond with the rest of the building.

SHEFFIELD.—A new Wesleyan school-chapel, in connection with the Sheffield Brunswick Circuit, was declared open a few days ago. The school-chapel is placed in the heart of the network of new houses which have sprung up of late years. It is in the free Renaissance style of Architecture. The architects are Messrs. Helmsoll and Patterson, the builder Mr. A. Moore, the joiners Messrs. Bolsover Bros., and the plasterers Messrs. Hodkin and Jones.

SWANSEA.—The new operating theatre which has been added to Swansea Hospital was formally opened on Friday week. The chief feature of the new building is its completely sanitary character. It is connected with the west corridor of the hospital, and is so placed as to be equally accessible to the different wards and administrative block. It is oval in shape, being 26ft. long by 22ft. wide, and the roof is in the shape of a large dome. The building is constructed without the use of wood, the roof being of iron ribs filled in with cement concrete, and covered with red Broseley tiles, bedded in cement. The exterior is designed so as to be in keeping with the surrounding hospital buildings, being built of native stone in courses, with dressings of Bath stone. The contractor for the general work was Mr. Henry Billings, of Swansea, and the architects are Messrs. Wilson and Moxham, of Swansea.

WALKLEY.—The foundation stone of a new Baptist Chapel at Walkley was laid just recently. The scheme embraces the erection of a new school, class-rooms, and vestries, and the lengthening of the church by 12ft. Messrs. Hemmell and Paterson are the architects for the work, and the contractors are:—Mr. F. Ridal, mason and bricklayer; Mr. J. H. Hodkin, joiner; Messrs. Ellis and Wetherill, slaters; Messrs. Unwin and Sons, plasterers; and Messrs. Snowden and Son, plumbers and painters.

WALTON.—The memorial stones of a new Primitive Methodist chapel and schools to be erected in Church Road, Walton, were laid a few days ago. The design will be Gothic, simply treated, being faced with Liverpool grey bricks and Runcorn stone dressings, the bands and arches being of stock bricks. The cost will be about £2500. The work is being carried out by Messrs. J. and G. Chappell, of Walton, and the architect is Mr. Fred W. Dixon, of Trevelyan Buildings, Manchester.

WORTLEY.—The new Church of St. John the Evangelist, Wortley-de-Leeds, has just been consecrated by the Bishop of Ripon. The design of the new building is founded on the perpendicular style, somewhat freely treated. The chancel is approached by seven steps, and on its north side there is an organ chamber and priest's vestry, and on the south a morning chapel. Leaded lights, filled with tinted cathedral glass, illuminate the church, the east window having five lights, with open tracery, spandrels, and elegant crisped work at the crown of the arch. The roof is open timbered. The estimated cost of the new building is £8500.

Correspondence.

THE "BITTER CRY" OF THE OUTCAST ARCHITECTURAL ASSISTANT.

To the Editor of THE BUILDERS' JOURNAL.

DEAR SIR,—After reading the letter of "Provincial Assistant" in your last issue, I feel I cannot abstain from giving my hearty support to his remarks.

My experience proves that architects' assistants have other grievances besides those mentioned by "P. A.," and I should be pleased to assist any practical scheme for removing them.

Of course, there are many architects who treat their employés properly, and in such cases I would ask these assistants to look upon any scheme for the benefit of those less fortunate in a brotherly spirit, and do all they can to support any scheme for their benefit, remembering that it is only by being thoroughly united that any good can be done.—I remain, yours faithfully, "GOTHIC."

Enquiry Department.

SCIENCE AND ART EXAMINATIONS.

To the Editor of THE BUILDERS' JOURNAL.

DEAR SIR,—Would you kindly tell me through your paper the number of candidates who sat at the recent examination for Honours Building Construction, and also the number that passed in the final stage?—Yours truly, H. T. H.

You are rather vague in your question. If you are referring to the examination of the Department of Science and Art, we are not aware that the information you ask has yet been published. Write to the Secretary, Department of Science and Art, South Kensington Museum, London, S.W.

To the Editor of THE BUILDERS' JOURNAL.

DEAR SIR,—Will you kindly state a few useful books suitable for an architect's apprentice and oblige, "SECTOR."

You should possess Gwilt's "Encyclopædia of Architecture," and Hurst's "Architectural Surveyor's Handbook." "Notes on Building Construction" (Rivington) is the standard book on its subject. It is rather expensive, but as it is progressive you may get the four volumes separately as you need them. W. H. Leeds, "The Orders;" T. Talbot Bury, "The Styles of Architecture;" and Bloxham's "Principles of Gothic Ecclesiastical Architecture," would fill all your needs for some time in their respective subjects.

DETAILS OF CONSTRUCTION.

To the Editor of THE BUILDERS' JOURNAL.

SIR,—Would you kindly give me a reply, through your valuable paper, to the following queries?—Are there text books published, or information given in any other way on details of construction, which are not dealt with in the standard works on the subject, say Rivington's. Also if details of the construction of shop fronts in buildings can be obtained in any way? Trusting you can find space to give me an answer, I am, &c., "CONSTRUCTOR."

Books dealing with special subjects can, of course, give more particulars of detail and more alternative methods than can find place in a volume which treats generally on the whole subject of building construction. We know of no book on the construction of shop fronts, and think it most improbable that any such book exists. If you do not know someone who has experience in this subject, your only chance would be to search the indices of the professional journals, and the proceedings of Architectural Societies. The following works dealing with special phases of building construction may be recommended:—T. Laslett, "Timber and Timber Trees;" E. W. Tarn, "The Science of Building;" W.

Griffiths, "Trusses of Wood and Iron;" F. Campin, "Mechanics of Construction."

BRIDGE CONSTRUCTION.

To the Editor of THE BUILDERS' JOURNAL.

DEAR SIR,—Will you kindly inform me through your Enquiry column the names of the authors and publishers of some good books (well illustrated) on the design and construction of: No. 1—Stone and Brick Bridges No. 2—Iron and Steel Bridges.

—Yours truly,

October 22nd, 1898.

F. J. D.

Bridge Building is a subject that cannot be satisfactorily learned from text books, though a good ground work may be obtained from the books we quote below. In any case the best and most profusely illustrated works are very costly. The first subject is dealt with in any good work on civil engineering, such as: "Civil Engineering," by Professor Rankine, 16s., Chas. Griffin and Co.; or "Civil Engineering," by H. Law, M.I.C.E., and D. K. Clark, M.I.C.E., Weale's series, 6s. 6d., Crosby, Lockwood and Son; in addition get "A Practical and Theoretical Essay on Oblique Bridges," by Watson Buck, M.I.C.E., 12s., Crosby, Lockwood and Son. For the second subject, the following works are recommended:—

"Bridge Construction," by Professor Fidler, M.I.C.E., 30s.; "The Design of Structures," by S. Anglin, C.E., 16s., published by Chas. Griffin and Co.; "Iron Bridges of Moderate Span," by H. W. Pendred, 2s.; "Iron and Steel Bridges," by F. Campin, C.E., 3s. 6d.; "Tubular and Girder Bridges," by G. D. Dempsey, 2s., Weale's series. Crosby, Lockwood and Son.

THE ORDERS.

To the Editor of THE BUILDERS' JOURNAL.

DEAR SIR,—I should be glad if any of your readers would inform me through the medium of your columns the best book on the Orders alone, containing the best methods of drawing them out.—Yours faithfully, "PUPIL."

Birmingham.

We would advise you to get Mr. R. Phené Spiers' book, published by Batsford. It consists of large quarto lithographed plates of the best Greek and Roman examples, showing ornament and mouldings drawn to a larger scale. As the plates have been drawn (not engraved), it constitutes also a lesson in draughtsmanship. There is descriptive letterpress. If you need more detailed information of any particulars, you will find them excellently stated in Sir William Chambers' "Civil Architecture" (Ed. Gwilt). The book, we believe, is out of print, but any good public library should contain it. Or you may get "The Orders," by W. H. Leeds.

CONCRETE SLABS.

To the Editor of THE BUILDERS' JOURNAL.

DEAR SIR,—Would you kindly answer the following?—What would be a fair load (distributed) per sup. foot for a concrete slab 3in. thick to carry, composed of one part Portland cement to two and a half parts crushed granite, covering a space 2ft. 10in. wide, after having been made three months?—Yours truly, E. K.

Concrete varies so greatly, not only according to its nominal constituents, but as to their quality and the manner in which they are mixed, that nothing except direct experiment upon a specimen block, made exactly like the blocks to be eventually used, is to be relied upon. We fear we cannot take the responsibility of giving a more definite answer.

ACTIVE progress is being made with the work of overhauling Kensington Palace and preparing it for opening to the public in accordance with Her Majesty's wishes. The building, however, was proved to be in so bad a condition of repair that a good deal more time will be required to complete the preparation than was at first anticipated. In all probability next summer will be well advanced before it will be possible to admit the public.

Under Discussion.

ARCHITECTURAL ASSOCIATION OF IRELAND.

Mr. R. M. Butler, the hon. secretary of the Architectural Association of Ireland, read the report of the committee at the opening meeting. The report set out:—In considering the work of the session as a whole, there must of necessity be many imperfections and defects in the working out of a scheme such as the formation of an architectural association, but regard should be had to the fact that great difficulties exist during a first session, which require the expenditure of much time and energy to overcome. The hearty support accorded to your committee by both the senior and the junior members has been such as to greatly encourage them, and leads them to anticipate for the association a more extended field of usefulness and mutual benefit in the future. Your committee have had under consideration the question of persons who are not members of the architectural profession engaging in practice. They have unanimously decided that any such person offering himself for membership under the second sentence Clause 4 of the Article of Constitution, as defined in the Form of Application B, covenants, *ipso facto*, not to engage in architectural practice.—The report was adopted.

THE FUNCTIONS OF THE HOUSE PAINTER.

At the fifth annual Convention of the National Association of Master House Painters of England and Wales, held in Liverpool, the President, in the course of his opening address, said the end and aim of the Convention business was the bettering of their industrial position, the stimulating of their artistic ideas, the improvement of their relations with the public and with kindred industries, and the dissemination of a truer conception of the importance to the public in a sanitary, æsthetic, and protective sense, of the ancient handicraft of which the members of that association were exponents. In his way the sanitary painter was even more important than the sanitary plumber. The plumber's sanitary appliances were located in a few well-defined places in a building, and the application of his skill was limited accordingly, whereas the painter's sanitary work extended from cellar to garret, and almost embraced every yard of the interior surface of a building. If the public only realised what white sepulchres they went into in the shape of rented dwellings, offices, shops, and the like, in which this elementary sanitary work had been grossly neglected, they would insist upon every master house painter being registered or licensed like any doctor, lawyer, or other professional man, whose work was of such general public importance as to require a public certificate of competency to entitle him to practice. The modern system of competitive tendering for sanitary work of any kind was simply a premium on scamping. It was no uncommon thing for painting tenders to vary 100 per cent. for what purported to be identical work, and the public generally, failing to recognise any other measure of value than that of price, accepted the lowest tender. Not less important in its bearing upon the comfort and happiness of the public was the house painter's work from the æsthetic side. The important effect of environment upon animals generally, and upon man in particular, was well recognised by scientists, and although their works dealt mostly with the effects of climatic and geographical environment, the principles they had laid down were well recognised as applying to social and æsthetic environment. The speaker concluded by saying that whether they considered the house painter from the point of view of the preparation of the interior of a dwelling, or from the colour treatment of the dwelling, or from that of the protection of the exterior of the dwelling, he was, and ought to be, in all his work a sanitary expert in the highest and broadest sense of the word, and enjoy a high degree of consideration from the public accordingly.

TENDERS.

Information from accredited sources should be sent to "The Editor." No results of tenders can be accepted unless they contain the name of the Architect or Surveyor for the Work.

BELFAST.—Accepted for the construction of a covered concrete reservoir at the Horseshoe, Ballysillan. Mr. Acheson Ferguson, surveyor, 35, Royal-avenue, Belfast:—

Jacob W. Lester, Milewater-road, Belfast ... £9,358
BERKHAMSTED.—Accepted for alterations and additions to premises, High-street, Berkhamsted, for Messrs. Ind. Coope, and Co. Ltd. Messrs. Harrington and Ley, architects, 106, Fenchurch-street, E.C.:

H. & J. Matthews, Berkhamsted ... £364 1 6
BLACKFINE (Durham).—For the formation of new street, for the Benfieldside Urban District Council. Mr. J. Dixon, Surveyor, District Council Offices, Benfieldside. Quantities by Surveyor:—

T. Hogg ... £102 0 0 | G. Christopher, Queen-st, Black-hill ... £101 19 8

*Accepted.

BOSTON (Lincolnshire).—Accepted for the erection of an engine and boiler-house (iron building), for the Boston Harbour Commissioners. Mr. W. H. Wheeler, C.E., Market-place, Boston:—

Geo. White, Boston, Lincolnshire ... £182 10
BRADFORD.—Accepted for the erection of a shed, Brick-lane Mills. Messrs. Isitt, Adkin, and Hill, architects, Prudential-buildings, Bradford:—

Masonry.—Wallace Daykin, Valley-parade, Manningham ... £773 0 0

Joinery.—W. C. Borg, Manningham ... 321 0 0

Plumbing.—Herbert Hill, Westgate, Bradford ... 119 0 0

Slatting.—James Smithies, Great Horton, Bradford ... 128 15 0

Painting.—A. H. Bassett, City-road, Bradford ... 23 15 104

BRIDGWATER.—Accepted for the erection of a shed, Iron-foundry.—E. and W. H. Haley, Thorn-road, Bradford ... 171 5 0

BRIDGWATER.—For kerbing, paving, making-up, &c., Washington-terrace and Washington-gardens, for Bridgewater Town Council. Mr. Francis Parr, engineer and surveyor, Municipal Offices, Bridgewater. Quantities by Messrs. Samson and Cottam, Bridgewater and Taunton:—

For Washington-terrace:—

E. Duke ... £241 6 3 | C. Bryer, Bridge-Newton & Grounds ... £280 9 0

For Washington-gardens:—

E. Duke ... £208 8 | C. Bryer, Bridgewater Newton & Grounds ... £204 14

BURTON-ON-TRENT.—For the erection and completion of a range of stabling, caretaker's house, and boundary walls, at Shobnall-street, for the Burton-on-Trent Co-operative Society, Limited. Mr. R. Stevenson, architect, Imperial Chambers, High-street, Burton-on-Trent. Quantities by the architects:—

A. Geary ... £2,798 0 | T. Lowe and Sons ... £2,440 0

J. and T. W. Selby ... 2,780 10 | T. Chamberlain ... 2,437 0

G. Hodges ... 2,600 0 | R. Kershaw ... 2,399 0

H. Edwards ... 2,530 0 | W. A. Stevenson ... 2,355 0

Chamberlain Bros ... 2,500 0 | *Accepted.

CARLISLE.—For the erection of a lodge, the Sauceries, for the Corporation. Mr. H. C. Marks, C.E., 36, Fishers-terrace, Carlisle. Quantities by City Surveyor:—

E. J. Little ... £741 0 0 | E. J. Hill ... £679 0 0

R. Little ... 721 17 0 | G. Hill and Sons ... 667 16 9

W. Lattimer ... 684 0 0 | J. Laing, Denton ... 654 12 2

J. H. Reed ... 699 10 4 | street (accepted) ... 654 12 2

(All of Carlisle)

[Surveyor's estimate, £646 18s. 7d.]

CHELMSFORD.—Small detached residence, Cottage-place, Chelmsford, for Mr. Killick. Mr. George E. Clare, architect, 66, Duke-street, Chelmsford:—

W. Samms ... £520 | E. West ... £500

Choat and Sons ... 510 | F. Johnson, Chelmsford ... £494

*Accepted.

CHESTERFIELD.—Erection of five houses at Hasland, for Mrs. Dunks. Mr. J. Perkins, architect, Shirebrook:—

C. E. Nicholls, Cutthorpe, Chesterfield ... £298

CULTER (Aberdeen).—Accepted for the erection of villa at Culter, for Mr. W. Copland Beattie. Messrs. Beattie and Macdonald, architects:—

Masonry.—Edgar Gauld, Gilcomston-place, Aberdeen ... £385 0

Carpentry.—R. Thomson & Sons Stonehaven ... 730 0

Slatting.—George Farquhar, Union-row, Aberdeen ... 198 0

Plastering.—J. Bannochie & Sons, Belmont-street, Aberdeen ... 195 16

Plumbing.—Thom and Strachan, Windmill Brac, Aberdeen ... 188 16

Painting.—J. & S. Fyfe, 11, Dee-street, Aberdeen ... 57 10

Total ... £2225 2

HARROW-ON-THE-HILL.—Accepted for making-up Byron, Valentine, and Kingsfield-roads, for the Urban District Council. Mr. T. Charles, surveyor, Council's Offices, High-street, Harrow. Quantities by surveyor:—

G. Wimpey and Co., Hammersmith, W. £1,214 0 7

LEE.—For erecting a sorting office, Lee, for the Commissioners of H.M. Works Public Buildings:—

Thomas and Edge ... £2,297 | T. J. Barden ... £2,050

W. H. Lorden and Son ... 2,232 | Merredew and Wort ... 1,970

Balaam Bros ... 2,200 | General Builders, Ltd. ... 1,950

W. Martin ... 2,164 | *Accepted.

LITTLEHAMPTON.—For the erection of the Connaught-road boys' school, for the Littlehampton School Board. Mr. Gordon P. G. Hills, architect, 4, Adam-street, Adelphi, London. Quantities by Mr. C. A. Bassett-Smith, 10, John-street, Adelphi, London:—

Longley and Co. ... £1,863 | Linfield and Son ... £2,450

W. Wallis ... 4,597 | Snawin Bros. ... 4,015

A. Burrell ... 4,527 | *Accepted.

LONDON.—For new bakery for Messrs. Spratt's Patent:—

Whitehead and Co. ... £17,820 | Patman & Fothering-ham ... £16,999

H. J. Williams ... 17,725 | W. Shurmer ... 16,900

Kerridge and Shaw ... 17,243 | S. J. Gerrard and Sons ... 16,721

Beer and Gash ... 17,223 | H. and F. Higgs ... 16,763

LONDON.—For reinstating after fire, Eagle Wharf, Stepney. Mr. A. E. Pridmore, architect:—

W. Shurmer ... £240 | Ashby Bros. ... £900

W. A. Wagstaffe ... 920 | *Accepted.

LONDON.—For painting &c., at the City of London Distillery, Finsbury. Mr. J. Hamilton, architect:—

Hayworth and Son ... £189 | W. Shurmer ... £144

Conning and Son ... 145 | *Accepted.

LONDON.—For new schools at Bethnal-green, for St. John's Church. Mr. A. Cox, architect:—

McCormick and Son ... £6,830 | W. Shurmer ... £6,666

Chessum and Son ... 6,829 | Harris and Wardrop ... 6,537

Knight and Son ... 6,784 | J. Wall and Co. ... 6,438

Onthwaite ... 6,779 | *Accepted.

LONDON.—For erecting the Tower Brewery. Mr. H. M. Wakely, architect:—

Patman and Fother-ingham ... £3,790 | Lascelles ... £3,189

Lamble ... 3,351 | Higgs ... 3,079

Toms ... 3,250 | Coussell Bros. ... 2,848

LONDON.—For addition and alterations to Thorn House, 25, Grove-park, Camberwell, S.E., for Mr. J. Huckle. Mr. A. E. Mullins, architect, 97, Barry-road, East Dulwich, S.E.:—

Ward and Son ... £500 | G. Payne (accepted) ... £493 5

LONDON.—For alterations, &c. (exclusive of glazing), at "The Albert Hotel," Victoria-street, S.W., for Mr. J. Rumsey. Mr. A. E. Mullins, architect, 97, Barry-road, East Dulwich, S.E.:—

F. Hopkins ... £359 10 | J. Tyerman ... £495 10

J. Parsons ... 545 10 | *Accepted.

LONDON.—Accepted for the erection of a villa known as "Lockbrook," Crebore-street, Dulwich, for Mr. J. Hiscox. Mr. A. E. Mullins, architect, 97, Barry-road, East Dulwich, S.E.:—

Cornell ... £470 | *Accepted.

LONDON.—For the erection of stabling, ham and bacon stores, caretaker's offices, &c., at Gravel-lane, E.C., for Mr. J. Sainsbury. Mr. Ernest Carritt, architect, 57, Lincoln's Inn-fields, W.C. Quantities by Mr. H. Williams Mellor, 17, Buckingham-street, Adelphi, W.C.:—

Wm. Johnson & Co. ... £11,830 | F. and H. F. Higgs ... £11,515

Beer and Gash ... 11,807 | Patman & Fothering-ham ... 11,493

Ashby Bros. ... 11,640 | Rider and Son ... 11,465

Hunt and Son ... 11,593 | Smith and Sons ... 11,079

MIDDLESBROUGH.—For alterations, &c., to "Britannia" Hotel, East-street, for the North-Eastern Breweries Company, Limited. Mr. J. Mitchell Bottomley, architect, 28, Albert-road, Middlesbrough. Quantities by architect:—

Howe and Co. ... £1,750 | Bastiman Bros., Middles-brough (accepted) ... £1,555

Allison Bros. ... 1,600 | *Accepted.

NANTWICH.—For the execution of water supply works, Alapham and Calveley, for the Rural District Council. Mr. J. A. Davenport, C.E., 152, Hospital-street, Nantwich:—

Jenkins and Son ... £243 3 0 | Henry Dodd ... £357 4 0

T. Rowland ... 518 18 6 | John Dodd ... 340 4 0

Geo. Newall ... 405 16 6 | Samuel Wood ... 371 7 0

Josiah Dale ... 371 7 0 | Smallmull-road, J. T. Greety ... 370 16 0

Alapham and Calveley.—Messrs. Cochrane and Co.'s (Dudley) tenders for pipes were accepted, and Messrs. Blakeborough and Sons' tenders for hydrants, valves, and fittings.

NANTWICH.—Pipe-laying.

Geo. Newall ... £250 4 | Henry Dodd ... £237 12

J. Dale ... 356 15 | John Dodd, Wins-ford, Cheshire ... 307 15

J. T. Greety ... 332 0 | *Accepted.

NEWQUAY (Cornwall).—For the erection of Council Buildings and Conveniences for the Newquay Urban District Council. Mr. John Ennor, Jr., surveyor:—

Tom J. Smith, W. F. James. Newquay ... £360 0 0

St. Austell ... £1,197 0 0 | *Accepted.

NEWQUAY.—For the erection of Stables and Coachhouse at Newquay, for Mr. John Hocking. Mr. John Ennor, Junr., architect:—

Pearce & Trebil-cock ... £365 19 0 | W. S. Tippet ... £277 10 0

W. T. James ... 380 0 0 | F. G. Pascoe ... 277 7 6

ORPINGTON.—For the additions and alterations to the Baptist Chapel, Orpington, Kent. Mr. G. St. Pierre Harris, architect, 8, Ironmonger-lane, E.C., and Orpington:—

Stebbings and Pannett ... £387 | Somerford and Son ... £767

T. Knight ... 832 | *Accepted.

ORPINGTON.—For the laying of a new sewer, with connections, of two private houses to same at Crofton, Orpington, Kent. Mr. G. St. Pierre Harris, architect and surveyor, 8, Ironmonger-lane, E.C.:—

F. P. Duthoit ... £1,083 0 0 | Stebbings and Pannett ... £341 13 0

F. Lansbury ... 1,070 15 0 | Somerford and Son ... 720 6 0

Peell and Son ... 1,015 0 0 | *Accepted.

Rogers ... 950 0 0 | J. Jackson ... 912 18 8

PONTARDULIAS.—For the erection of a school at Pontardulias, for the Llandilo Talybont School Board. Mr. J. B. Morgan, architect, Llanelly:—

H. Billings ... £3,150 | G. Mercer ... £2,848

R. Morgan ... 3,010 | Brown, Thos. & John ... 2,679

W. Gregory ... 2,990 | W. Hopkins ... 2,500

POOL (Cornwall).—For alterations to Free Church. Pool. Carn Brea. Mr. Sampson Hill, architect, Redruth:—

W. H. Moyle ... £293 0 0 | W. H. Gray, Redruth ... £66 8

W. C. Hodge ... 288 0 0 | *Accepted.

T. Willoughby ... 213 10 | John Roberts, Pool ... 280

PORT TALBOT (Wales).—For the erection of drill hall, &c., at schools. Mr. F. Smith, architect, Port Talbot:—

T. P. Stevens ... £1,295 15 0 | John Davis ... £925 0 0

Evan Thomas ... 1,096 0 0 | Leverton Bros ... 910 10 0

Morgan Cox ... 1,049 0 0 | Jno. Nicholas, Port Talbot (accepted) ... 905 0 0

RAMSGATE.—Accepted for the erection of a refuse destructor and other buildings, for the Town Council. Mr. T. G. Taylor, Borough Surveyor, Broad-street, Ramsgate:—

Horsfall Furnace Syndicate Ltd., Park-lane, Leeds ... £7,245

ROMFORD (Essex).—For the erection of public baths for the District Council. Messrs. Harrington and Ley, architects, 108, Fenchurch-street, E.C. Quantities by Mr. H. W. Simpson, 108, Fenchurch-street, E.C.:—

W. Grear and Son ... £6,764 | Kingerlee and Son ... £6,025

Balaam Bros. ... 6,320 | T. Bray, Hornchurch ... 5,882

Coulson and Loft ... 6,066 | F. Wilmott ... 5,588

RUTHIN.—Accepted for additions, etc., to house, Brynhyfryd, and erection of schools, for the Governors of the County School of Girls. Mr. James Hughes, architect, Denbigh:—

W. Wheeler, Denbigh [Architect's estimate, £1,085] ... £1,125

ST. MARY CRAY.—For the erection of building works at Elingham Lodge, St. Mary Cray, Kent. Mr. St. Pierre Harris, architect, 8, Ironmonger-lane, E.C., and Orpington:—

J. Lonsdale ... £153 | Somerford and Son ... £120

Stebbings and Pannett ... 150 | *Accepted.

SALT BURN.—For the erection of stone bridge. Mr. Walker Stead, C.E., County Surveyor, Northallerton:—

Thos. Dickinson ... £2,200 0 0 | W. Blackburn ... £1,167 17 8

Jos. Bentley ... 1,500 0 0 | A. Atkinson & Co., P.O. Hetherington ... 1,333 10 0

Chas. Firth ... 1,250 0 0 | Yarm-road, Stockton ... 935 0 8

SNARESBROOK (Essex).—For erecting a house at Snarebrook. Mr. E. Bates, architect:—

Snawin Bros. ... £2,900 | Smith and Son ... £1,638

Smith and Son ... 2,887 | Wells ... 2,638

Jolliffe ... 2,670 | Holt and Sons ... 2,600

W. Shurmer ... £2,682 | *Accepted.

SOUTH SHIELDS.—For the erection of new laundry, mortuary, and alterations to the Ingham Infirmary, South Shields. Mr. Henry Grieves, architect, Albany-chambers, South Shields:—

S. Sheriff ... £1,704 0 0 | Crighton Bros. ... £1,618 0 0

James Young ... 1,655 3 8 | *Accepted.

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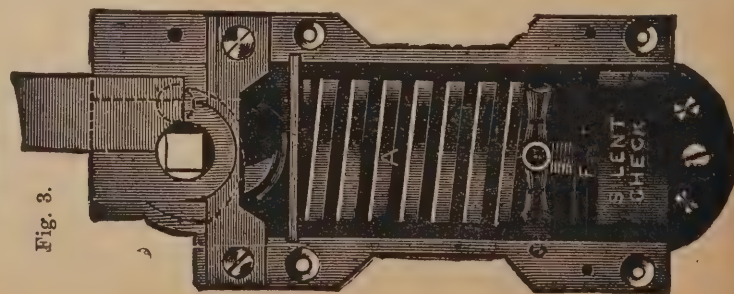
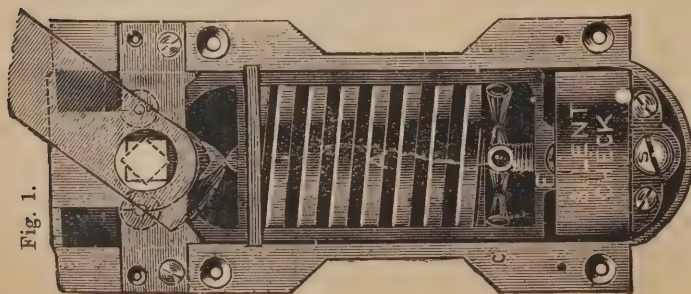
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STONY STRATFORD.—For the erection of road works, Wolverton-roads, for the Rural District Council. Mr. J. Emsons, C.E. of Northampton, Engineer to the District Council:—
Wm. Heap ... £1,085 2 0 | T. P. Robinson,
Wilson & Martin ... 881 0 0 | Wolverton* ... £829 13 9
*Accepted.

SWADLINCOTE.—For erection of shops and bakery at High-street, for Mr. B. Goodhead. Owens not included. Mr. Thomas Jenkins, architect, 35, High-street, Burton-on-Trent. Quantities by the architect:—
Lowe and Sons ... £1,360 | H. Edwards ... £1,250
E. Clarke ... 1,250 | R. Kershaw* ... 1,200
G. Hodges ... 1,250
*Accepted.

SWANLEY.—For the erection of a further block of eight cottages at Swanley, Kent. Mr. St. Pierre Harris, architect, 8, Ironmonger-lane, E.C., and Orpington:—
Stebbing & Pannett ... £1,848

WEYBRIDGE.—For the erection of convent of the Infant Jesus, for the Dames de St. Maur. M. de H. Duval, architect, 10, Gleneldon-road, Streatham. Quantities by Messrs. Thompson and Waller, surveyors, 20, Glasshouse-street, Piccadilly-circus:—
Patman & Fothering-ham ... £7,748
Brown & Son ... 7,630
Nightingale ... 7,493
Badecox & Maxey ... £7,150
Otway ... 7,010
Watson ... 6,990
Greenfield ... 6,985

WINDSOR.—For the erection of a residence and stabling, Bolton-road, Windsor, for Mr. A. W. Benyon. Messrs. Edgington and Summerhill, architects, Windsor:—
W. Satchwell, Egham ... £4,000
[Amended estimate.]

WORKSOP.—For the erection of offices, engine-house, &c., for Messrs. Steel & Garland, Limited. Mr. John Alsopp, C.E., Worksop:—
C. Beth & Sons ... £3,300 0 | R. H. Rawson ... £2,920 0
W. Hemstall ... 1,350 0 | W. Hall, Worksop* ... 2,870 0
T. Roper & Sons ... 3,041 10 | J. H. Vickers, Ltd. ... 2,840 0
Architect's estimate, £2,899 17s. 6d.
*Accepted.

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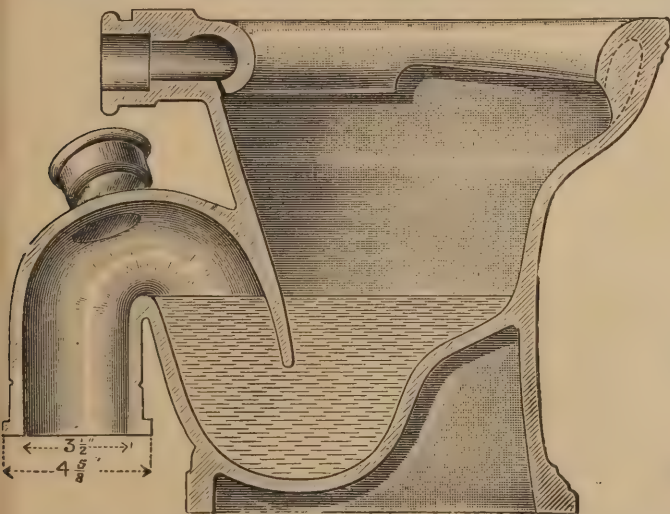
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IRON MANTELPieces,
OVERMANTELS,
MANTEL GRATES,
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RAILINGS, ENTRANCE GATES,
STAIR BALUSTERS,
COVERED WAYS, VERANDAHS,
FOUNTAINS, STATUES,
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The Governors of James Allen's Girls' School are prepared to receive TENDERS for considerable ADDITIONS and ALTERATIONS to the School premises situated as above.

Working drawings and form of Contract may be seen at the Office of the Architect to the Governors, ARTHUR J. GALE, Esq., 4, Serjeant's Inn, Fleet-street, E.C., between the hours of TEN a.m. and FIVE p.m., on or after NOVEMBER 17th next.

Builders wishing to Tender must send their names and addresses to the Office of the Architect before TWELVE o'clock noon on NOVEMBER 21st.

Each application must be accompanied by the deposit of a £5 Bank of England Note, which on the receipt of a bona-fide Tender will be returned.

Copies of the bills of quantities and form of Tender

will be sent to such applicants on NOVEMBER 24th next.

Tenders must be delivered to the undersigned at his office, Dulwich College, S.E., at TWELVE o'clock noon, on or before DECEMBER 1st next.

Tenders will be received only on the printed form, under seal, and addressed to the Chairman of the Governors.

The contractor will be required to enter into a bond of £1000 with two sureties for the due performance of the contract, and no work will be ordered under the contract until such bond has been duly executed.

The Governors do not bind themselves to accept the lowest or any Tender.

By order,

J. WATCHURST,

Clerk to the Governors.

RECONSTRUCTION OF SANITARY ARRANGEMENTS at Rinfrew-road Work-house.

The Guardians of the Poor of the Parish of Lambeth hereby invite TENDERS for this Work.

Tenders, which will be received only on the printed

form, sealed, and endorsed "Tenders for Sanitary Arrangements," must be delivered at the Offices of the Guardians, Brook-street, Kennington-road, not later than TEN a.m. on WEDNESDAY, NOVEMBER 30th next, and will be opened at the Board Room at NOON on the same day, when all persons Tendering, or their authorised agents, must be in attendance.

A form of Tender may be obtained, and the drawings and draft of contract may be inspected at these offices on any day between the hours of TEN and SIX. Specification and bills of quantities will be supplied on payment of 10s., which will be returned to each person sending a bona-fide Tender.

No Tender will be considered which is not accompanied by the bills of quantities fully priced and monied out.

The Guardians do not pledge themselves to accept the lowest or any Tender.

By order of the Guardians,

W. THURNALL,

Clerk.

Guardians' Board Room and Offices,

Brook-street, Kennington-road, S.E.,

November 2nd, 1898.

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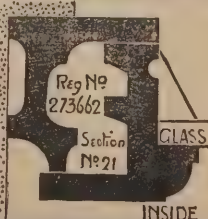
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Protective Metallic Coatings for Iron and Steel.*

By SHERARD COWPER-COLES,

Assoc. M. Inst. C.E., M.I.Mech.E., M.Inst.E.E.

(Continued from page xcix.)

HAVING briefly pointed out the importance of galvanising, and explained the nature of the results obtained, the author will now endeavour to give some idea of the process itself, more especially of electro-zincing, and a description of the plant employed. The first care in electro-zincing is to have a properly prepared surface; all traces of grease and rust must be removed. Machined work, which is usually very greasy, should be immersed for about half an hour before pickling in a hot solution of caustic soda, about $\frac{1}{2}$ lb. to the gallon of water. The work should then be placed in a hot pickle containing about 1 per cent. of commercial sulphuric acid. The author has found that a considerable saving of acid can be effected by placing a false bottom in the pickling tank so as to catch the heavier portion of scale as detached, the tray being removed after the day's work, and the scale collected. About 50 tons of acid are required for every 1000 tons of sheets such as are used for roofing purposes. The Admiralty specify that

ALL STEEL STEAM PIPES,

boiler and collector tubes, and all plates for boilers, are to be pickled in a liquid consisting of 19 parts of water and 1 of hydrochloric acid, until the black oxide or scale formed during the manufacture is completely removed. Plates should be placed in the bath on edge, and not laid flat. When taken out of this dilute acid all the surfaces are to be well brushed and washed to clean off the loose scale. They should then be placed in a bath filled and kept well supplied with fresh water or be thoroughly washed with a hose as may be found necessary, and then placed on end to dry. The effect of pickling and rusting on the strength of iron and steel has been shown by Herr A. Ledebur, of Berlin. Rails, joists and bars were subjected to various conditions: (1) in the condition as delivered; (2) after exposure for purposes of rusting; (3) zinc (galvanised) and tested at once; (4) galvanised and exposed for a time; (5) pickled in acid and immediately tested; (6) pickled and kept for a time in a dry place. The pickling was done in sulphuric acid diluted with water in the proportion of 1 to 100. The samples were tested for transverse, tensile and compressive strains, and under a falling weight, these experiments being made on the same sample for each of the six conditions.

THE BENDING TESTS

with wrought iron joists showed substantially the same for all the conditions, the maximum loads carried showed differences, being highest in the natural condition and lowest when freshly pickled. Rusting also produces a diminution of strength more apparent in the galvanised articles than in those not galvanised. In those instances where the specimens were broken, the diminution in strength is said to be very decided in the pickled, and perceptible in the rusted specimens. The figures are: breaking strain under condition 1, 35 tons; under condition 2, 33.9 tons; under condition 4, 32.7 tons; under condition 5, 29.6 tons; under condition 6, 30 tons. The steel specimens showed results which follow the same law. Mr. W. Thompson, in a paper read before the Manchester Association of Engineers, states that "When iron is placed in acid some of it is dissolved and hydrogen liberated. The gas is supposed to be of the nature of a metal, and as such it combines with and forms an alloy with the iron, which becomes quite brittle until the iron is heated and the hydrogen liberated, when it regains its tenacity. If a piece of wire be broken when it has thus become alloyed with hydrogen,

and the end wetted, the bubbles of gas may be seen passing rapidly through the water." This condition of things was observed and investigated by Mr. W. Johnson, B.Sc., of Manchester, and afterwards by Professor Osborne Reynolds, F.R.S. The latter showed that if an iron tube be closed at one end and filled with oil and placed in an acid solution, hydrogen is liberated from the outside, which passes through the wall of the tube, displacing the oil, so that the gas may be thus easily collected from the inside of the tube. There is a possibility, therefore, that

WHEN IRON IS RUSTING,

the hydrogen liberated may similarly combine with the iron and render it brittle, or reduce its strength, and this is a question of much importance to engineers. Some interesting experiments in regard to the decrease in the strength of iron after being pickled and galvanised have recently been reported. A dozen eye-bolts, all precisely alike so far as could be perceived by external inspection, were carefully selected. Six of these eye-bolts were laid on one side, and the other six sent away to be galvanised. A testing machine was at hand, and six bolts were connected together, one galvanised bolt being connected to each of the ungalvanised ones. Then they were placed between two pieces of iron and the nuts screwed up until the eye-bolts broke. Invariably it was found that the galvanised eye-bolts were the ones to break; not in any instance did the ungalvanised ones give way. Boat builders also state that galvanised iron is "rotten." They say that when great strength is required they select the iron and have the fittings forged by a good smith, but do not have them galvanised. Galvanised iron is frequently used in places

WHERE LITTLE STRENGTH IS REQUIRED,

but where rust would be objectionable. For this purpose, galvanised iron leaves nothing to be desired, but where the full strength of the material is required, and rust stains are objectionable, the object may be attained by cleaning them by the sand blast process, and afterwards coating them by the cold galvanising process; both of which methods are becoming well known and largely used for the above purposes. Sand blasting is often used instead of pickling, and for many purposes it is found to give better results, especially for cast-iron work, from which it is very difficult to remove the last traces of acid. The cost of sand blasting per square foot, under the most favourable conditions, including the cost of labour, sand, and power, is one-tenth of a penny, but the actual cost varies considerably with the nature of the work. When using quartz sand of the best quality the loss is about 10 per cent. each time it is passed through the machine; the loss when using chilled iron sand is very small, the waste of the material replacing more than nine-tenths of the apparent loss. In Government shipyards, where most of the iron has to be freed from scale, a small addition to the staff is sufficient to enable the same amount of work to be galvanised. Hitherto the great difficulty experienced in electro-depositing zinc has been to keep the electrolyte in working order, as zinc anodes, whether cast, rolled, amalgamated, or in the form of granulated zinc, fail to keep the solution up to its normal strength.

THE ADDITION OF ZINC OXIDE

has been suggested, but the cost is found to be too great, and at present a pure oxide cannot be attained at a reasonable price. The author has found the addition of zinc dust to the electrolyte to be the only practical method of accomplishing this end. The zinc dust, which contains about 75.5 per cent. of metallic zinc and usually a trace of cadmium, is cheaper in the first cost than virgin spelter, the use of it also considerably reduces the waste of zinc, as practically the whole of it is consumed. Zinc dust, or tultz, is a greyish amorphous substance, and must not be confused with zinc oxide; it is obtained as a sublimed product in the flues of the zinc-smelting furnaces. Small quantities of zinc dust are placed from time to time in the regenerating tanks, which are

connected to the depositing vats by a system of piping, the electrolyte flowing into the bottom of the depositing tanks by gravity, the lighter liquid being drawn off over a sill at the end or in the corner of the vat. It is found very advantageous to mix the zinc dust with sand or coke and thus form a filter-bed, if the zinc dust is allowed to get into the electrolyte it is found to increase the electrical resistance. A zinc sulphate solution containing 12.59 free acid after passing through a filter-bed containing 10 per cent. zinc dust, was found to contain only 0.68 per cent. free sulphuric acid. To obtain good bright deposits of zinc, it is necessary to keep the solution as free as possible from impurities; if the electrolyte is allowed to get too acid the zinc will be dark in colour and rough. The work to be zincd is secured to dogs fitted to cross bars, which rest on copper strips attached to girders carrying the anodes. This arrangement effects a considerable economy in the first cost of the plant. It has also the advantage of allowing the electrodes to be brought much nearer together than would otherwise be the case. The heavier classes of work are transferred from the vats

BY AN OVERHEAD CARRIER,

the lighter by a trolley running on rails. A special feature of the electrical process is that plates of very large dimensions can be speedily zincd on one or both sides, which is a matter of some importance now that plates of great length are being put in the straight run of steamers' hulls. The frames of such craft as torpedo-boat destroyers can also be galvanised after riveting up. The first cost of a galvanising plant having a capacity of 6700 gallons (30ft. by 6ft. by 3ft.) is about £600, which is but little more than that of a hot galvanising plant having a bath capacity of only 10ft. by 4ft. by 4ft. 6in. outside dimensions. Such a hot bath would hold 28 tons of zinc, which, at £15 a ton, amounts to £420. To keep this large quantity of zinc in a molten condition entails a heavy expenditure in fuel, the thickness of the iron bath averaging more than 1in. Moreover, the iron baths are a constant source of annoyance and expense, as the iron is dissolved by the zinc, resulting in the ultimate destruction of the tank. Table No. 2 gives the output of work of various sizes of electro-zincing plants. The cost of electro-zincing varies with the nature of the work to be zincd. The following is an estimate of cost of zincing 20 tons of plate in a working week of fifty-two hours, the average thickness of plates being $\frac{1}{8}$ of an inch, and the thickness of zinc coating one ounce per square foot:—

	£	s.	d.
Labour, piecework, at 1s. per cwt ...	20	0	0
Incidental expenses, 15 per cent. on labour ...	3	0	0
Yard labour, 10 per cent. on labour...	2	0	0
Zinc, 448lb. at £17 per ton ...	3	8	0
Royalty ...	3	9	8
Electrical energy, at 1d. per E.M.F. ...	2	18	0
Pickling, at 5s. per ton ...	5	0	0
Rent of building, at £2 per week ...	2	0	0
Interest on capital ...	2	17	8
Depreciation of plant... ..	3	17	0
Total... ..	£48	10	4
Cost per ton... ..	£2	8s.	6d.

Both pickling and hot galvanising have the disadvantage of reducing the strength of wires, and of distorting and rendering brittle iron and steel of small section. By exposure to the lowest working temperature of the hot galvanising bath (which averages some 1000deg. F., the fusing point of zinc being 775deg. F.), steel wire of high breaking strain has its hardness, and consequently its ultimate tensile strength and elongational efficiency, reduced by as much as from 5 to 10 per cent. by the drawing of the temper and the formation of an iron zinc alloy on the surface of the steel. It is the practice, when coating steel wire, to keep the bath of molten zinc at as low a temperature as possible, and to run the wire through at a high rate of speed. But these combined causes lead to a considerable waste of zinc by reason of the rapid solidification of the metal on a comparatively cold wire, and they also conduce to the ready breaking or

* A paper read before the Society of Engineers, on October 3rd, 1898.

cracking off of the covering metal on bending or twisting, owing to the difficulty with which molten zinc of low temperature adheres to the steel except after prolonged contact. In some cases the wire on leaving the bath is wiped between asbestos rubbers, but steel thus treated is found to resist corrosion only for a short period.

THE PROCESS OF HOT GALVANISING

is necessarily slow, because the time of passing the wire through the bath is fixed by the fact that the temperature of the iron must be raised to or approximately to that of the spelter. The speed at which a No. 12 wire generally travels is from 50ft. to 60ft. per minute. Experiments are now being made with dipping the coils or bundles of wire in a bath of molten zinc and then placing the coil in a centrifugal machine to remove the excess of metal. Many attempts have been made to electro-zinc wire, but until recently it has not been found practicable to produce a wire capable of withstanding more than one immersion in a copper sulphate solution. Most manufacturers have ceased to galvanise the best classes of steel wire (which cost some £35 per ton) on account of the great risk there is of rendering it worthless. This is unfortunate, for corrosion is found to be very marked on the inner strands of wire rope, and the advisability of protecting the steel is unquestionable. Electro-zincing does not reduce the tensile strength or increase the elastic fatigue of steel wire, even in wires having a tensile strength of 170 tons or more per square inch, such as are used in the manufacture of pianos. The zinc coating put on by the hot process is also uneven, and the increased weight is often a matter of consideration.

THE THICKNESS OF THE COATING

can only be varied within narrow limits, the minimum weight of zinc being about 1½oz. per square foot, the maximum 3oz., except when the molten zinc is raised many degrees above the most economical working temperature, and the articles are removed gradually from the bath so as to give the zinc time to drain off before getting chilled, or in the case of thin sheets and wires which are capable of having some of the zinc being squeezed or wiped off by rollers or other suitable mechanical means to reduce the amount of zinc to about ½oz. per square foot. A galvanised sheet of about 24-gauge was found to have a coating of zinc amounting to 8 per cent., the weight of zinc per square foot being 1·04oz. Excess of zinc has, as already observed, been removed from galvanised wire by passing it through asbestos rubbers, but wire thus treated soon rusts, as it is found in practice impossible to regulate the thickness of the zinc, the result being that an iron zinc alloy is formed on the surface of the iron and no true coating of zinc. The weight of metal on galvanised sheets or terne plates is usually ¾oz. per square foot. Wires can be coated with zinc by electro-deposition to a thickness of $\frac{1}{1000}$ of an inch, or an increased diameter of $\frac{1}{1000}$ of an inch, capable of withstanding eight one-minute immersions in a saturated solution of copper sulphate. A wire $\frac{1}{16}$ of an inch in diameter with a total thickness of $\frac{1}{1000}$ of an inch of zinc applied by the electro process will stand repeated bending round a bar lin. in diameter without exhibiting any signs of peeling or cracking. The vat for the

ELECTRO-ZINCING OF WIRE

is constructed of wood and lined with sheet lead. Wood covers are provided, which are also faced with lead and fitted with counter-weights so that they can be readily lifted for the purpose of cleaning the vat or inspecting the wires under treatment. The covers when in position form part of the anode, making electrical contact with the ridges, and thus forming a circular lead anode around each wire. The solution is circulated rapidly through the plating vat and passed into tanks supplied with zinc dust, where it is revived. Contact brushes, provided with weights or springs, press upon the wires in the spaces provided between two covers, collect the electric current, and at the same time burnish the zinc deposit. Another form of burnisher

consists of agate rollers, which are mounted on carriers capable of turning on centres. The carriers are arranged to turn on guides so as to respond to any unevenness or alteration of position of the wires; the guides carrying the rollers are pressed together by rubber bands or springs to give the necessary pressure for burnishing. To economise space the swifts are so arranged as to carry two coils of wire. Each swift is provided with two drums mounted so as to turn upon a spindle, the lower drum having a flange for supporting the lower coil of wire, there being between the drums, and secured to the spindle, a collar provided with pins or supports for carrying the upper coil of wire. The pins or supports are made so that they can be easily removed or turned out of the way. When the coil on the lower drum becomes exhausted, a coil from the upper drum, if unexhausted, can be allowed to descend on to the lower drum by removing the pins or supports, which can then be again inserted in the collar, and a fresh coil or coils placed on the upper drum.

VARIOUS ELECTROLYTES

have been suggested and experimented with from time to time. Elsner has experimented with ammonium chloride solutions, zinc lactates have also been tried. An electrolyte from which good bright deposits can be obtained is composed of 40oz. of zinc sulphate of 1·1770 sp. gr. (=19 per cent. of crystallised zinc sulphate), and 5oz. of ferrous sulphate to the gallon of water, the anodes being of lead. Ferrous sulphate (protosulphate of iron $2\text{FeSO}_4 + 2\text{H}_2\text{O}$ when exposed to the air oxidises into ferric salts ($\text{FeSO}_4 + 3\text{H}_2\text{O}$), especially when free acid is present. Two atoms of iron in the ferric state require 3 molecules of sulphuric acid to dissolve them and form sulphate, whilst in the form of ferrous oxide only 2 molecules of the acid are required; the free acid is thus consumed. The electrolyte when in good working order has a reddish-brown colour. The yellowish tinge of a freshly prepared zinc sulphate solution to which has been added ferrous sulphate, is due to hydrated ferric oxide in suspension, the solution retains the same colour after having been passed through a filter. A rusty brown precipitate of hydrated oxide is obtained on adding ammonia, and a deep blue precipitate with red prussiate (potassic ferricyanide). Potassic ferricyanide gives no precipitate from ferrous solutions, but potassic ferrocyanide gives a bright Prussian blue precipitate. The hydrogen set free at the cathode converts the yellow ferric sulphate into ferrous sulphate (green vitriol or copperas), and the oxygen set free at the anode tends to the formation of basic salts, some of the iron being converted into peroxide. A saturated solution of zinc sulphate at 10° C (density = 1·422 = 89·6oz. of $\text{ZnSO}_4 \cdot 7\text{H}_2\text{O}$ per gallon), has a specific resistance of 33·7; and about half saturated (density = 1·27 = 44·8oz. of $\text{ZnSO}_4 \cdot 7\text{H}_2\text{O}$ per gallon), the specific resistance being only 28·5 which is about the minimum value.

EXPERIMENTS

have recently been made with depositing zinc from orthophenol—sulphurous metaphenol—sulphurous acid and paraphenol—sulphurous acid. Messrs. Siemens and Halske have recently taken out a patent, in which they claim to overcome the formation of zinc sponge during electrolysis by the prevention of the supposed action of the zinc hydride ZnH_2 , and the nascent hydrogen in causing the production of zinc sponge by mixing with the neutral or slightly acid sulphate of zinc solutions free halogens, or such inorganic or organic halogen compounds (hypochlorous or hypobromous acids, or chlorhydrins of the glycols), which under reduction give off their halogens to the nascent hydrogen. Dr. Kiliani, of Munich, who was the first to recognise the importance of electro-motive force in the separation of metals, found that during the electrolysis of a solution of zinc sulphate of 1·33 sp. gr. = (76 ounces $\text{ZnSO}_4 + 7\text{H}_2\text{O}$), the anodes and cathodes consisting of zinc plates, the evolution of gas was greatest with a weak current and ceased when on one square centimetre of electrode surface 3 milligrammes of

zinc were precipitated per minute, that is 25·833 grains per square foot per hour. From a 10 per cent. solution the deposit was best with a current yielding from 4 milligrammes to 0·2 milligrammes per square centimetre per minute, or 3·46 to 1·78 grains per square foot per hour. From very diluted solutions the zinc was always obtained in a spongy condition, accompanied by evolution of hydrogen, with a strong current the deposit was very firm.

WITH WEAK CURRENT,

and from a 1 per cent. solution, oxide of zinc was also precipitated even with an electro-motive force of 17 volts, when only 0·0755 milligrammes of zinc was deposited per minute on one square centimetre of cathode surface (=·62 grain per square foot per hour). The same authority found that 2·35 volts were necessary to decompose zinc sulphate. Electrolytes made by adding caustic potash or soda to a suitable zinc salt have been found to be unworkable on a commercial scale, the zinc oxide formed on the surface of the anode being insoluble in caustic potash or soda. A solution of cyanide of potassium and zinc cyanide is also impracticable, both on account of cost and the insolubility of the anode. The same remarks apply to a potassio-tartrate solution, patented in 1855 by Watts, and made by dissolving 200 ounces of cyanide of potassium in 20 gallons of water, to which he added 80 ounces, by measure, of strong liquid ammonia. With this solution he filled large porous cells, and put them upright in a vessel containing the bulk of the solution. He placed strips of copper in the porous cells and a large zinc anode in the outer vessel, and connected them up respectively with the negative and positive poles of a battery, and allowed the current to flow until

ZINC HAD BEEN DISSOLVED

to the extent of 60 ounces in all, or 3 ounces to each gallon of solution. To this solution he added 80 ounces of carbonate of potash by dissolving it in portions of the solution at a time, and returning the dissolved salt to the bath. A fair coat of zinc is obtained with difficulty from zinc chloride and from the fused salt. One of the great impediments to the reduction of zinc on a commercial scale has been the tendency of the zinc, after depositing in a sound state for a short time, to come down in one of the varieties of the spongy deposits. The following is an analysis of zinc sponge obtained from a zinc sulphate solution containing a small quantity of ferrous sulphate:—

ANALYSIS OF SAMPLE OF ZINC SPONGE.

	Per cent.
Metallic zinc...	2·90
Zinc oxide ...	63·50
Total zinc, expressed as ZnO	67·10

	Per cent.
Zinc oxide ...	63·53
Zinc ...	2·90
Sulphuric anhydride, SO_3 ...	10·05
Silica ...	1·05
Copper oxide...	0·80
Lead oxide ...	0·07
Alumina ...	1·20
Ferric oxide ...	0·60
Lime ...	0·45
Chlorine and carbonic acid...	traces
Moisture and organic matter	19·33 (by diff.)
	100·00 per cent.

(To be continued.)

A new institute has been erected in connection with St. Paul's Church, Lower Teams, Gateshead. The cost of the building was £630. It has been built by Mr. John Anderson, of Newcastle, from designs by Messrs. Oliver and Leeson.

The temporary wire gates at the several jury entrances leading from the central hall of the Royal Courts of Justice to the various courts on the next floor, which were erected during the dynamite scare some years ago, have now been replaced by handsome permanent wrought iron gates, the design of which is in accordance with the character of the other ironwork of the building.

PRACTICAL CARPENTRY AND JOINERY.*

BY GEORGE ELLIS.

XI.—STAIRS.

(Continued from page ci.)

THE rise and going of the stairs must, of course, depend upon the situation, but should be proportionate to each other. Taking $5\frac{1}{2}$ in. as a standard rise for a 12 in. going, if $\frac{1}{2}$ in. be added to the rise, for each inch the going is reduced, and *vice versa* a good proportion will be kept. Another good method is to make the sum of two rises, added to the going, equal twenty-three; and to find the rise when the width of tread is given, subtract the given width from twenty-three, and half the remainder will be the rise. To find the exact rise of any stair when the total height is known, divide the height of the story in inches by the proposed rise; if the result be fractional, divide the height by the quotient, neglecting the fraction, the result will give the rise required—e.g., a story is 11 ft. 4 in. high, equals 136 in. divided by six, the proposed rise, gives $22\frac{2}{3}$; again, divide 136 in. by twenty-two, omitting the fraction, we obtain $6\frac{2}{3}$, practically 6 $\frac{1}{2}$ in. bare as the exact rise, with twenty-two steps, including the landing. Wall strings (when of deal) should not be less than $1\frac{1}{2}$ in. thick, and outer strings $1\frac{1}{2}$ in. When

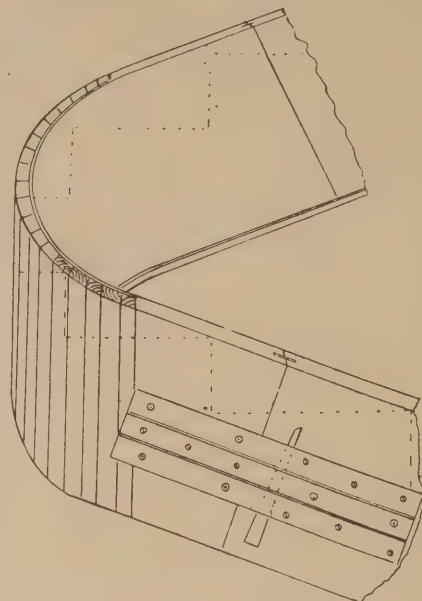


FIG. 174. METHOD OF FORMING AND FIXING A WREATHED STRING.

depth of $\frac{1}{2}$ in. to form a stop for the riser, which is glued against it, and secured with

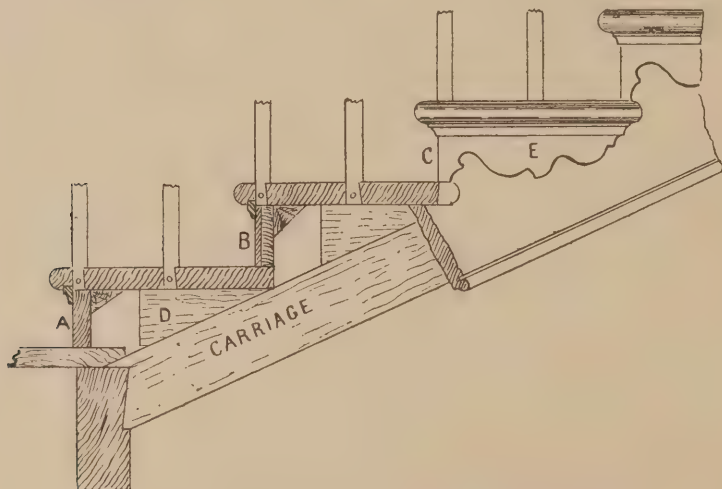


FIG. 173. DETAILS OF CUT AND BRACKETED STAIR.

these are cut, $1\frac{1}{2}$ in. is the minimum, as the available strength of the string can only be equal to the uncut portion, the width of which is determined by the depth of carriage to be employed, and plus the thickness of plastering (see Fig. 173). The verge or top side of wall string varies according to taste, but is usually about 2 in., measuring square from line of nosings. The thickness of treads must depend upon the amount of wear they are likely to be subjected to, and also to some extent upon the material. Teak, for instance, will not need to be so thick as red deal, from $1\frac{1}{2}$ in. to $2\frac{1}{2}$ in. is the usual range; from 1 in. to $1\frac{1}{2}$ in. is sufficient for the risers, as they are not called upon to resist much wear. The nosings should project from the risers an amount equal to the thickness of tread, and the scotia moulding sunk in a groove to a

angle blocks and screws, as shown in the detail Fig. 173. Treads should always run under the

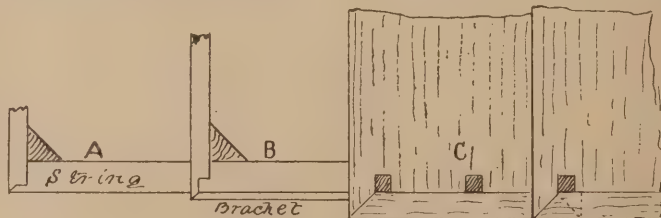


FIG. 173A. PLAN OF A CUT STRING, ETC.

risers, and be slot screwed to the latter, to allow of shrinkage; tonguing the riser into the lower tread is not advisable, as the shrinkage of the tread distorts the riser. The grain of winders should run parallel with the nosing. When each is made up it is housed $\frac{1}{2}$ in. into the string, and glued and wedged thereto; the whole of the fliers in a flight are inserted in the strings, and the lower newel attached, and the stairs erected, commencing at the bottom flight. The winders are inserted afterwards from the back, notches being cut out of the newel to receive them, where they are fixed by nailing. In close string stairs the balusters are stub tenoned into the capping, as shown in Fig. 168, but in cut strings they are dovetailed into the ends of the treads, and covered by the return nosings (see Fig. 173). The treads rest upon,

and are flush with, the outside of the string, the nosing running over to mitre with the return piece. The risers are cut to mitre with the front of string either in the solid as at A Fig. 173, or by lap mitre as at B. When brackets are used the lap of the riser must be long enough to mitre with them, see B in plan of same Fig. The wreath piece for the string of a geometrical stair (see Fig. 174) is formed by first bending a veneer of similar wood to the rest of the string around a cylinder or centre of suitable shape, and then glueing blocking pieces across the back, shaped to fit, and bringing the wreath up to an equal thickness with the string. When dry the back is worked off evenly and canvas glued on, the notches cut for the steps, these being marked on the veneer before bending, as shown in dotted lines in the sketch. The piece is secured to the strings, with tongued joints and counter-wedged keys. In inferior work a cane of suitable size is steamed and bent around the under edge of the wreathed string to form a stop for the plaster and hide the ends of the backing pieces; but in better class work a piece of square stuff is steamed and bent around the cylinder, then worked to shape, and fixed in position. Geometrical stairs, although they are very economical of space, and their curves may be made graceful and flowing, are essentially weak constructively, and should be well timbered to ensure stability. The carriages are birdsmouthed or bolted to the trimmers and pitching pieces, and the latter well wedged into the wall. A spandrel framing under is a great assistance. The open newel stair is the handsomest and most efficient type yet introduced, and given ample room it becomes a most imposing feature in a building. The strings may be open or close, the latter is more in keeping with the style. Newels and balusters should be substantial, and the rails wide and deeply cut, ramping into the newels at each end. The strings should be deep, and may be panelled with good effect. The tenons, of which there should be several small ones, should be short and stout, cut to fit wedging as they drive in, and be double shouldered. Where possible the newels should be continued down to the floor, but when cut should be shouldered and bolted to trimmers. The handrail should be tenoned and housed into the newel, and may be secured by a screw-bolt, which is preferable to pinning, as the latter shrinks and becomes loose and unsightly. The landings should be glued up in one piece, and secured to the joists with buttons. The strings of circular well stairs are made in two ways, both, however, needing a cylinder or mould made to the plan of the string and of sufficient length to build a section upon. In the first method the string is made up of several laminae, steamed

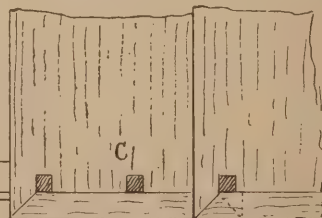


FIG. 175. PLAN OF CURTAIL STEP.

* All rights reserved by the author.

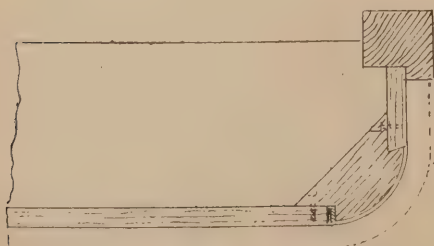
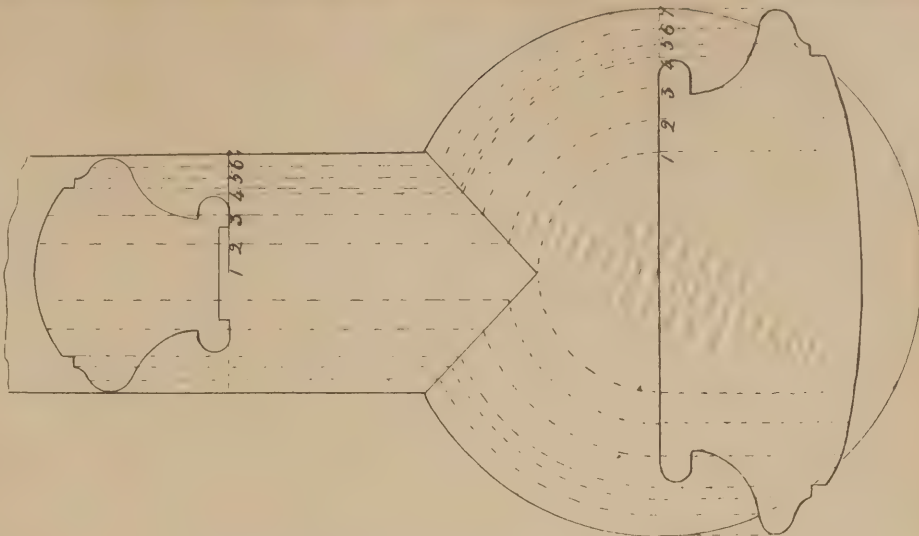


FIG. 176. PLAN OF BULLMORE STEP.

in position with wedges and screws. The blocks are built up in three thicknesses, with the grain of the pieces crossing to strengthen them. A method of setting out a scroll or curtain step is shown in Fig. 177, with an enlarged diagram of the centres in Fig. 178. Determine how far the scroll is to project, let A D equal the width, divide it into eight equal parts, make A B at right angles with A D equal to one part; join B D, upon the centre of A D describe an arc touching B D and cutting A D in C; from C as centre and C D as radius describe the quadrant D E, draw the line E H at right angles with D B, join C E, draw a line from B parallel to A D, cutting C E in 2, this gives the second centre of the scroll, with 2 as centre and 2E as radius describe quadrant E B, from C draw a line through



the intersection of EH and BD, produce it to cut B2 in 3, this will be the third centre; to obtain the fourth, draw a line from 2 through the intersection, and produce it to meet a line drawn from 3 parallel to CE, the remaining centres will be found by drawing lines parallel to those previously drawn, and will be obvious on inspection of the diagram. The scroll having been once drawn, its direction may be changed, or turns added, by producing the larger quadrant, or drawing straight lines where desired tangent to the curves, as shown in the dotted lines of Fig. 177. In Fig. 179 is shown the method of obtaining the true section of a mitre cap, for a dogleg stair when the section of the handrail is given. Draw the section of rail full size, draw the plan of the widest part, and a plan of the cap, of the size desired, next draw the plan of the mitre, the nearer this is drawn to the centre of the cap the thinner the latter will be; divide the profile of the rail into any number of parts and draw lines parallel to the sides of the rail, from these points to the mitre lines; draw a line through the centre of cap at right angles with the plan of rail, from the centre, with the intersections on the mitre line as radii, describe arcs cutting the diameter in 1, 2, 3, 4, 5, 6, 7, from these points erect perpendiculars to the diameter, and upon them set off the various heights, and intersections of the profile, occurring on the corresponding perpendicular of the rail, through the points thus found trace the curve.

At a special meeting of the Yarmouth Town Council, it was resolved to establish a system of electric trams in the town at a cost of £40,000. The tram route comprises eight short sections through central parts of the town, and a double line along the Marine Parade. The total length of tramway will be 3½ miles, and the corporation will supply motive power from its own generating station. The overhead trolley system of traction has been adopted.

Messrs. Morrison, Ingram, and Co. Ltd. announce that they have reduced their trade discounts on bath and brass sections of their catalogues $2\frac{1}{2}$ per cent., and that all nett prices of these goods are advanced 5 per cent.

five years ago, started an electric light installation, which at the time was thought to be a large one, as it consisted of 20,000 sixteen candle-power lamps. It was thought that this would last for a decade at least, but it did not last for twelve months. Since then there has probably been 70,000 lamps brought into use.

DATE OF DELIVERY.	WORK TO BE EXECUTED.	FOR WHOM.	FROM WHOM FORMS OF TENDER MAY BE OBTAINED.
	BUILDINGS—		
Nov. 9-21	Sophia (Bulgaria)—Public Offices	Bulgarian Ministry of Public Works	Commercial Department, Foreign Office.
" 11	Isle of Wight—Chapel		F. Sprack, Branstone, Hale Common, Isle of Wight.
" 11	Altrincham—Offices	Urban District Council	Offices of the Council, 16, Market-street, Altrincham.
" 11	Birmingham—Staircase, &c.	Workhouse Guardians	Mr. Ward, Paradise-street, Birmingham.
" 11	Keighley—Workshop		Barber, Hopkinson, & Co., North-street, Keighley.
" 11	Mallow—Repairs, &c.	Guardians	Board-room, Workhouse, Mallow.
" 11	Gate Bank—Farmhouses, &c.		Sames and Green, Gate Bank, near Blackburn.
" 12	Launceston—Market	Town Council	C. B. Peter, Launceston.
" 12	Coventry—Pumping Stations	Corporation	J. Mansergh, 5, Victoria-street, Westminster.
" 12	Exmouth—Rebuilding Inn	T. Radford	P. Sherwin, Manchester-street, Exmouth.
" 13	Bromley—Hospital Additions	Joint Hospital Board	J. Ladds, 7, Doughty-st., Mecklenburgh-sq., London, W.C.
" 14	Dunmore—House		Assistant Surveyor, Waterford.
" 14	Lossiemouth—Dining Hall, &c.		R. B. Pratt, County Bank House, Elgin.
" 14	Pentre—School Alterations	Treherbert School Board	J. Rees, Hillside Cottage, Pentre.
" 14	Wigan—County Court, &c.	Commissioners H.M. Works	H.M. Office of Works, Storey's-gate, S.W.

COMPLETE LIST OF CONTRACTS OPEN—continued.

DATE OF DELIVERY.	WORK TO BE EXECUTED.	FOR WHOM.	FROM WHOM FORMS OF TENDER MAY BE OBTAINED.
BUILDINGS—Continued.			
Nov. 14	Arbroath—Post Office	Commissioners H.M. Works	H.M. Office of Works, Edinburgh.
" 14	Cork—Offices	Electric Tramway and Lighting Co.	R. Walker, 17, South Mall, Cork.
" 14	Birkenhead—Baths	Corporation	C. Browridge, Town Hall, Birkenhead.
" 15	London, E.—Conveniences	London County Council	Architect's Dept., General Branch, 13, Spring-gardens, S.W.
" 15	London, W.—Coroner's Court Buildings	London County Council	Architect's Dept., General Branch, 13, Spring-gardens, S.W.
" 15	Cardiff—Fish Market, &c.	Corporation	W. Harpur, Borough Engineer, Cardiff.
" 16	Holbrook—School Works		E. F. Bissop, 32, Museum street, Ipswich.
" 17	Driffield—Church	Style and Gerrish	W. R. Sharrock, St. John's Church-room, Driffield.
" 17	Salisbury—Shop Additions		F. Batt. Crown-chambers, Salisbury.
" 18	Maryport—Rebuilding Vaults		C. Eaglesfield, Maryport.
" 18	Pitlochry—Public Hall		W. S. Pennell, Pitlochry.
" 18	Barrasford—School Additions		Armstrong and Knowles, Newcastle-on-Tyne.
" 18	Carmarthen—Bridge	County Council	County Surveyor, Shire Hall, Carmarthen.
" 19	Armlay—Chapel		W. Hanstock and Son, Branch-road, Batley.
" 21	Pontliff—School	School Board	James and Morgan, Charles-street Chambers, Cardiff.
" 24	Bridgend—Chapel		Giles, Gough, & Trolope, 28, Craven-st., Charing Cross, W.C.
" 30	Rhiwfaur—School	School Board	W. W. Williams, 63, Wind-street, Swansea.
Jan. 24	Dec. 1. London, S.E.—School Additions	Governors	A. J. Gale, 4, Sergeants'-inn, Fleet-street, E.C.
No date.	London—Tunneling Works	London County Council	Engineer's Department, County Hall, Spring-gardens, S.W.
"	Arnsdale—Shops, &c.		J. Stalker, Kendal.
"	Belfast—Stores		W. J. Moore, Whitehall-buildings, Ann-street, Belfast.
"	Belfast—Alterations to Inn		W. J. Moore, Whitehall-buildings, Ann-street, Belfast.
"	Belfast—Houses		W. J. Moore, Whitehall-buildings, Ann-street, Belfast.
"	Bishop Auckland—Roofs		Mr. Farr, Coachbuilder, Bishop Auckland.
"	Bradford—Residence		J. Jackson, Barry-street, Bradford.
"	Dalton—Alterations to Inn		Settle and Farmer, Ulverston.
"	Drighlington—Alterations to Inn		A. D. Kaye, 71, Albion-street, Leeds.
"	Kilbrandon—Church Repairs		P. Fisher, Kilbrandon.
"	London, S.E.—Rebuilding Houses		S. D. Bhabha, 8, Drakefell-road, St. Catherine's Park, S.E.
"	Utley—Residence		Judson and Moore, Keighley.
"	Wakes Colne—Six Cottages		J. W. Start, Cups-chambers, Colchester.
"	Whitehead—Sanitary Work		J. Russell, 16, Waring-street, Belfast.
"	Harrogate—Business Premises	J. B. Charles	Bland and Bown, Harrogate.
"	Chesterfield—Business Premises		W. C. Jackson, Chesterfield.
"	Burnopfield—Shop Additions		Mrs. E. Wilson, Burnopfield.
"	Leeds—Two Shops	Gibbs and Co.	W. Hill and Son, 25, Park-square, Leeds.
"	Liss—Residence		H. T. Keats, Petersfield.
"	Llandegreth—Rebuilding Bridge	Rural District Council	R. Derrett, District Surveyor, Usk.
"	London, S.W.—Flats		Tompkins and Barker, 41, St. Margaret's-road, Brockley.
"	Rotherham—Additions to Business Premises	W. Crooks	H. L. Tacon, 11, Westgate, Rotherham.
"	Ryhall—Repairing Bridge	Ketton District Council	R. M. English, Broad-street, Stamford.
"	Ulverston—Additions to House		Settle and Farmer, Ulverston.
"	Wealdstone—Stables, &c.		J. Hayes, Spencer-road, Wealdstone.
"	Bankfort, N.B.—Alterations to Church		W. Constable, 20, George-street, Edinburgh.
"	Clatterbridge—Workhouse Additions	Wirral Union	C. C. Francis, 5, Richmond-street, Liverpool.
"	Alcester—Workhouse Infirmary	Union	S. A. Gothard, Union Offices, Alcester.
"	Gateshead—Stone Premises		E. Bowman, 52, Westgate-road, Newcastle.
"	Larkhall—Additions to Houses		N. Dodd, Millheugh.
"	South Searle—Works to Parish Church		Vicar, The Vicarage, South Searle.
"	Lincoln—Shops and Offices		W. Mortimer and Son, Lincoln.
"	Canwich—Two Cottages		W. Scorer, Bank-street-chambers, Lincoln.
"	Darfield—Schools		A. B. Linford, Kelvin Cottages, Wombwell.
"	Bromley—Hospital Additions	Joint Hospital Board	J. Ladds, 7, Doughty-street, Mecklenburg-square, W.C.
ENGINEERING—			
Nov. 11	East Harling—Bridges	County Council	T. H. B. Heslop, County Surveyor, Norwich.
" 11	Hertford—Tubing	Guardians	Master of the Workhouse, Hertford.
" 12	Crosshill—Water Supply Works	County Council	D. M. Ross, Surveyor, Maybole.
" 15	Cockermouth—Hot Water Supply	Guardians	W. G. Scott and Co., Workington.
" 15	London, W.—Fire Engine, &c.	Acton District Council	D. J. Ebbetts, Surveyor to the Council, High-street, Acton.
" 15	Hanley—Refuse Destructor		J. Lolley, Town Hall, Hanley.
" 16	Knowle—Engines, &c.		W. J. Taylor, The Castle, Winchester.
" 16	St. Dogmells—Cistern, &c.	Rural District Council	D. Davies, Town Clerk, St. Dogmells.
" 21	Ashton-under-Lyne—Precipitation Tanks, &c.	Corporation	J. T. Earnshaw, Town Hall, Ashton-under-Lyne.
" 21	Broadhaven—Pier	Office of Public Works	D. and C. Stevenson, 84, George-street, Edinburgh.
" 21	Stafford—Stone Breaking Machine	Corporation	W. Blackshaw, Borough Engineer, Stafford.
Jan. 6	Johannesburg—Carburetted Water Gas Plant	Town Council	R. Whyte and Co., 22, Bury-street, St. Mary Axe, E.C.
" 24	London—Tunnel	London County Council	Engineer's Department, County Hall, Spring-gardens, S.W.
No date.	Barrow-in-Furness—Boilers	School Board	School Board Offices, Barrow-in-Furness.
IRON AND STEEL—			
Nov. 12	Taunton—Pipes	Corporation	Waterworks Manager, Municipal-buildings, Taunton.
" 22	Southampton—Valves	Corporation	W. Matthews, Waterworks Engineer, Southampton.
Dec. 19	London, S.W.—Rails, &c.		Agent General for Victoria, 15, Victoria-street, S.W.
No date.	Glasgow—Iron Roofing		Wilks, Sloan, and Co., 112, Bath-street, Glasgow.
"	London, S.E.—Steel Joists	London County Council	W. Adams, Belvedere-road, Lambeth, S.E.
ROADS—			
Nov. 12	Dewsbury—Paving, &c.	Corporation	H. Dearden, Town Hall, Dewsbury.
" 14	Anfield Plain—Road, &c.	Urban District Council	T. J. Trowsdale, Surveyor to the Council, Anfield Plain.
" 15	Dover—Materials	Town Council	E. W. Knocker, Castle Hill House, Dover.
" 15	Ryde—Road Works		J. T. Barton, 1, St. Thomas-street, Ryde.
" 15	London, N.—York Paving	Tottenham Urban District Council	F. E. Murphy, 712, High-road, Tottenham.
" 16	North Shields—Street Work	Rural District Council	J. Walters, District Surveyor, Long Benton.
" 19	Abertillery—Road	Urban District Council	J. McBean, 1, King-street, Abertillery.
No date.	Eccleshill—Streets, &c.		J. Crawshaw, Mount View, Eccleshill.
SANITARY—			
Nov. 12	Gowerton—Drainage Works	Rural District Council	J. Thomas, 32, Fisher-street, Swansea.
" 14	Blackburn—Closets	Health Committee	W. Stubbs, Municipal Offices, Blackburn.
" 15	Hertford—Sewers, &c.	Corporation	J. H. Jevons, Borough Engineer, Hertford.
" 16	Aylesbury—Sewage Disposal Works	Urban District Council	G. Fell, 1, Rickford's Hill, Aylesbury.
" 25	East Retford—Sewers	Urban District Council	J. C. Melliss, 264, Gresham House, E.C.
" 28	Stourbridge—Sewers	Drainage Board	W. Fiddian, Town Hall Offices, Stourbridge.
" 28	Thame—Sewers	Urban District Council	J. Taylor and Sons, 27, Great George-street, Westminster.
Jan. 15	Callao—Sewerage Works	Municipality	Commercial Department, Foreign Office.

COMPETITIONS.

DATE DESIGNS TO BE SENT IN.	DESIGNS REQUIRED.	AMOUNT OF PREMIUM.	BY WHOM ADVERTISED.
Nov. 18	Sheffield—Board School		J. Moss, School Board Offices, Sheffield.
" 24	Brightwell—Hospital		Wellington Urban District Council.
Dec. 31	Stockholm—New Stations		Secretary, Royal Administration Swedish State Railways.
" 1	Aberavon—Extension of Market	£21	Aberavon Corporation.
Jan. 12	Morley—Schools		Morley School Board, Gildersome-road, Morley.
" 2	Harrogate—Pump Room	£50, £30, £20	Corporation of Harrogate.
" 2	Harrogate—Alterations to Old Pump Room	£30, £20, £10	Samuel Stead, Boro' Surveyor, Municipal Offices, Harrogate.
" 2	Bradford—Fire Brigade Station	£100, £50, £30	Corporation of Bradford.
" 14	Burnley—School, &c.		Burnley School Board, Ormerod-road, Burnley.

Property and Land Sales.

Plasnet Hall Estate.—Fifteenth Sale of Freehold Building Land, close to the Romford-road.

MESSRS. TUCKETT and SON are instructed by the Trustees of the late John Gurney, Esq., to **SELL by AUCTION**, at the Princess Alice, Forest-gate, on **THURSDAY EVENING, NOVEMBER 24th**, at **SIX o'clock**, 20 very prominent **SHOP PLOTS**, in the best part of White Post-lane, and 64 Plots for private houses, having 16ft. frontages to the extension of Halley-road. Immediate possession. Free conveyances. Deferred payment. Interest 4 per cent.

Particulars of Messrs. **YOUNG, JONES, and Co.**, Solicitors, 2, St. Mildred's-court, E.C.; or of Messrs. **TUCKETT and SON**, Land Agents, Surveyors, &c., 2, Basinghall-street, E.C.

FAIRMILE PARK, near Cobham, Surrey.—A **FREEHOLD BUILDING ESTATE** of about 40 acres, with possession.

MESSRS. DRIVER and CO. have received instructions to offer to **AUCTION** at the **MART**, Tokenhouse-yard, Lothbury, **NEXT SPRING** (unless previously sold by private contract), the above property, situate in a favourite residential district, about a quarter of an hour's walk from the Oxshott and Fairmile Station, and about a mile and a half from Cobham Station. The estate comprises Building Land, ripe for development, the higher portion (sloping to the south) possessing charming views over the intervening country to Epsom Downs; and a Residence known as "South Lodge," with stabling and garden; Eight small Villas, some Cottages, and the "Griffin" Beerhouse. On a portion of the estate brickwork is being worked, and will be included in the sale as a "going concern."

Particulars and plans, when ready, can be obtained of **CHARLES JUPP, Esq.**, Solicitor, 48, Lime-street, E.C.; and of Messrs. **DRIVER and Co.**, 23, Pall Mall, S.W.

MESSRS. BOYCE and EVENS beg to notify that the **AUCTION SALE** of Timber and Building Materials at Lismore-gardens and Gordon-road, close to Gospel Oak and Haverstock Hill Stations, N.W., as previously advertised, has been **POSTPONED** until **ONE o'clock** this day (**WEDNESDAY**), **NOVEMBER 9th**.—Catalogues on the Premises, and at the Auctioneers' Offices, 92, Hoxton-street, N.

SURREY.—Choice BUILDING ESTATE.

—In a charming district, two miles from Horley station (L.B. and S.C. Rly.) under one hour from London and adjoining a village where are church, shops, and post-office; two miles from Roman Catholic Church.

FOR SALE, a compact and valuable **FREEHOLD PROPERTY** of 53 acres, with a frontage to the main Brighton road of 2000ft., and perfectly ripe for development, with residences of a good class. Prettily timbered. Gas and water mains along the frontage. Would be sold.

Plans and full particulars of the owner's agents, Messrs. **GREEN and SIMES**, Auctioneers and Estate Agents, Blenheim Mansions, Queen Anne's-gate, London, S.W., or Mr. **W. M. LEACH**, Auctioneer and Estate Agent, Crawley, Sussex.

CANNING TOWN, within five minutes' walk of Custom House Station.—A small Freehold Building Estate, comprising a little over six acres, ripe for immediate development.—With possession.

MESSRS. VENTOM, BULL, and COOPER are instructed to **SELL by AUCTION**, at the **Mart**, Tokenhouse-yard, on **TUESDAY, NOVEMBER 29th**, 1898, at **TWO o'clock** precisely, about **SIX ACRES** of valuable **FREEHOLD BUILDING LAND**, comprising the only uncovered land lying between Canning Town Station and the Recreation Ground, and possessing important frontages to the Freemasons and Prince Regent roads; tithe and land tax free.

Particulars may be had of Messrs. **HERBERT SAXELBY and Co.**, Solicitors, 7 and 8, Ironmonger-lane; at the **Mart**; and of the **AUCTIONEERS**, 35, Old Jewry, E.C.

To Builders, Joiners, and others.—Hastings-road, Bexhill.—850 Lots of **BUILDERS' and JOINERS' MATERIALS** and General Stock-in-Trade, nearly new Joiner's Plant, 3000ft. Seasoned Mahogany, Oak, and Teak, Workshop with iron roof, and other effects, which

MESSRS. WOODHAMS and SON have received instructions to **SELL by AUCTION**, at the **JUNCTION** of the **HASTINGS and SIDLEY ROADS**, this day (**WEDNESDAY**), **NOVEMBER 9th** 1898, at **ELEVEN o'clock**.

Catalogues may be had at the Auctioneers' Offices, Havelock-road, Hastings.

By **EDWIN FOX and BOUSFIELD**,
At the **AUCTION MART**,
On **WEDNESDAY, NOVEMBER 16th**, at **TWO**.
By Order of the Trustees of the late Edward Dewick, Esq., and another.

CITY of LONDON.—Walbrook.—FREEHOLD ESTATE, comprising No. 31, Walbrook, and No. 1, Bond-court, covering superficial area of 1790ft., well lighted and possessing the conspicuous frontage on the upper stories of about 38ft., with a depth of 53ft., thus affording scope for the erection of a handsome modern building for commercial or professional purposes. The site is at present covered with the very substantial five-story premises, for many years occupied by Messrs. Herring, Dewick, and Hardy, wholesale stationers, and is thoroughly sound, each floor carrying heavy weights. Possession on completion of the purchase. The property is thus available for occupation in its present form, for investment by re-letting, or for more profitable utilisation by creating a ground rent on building lease, or devoting capital to the erection of such a noble pile as will ensure a large return.

Particulars at the **Mart**; at Messrs. **EDWIN FOX and BOUSFIELD's** Office, 99, Gresham-street, Bank, E.C.; and of the Vendor's Solicitors, Messrs.

VANDERCOM, HARDY, and DOULTON,
25, Bush-lane, E.C.

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DESIGNS, WORKING DRAWINGS, PERSPECTIVES, ARCHITECTS, DECORATORS, & BUILDERS ASSISTED. INTERNAL DECORATIONS EXECUTED IN ALL STYLES.

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Black line Photo copies and Blue prints. Drawings inked in. Quantities, Specifications, &c., Lithographed and Typewritten. Standard charges. Tuition.

Sales of Estates, Houses, Property, Ground Rents, &c.

MESSRS. PROTHEROE and MORRIS beg to announce that their **SALES** of the above take place at the **MART**, London, E.C., the **LAST WEDNESDAY** in **EVERY MONTH** and on other days as required. Special attention given to the Sale of Estates in PLOTS.

Estate Offices, 67 and 68, Cheapside, E.C., and at Leytonstone.

Strawberry-hill, Middlesex. Within eight minutes' walk of the Station on the L. and S.W. Railway.

MESSRS. TOPPLS and HARDING will **SELL by AUCTION**, at the **MART**, E.C., on **FRIDAY, NOVEMBER 11th**, at **TWO o'clock** punctually.—

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An Architectural Causerie.

A Drastic Suggestion.

THE tyranny of the Trades Unions has before now formed the subject of much bitter controversy, but the newspaper warfares over that subject bid fair to be quite outdone by the present indictment against the men employed in the building trades. The heads of that indictment are organised idleness of Union men, aggressive and menacing conduct towards non-Union hands, and the alleged practice of suddenly and without warning demanding their wages and leaving a job, to the upsetting of foremen's calculations and to the delaying of contracts. By these means, says "London Architect," the cost of building has gone up by at least 25 per cent. To what, it will be asked, does the building trade owe the state of things now alleged? The answer must needs be that the situation is primarily due to four great compelling causes:—(1) The activity in the building trades which has caused a competition for the services of the bricklayers, plasterers, plumbers, carpenters, and others included in this indictment; (2) the steady growth of an aggressive form of Trade Unionism; (3) the fostering of a species of low cunning, instead of true education, by the Board Schools; and (4) the actual, though practically unnoted, spread of Socialism among the working classes. It will be observed that we are not concerned to defend the British Workman against "London Architect's" attack. Indeed, how could we, having had experience of him, honestly do so? That the plasterer should be the worst among his fellow-malingers, we can well believe, since it must be obvious that the technical details of his craft give him greater opportunities for idling and for wreaking wanton mischief than exists among the others. We are, however, inclined to doubt the "London Architect's" accuracy when he says, in effect, that workmen only work (or pretend to work) when they want the price of a drink. The British workman does not, as a matter of fact, drink nearly so much as he did, say, twenty-five years ago. He still drinks too much; we will allow, but he is not the sort he was wont to be. He is rather of that cold calculating nature which perceives the power of combination. Now combination is a weapon which, it is rather late in the day to observe, is open to use by all. Men have warred with it successfully before now, but so have masters. Let the building trade take its courage in both hands and fight the evils if necessary. No need to call in the tramway men, and the flotsam and jetsam of the labour market, to redress the balance, or to revert to building methods that have had their day and ceased to be. The issue could scarce be in doubt, although the fight may be protracted. The men, locked out for a proved conspiracy of idleness and destruction, could have little sympathy from the public, now that the subject is being so well ventilated in the public press, and they would have abundant leisure to deplore their evil courses

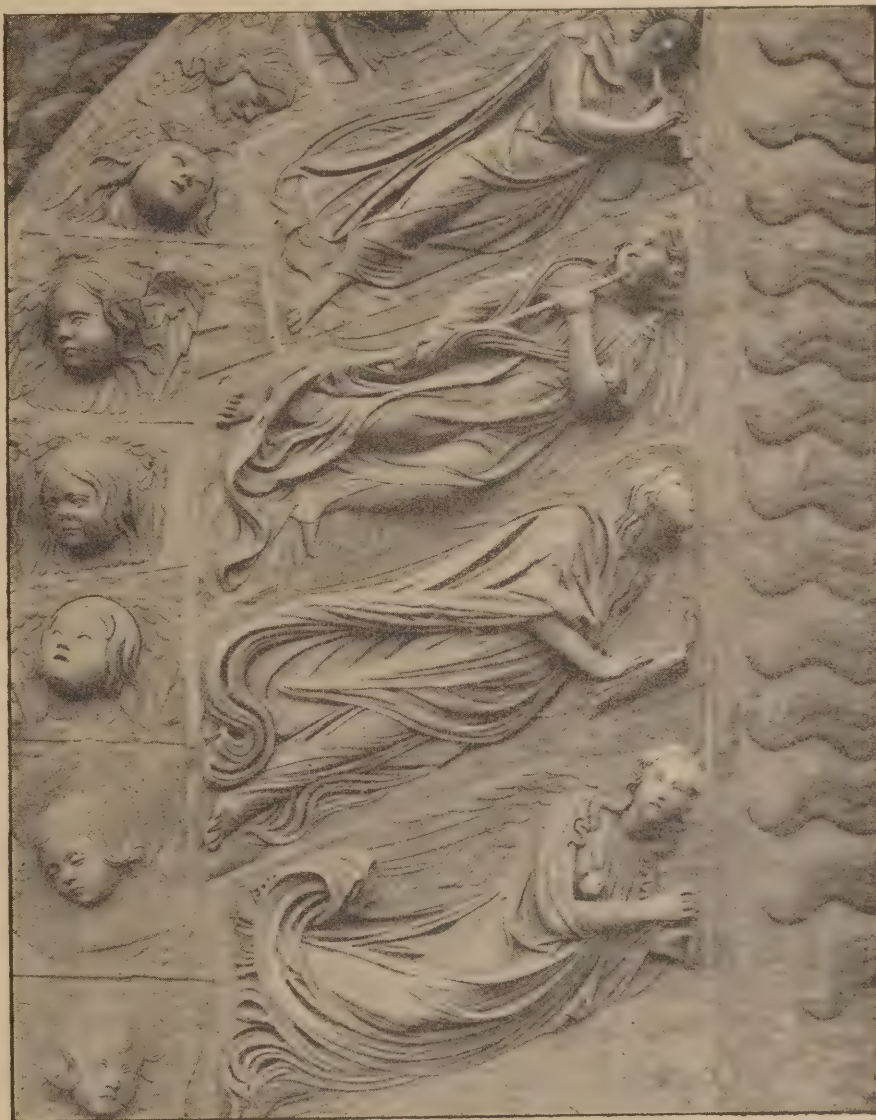
and to follow the latest racing tips in the evening papers, which after all, it should not fail to be observed, are at the bottom of half the mischievous signs of the times. The crusade against drink, which turned the soddened beast that was the working man of a generation ago into a more self-respecting citizen, needs to be succeeded by a campaign against gambling, which, as fostered by the halfpenny evening press of the Metropolis, is a more potent seducer from regular work than ever drink was.

C. G. H.

"A Question of Credit."

In the building trades controversy which has been raging in the daily Press, there is one point of view which is somewhat overlooked. The gist of the charges brought

this. Is it not really a manifestation, in this particular direction, of the new spirit which animates the workers all the world over—the settled determination to reap the fruits of their labour? We are told that whereas bricklayers would at one time lay from 800 to 1000 bricks per day, at the present day they will only lay from 300 to 400; but we are not told which is the fairest day's work. It seems to be taken for granted that 400 per day means laziness, without considering whether 1000 per day means high pressure and scamped work. It would be interesting to know the average number of years a man could work, putting in a thousand bricks per day, year in year out; whether he reached a hale old age, or whether he gave it up at forty—played out? and whether the work was done as well as it could be? Again, we are told that this action on the part of the workman raises the price of building, so



S. BERNARDINO, PERUGIA.

Vide ARTS AND CRAFTS AND THEIR RELATION TO ARCHITECTURE.

against the workman seems to be that he will do no more work than he pleases. His method of obtaining this end is described as organised idleness and systematic robbery. He is furthermore told that he drinks too much; which may be true, but beside the point. To this indictment Mr. H. R. Taylor, L.C.C., returns a trenchant *tu quoque*, containing remarks equally courteous, equally true, and equally beside the point. The matter is not simply one of the detailed management of building operations, it is a question of much wider significance, and will be settled by quite other methods than

that it costs the building owner 25 per cent. more than it did; but we are not told whether he still gets a fair value for his money. It is taken for granted that he is cheated out of this 25 per cent., without considering whether he used to get an unfair and usurious interest on his capital—at the expense of the lives of the workers—before the days of combination. Statistics on this point would also be interesting. "Surveyor" has a remark which seems to go more to the point, when he says that "where bricklayers will not lay more than 400 bricks per day on a thick straight wall, at so much per hour,

they will lay from 1000 to 1200 if paid by piecework." That is, they will work harder when they see that they, and not the contractor, are going to get the profit. If they will not put their hearts into their work, when another man takes both the profit and the credit, is it not natural? and who is in a position to cast the first stone at them. Is not this question of credit, of reputation, really at the root of the whole matter. Deep down in every man's nature, deeper than the love of money, is the love of applause. It is an elemental instinct of humanity. Men will do far more for fame, for love, for hatred, or for revenge, than they will for money; and even if we analyse the modern desire for money, we find it consists more of the craving for the power, influence, and consideration or credit which money now brings—the love of success for its own sake—than for the material comforts and luxuries. It may seem a little curious, rather "high falutin," to talk of fame—the goddess of emperors and kings, of heroes and poets—in connection with the British workman; but after all, he, with all his unlovely faults, is human; an emperor is no more. It is to be presumed that the elemental passions and instincts are common to both. We must also remember that, thanks to the recent spread of knowledge, the workman of to-day is not quite the same as he was twenty years ago. The board schools may not have taught him everything, but they have taught him discontent, and shown him that there are more things in heaven and earth—such things, for instance, as reputation—than were formerly dreamt of in his philosophy; and this is about as much as anyone ever learns. Although this question is not one which primarily concerns the architect, yet he, being anxious to obtain the best possible workmanship on the building, is interested in the methods of conducting the works in so far as they affect the results. Knowing also, from personal experience, how great is the incentive of reputation, he might be disposed to think that if some method could be arranged whereby the worker obtained the personal credit for his work, this work would be better performed. And in so far as the tactics complained of are directed against the contractor, and not against the building, it is the contractor's business to meet them. But if the architect does feel called upon, in the interests of the building, to interfere, he should recognise that every question has at least two sides—it is generally the other side which is the most illuminating—and so act more in the spirit of the conciliator than the violent partisan. We may bear in mind, also, that even though the present machinery of the trades unions were destroyed, there would still remain the spirit of discontent to be reckoned with, which would again find expression in possibly more serious form. If the object of this controversy is to expose the reasons which make building operations more expensive than they need be, this question of idle and negligent workmen is but one of them. There are others nearer home upon which any London architect could have discoursed with greater knowledge and authority. A. R. J.

THE Gresham Committee have received an offer of three further pictures for the decoration of the Royal Exchange. The offer is made conditionally, it is true, but the restriction imposed is so reasonable that the committee are not likely to experience the slightest difficulty in meeting the wishes of the intending donor.

A NEW school, erected by the School Board for London at St. George's Row, Ebury Road, Pimlico, was opened last week. The site was purchased at a cost of upwards of £9000, and the building cost £16,000. Accommodation was provided for upwards of 600 pupils—boys, girls, and infants—and it was proposed to add another room to the accommodation of the infant school.

TYPICAL NOTES.

Prof. Aitchison at the R.I.B.A.

PROF. AITCHISON'S inauguration address as President of the Royal Institute of British Architects, the concluding portion of which we publish in this issue, constitutes a thoughtful and useful contribution to his subject: "The Advancement of Architecture." It is unusual to find a man whose professional experience dates back so far as does that of the Professor, who yet retains an attitude of mind essentially literal, and in close sympathy with the architectural aims and impulses of the present day. Prof. Aitchison's criticism of certain erroneous modern tendencies was no cry of affronted conservatism, but a judicial discrimination of false from true, for which a long and varied professional career has given him remarkable qualifications. "I think the greatest obstacle to the advancement of Architecture," he says naively, "is the fact that the bulk of Englishmen do not care about it in the least," and in this, we think, he has just touched upon the heart of the matter. The architect is so bound and restricted by the needs and limitations of his Art that, unless his clients are in sympathy with his ideals, he can advise little. Prof. Aitchison's remarks upon planning, the choice of materials, and the use of wrought and cast iron in the fabric of buildings, are, we think, also worthy of particular attention.

An Underpaid Profession.

THE suggestive series of letters from our correspondents which we have published during the past few weeks upon the subject of the position of the architectural assistant have no doubt attracted a good deal of attention. The topic must be a sore one with many an unfortunate youth who has been led from the school bench and thrust into the river of architectural affairs without any real preferences or proclivities of his own towards the Profession, and who presently finds himself eddying round and round in a circumscribed orbit, with no apparent possibility of ever getting into the full flood of the stream. But these mistakes occur in other pursuits, and are due, not to the Profession, but to the shortsightedness of the subject of the calamity. An architectural practice relies quite as much on propitious circumstances as upon ability, and, unless a man is content to work for the sake of doing the work he likes, he is unjustified to enter the Profession without reasonable assurance of opportunities to open a practice. Most of our correspondents seem to forget that the order of "Architect" is of two degrees: Architect and Architect's Assistant. Registration, as suggested by one of our correspondents, would certainly improve the status of the architect, but it could not help the assistant; for registered or unregistered, if circumstances do not admit of his acquiring a practice of his own, he will have to take his place beside the architect's clerk, and do subordinate work for meagre pay as heretofore. The smallness of this pay for his work is occasioned by the number who are qualified to do the work. The difficulty or intrinsic value of the work done is of no concern. A glance at other Professions, however, will show us that the architect's assistant is not underpaid by comparison. A solicitor has to pay heavy fees for apprenticeship, and usually a heavy premium also. He has to qualify in general education, and has to pass two other stiff examinations, and pay further fees. He has to serve five years without receiving a salary, and after this what does he get? Nothing. Fifty pounds a year if he has distinguished himself and is fortunate, and the success of subsequent career relies as much upon circumstances as does that of the architect. A Doctor of Medicine has to be

a highly educated man, to complete a seven years' course of expensive education lasting six or eight years, and what awaits him at the end? If he is lucky £40 a year and board and lodging at a hospital. We must bear in mind, too, that architects cannot afford to pay high salaries. In the provinces circumstances vary a great deal, but we have been assured by two of the best known London architects that their office and incidental expenses come to *considerably more than half* the fees they earn.

Godalming Competition.

OUR special commissioner in his report on the designs submitted in competition for municipal buildings at Godalming, points out that the authors of the first award have failed to conform to the terms of the "conditions" in that they have placed the 10ft. approach to the fire-engine station in a different position to that precisely defined by the Council. This will naturally cause chagrin among those competitors who were possibly hampered in their designs by the restrictions as to the position of this passage way. At the same time we are always inclined in such a case to sympathise with the successful Architect rather than with his less fortunate rivals. It is impossible for any council—or, for the matter of that, any assessor—to grasp all the possible exigencies of a large plan, and when a competitor hits upon a brilliant solution of the essential requirements, it is certainly desirable that his prospective clients should benefit by his idea. It must be borne in mind, too, that the competitor who sets aside any of the specified requisitions of the conditions, does so, as he is well aware, greatly to the prejudice of his chances of success. If anything is to be regretted in such cases as these, it is that any precise restrictions as to plan should be imposed upon competitors.

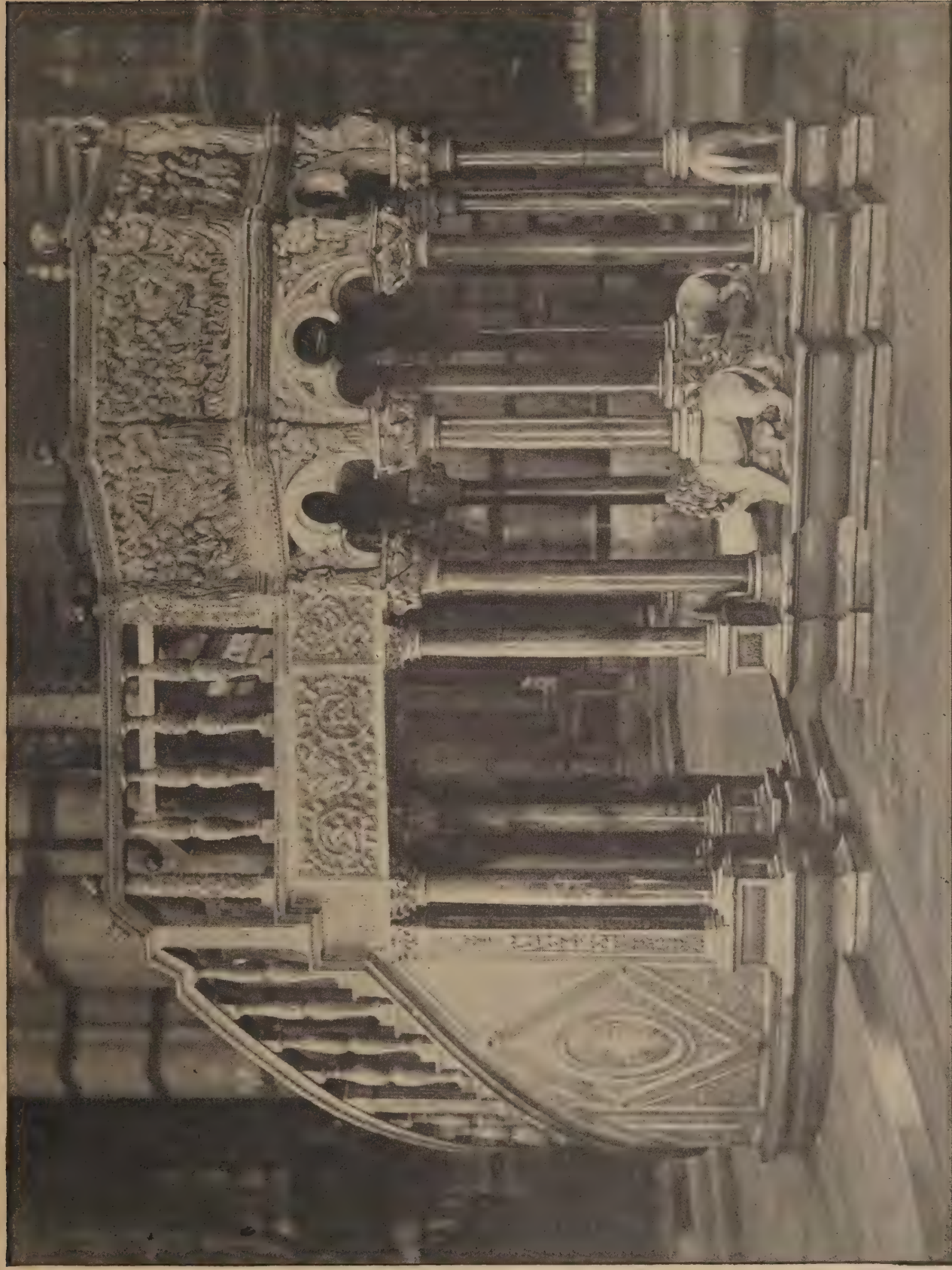
Cathedral Restoration at Dublin.

MR. THOMAS DREW, F.R.I.B.A., in a letter addressed to the Irish Times, calls attention to the decayed condition of the eastern chapels of St. Patrick's Cathedral, Dublin. It is curious to learn that the Bath stone of the original building, which dates from 1255, is generally in good condition, while the Caen stone, which was used in restoring this part of the cathedral some fifty years back only, is rotting and crumbling away. Mr. Drew's letter calls to mind the lamentable story of the great restoration of this cathedral in 1864. It was the founder of Guinness's brewery who offered to meet the expense of the necessary repairs, and he seems to have been given a free hand, for he dispensed with the services of an architect, and himself appointed a builder to conduct the work. A huge sum of money was spent, a lath and plaster vault was put in to supplant the old wooden roof, and the whole building was covered inside with cement plastering upon which joint lines were scratched. In many places the carved ornament was knocked off to facilitate the plasterer's work. It is satisfactory to realise that such vandalism would be almost impossible now, although, it is true, the case of St. Alban's Cathedral is sufficiently deplorable. At any rate, Dublin benefited by the error, for when, some years later, her second Cathedral of Christ Church, which for years had stood propped up and in semi-ruin, was restored, it was George Edmund Street who was commissioned to supervise the work. Curiously enough, it was a distiller in this case who found the money. The restoration proved a grave undertaking. The work of the north aisle through its entire length was thrust back into the perpendicular inch by inch by a system of screw-jacks, and the transept arches were raised bodily several feet. The Cathedral was practically rebuilt to the architect's design, and cost some £200,000.

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Vide ARTS AND CRAFTS AND THEIR RELATION TO ARCHITECTURE.



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ARTS AND CRAFTS

And the'r Relation to Architecture.*

BY H. WILSON.

THERE are certain phrases containing more or less microscopical portions of truth which only pass muster in those expansive thumb-in-armhole after-dinner moments when buttered aphorisms, like conventional oysters, slip from cloudy heights down the epigastric slopes into the clear champaign.

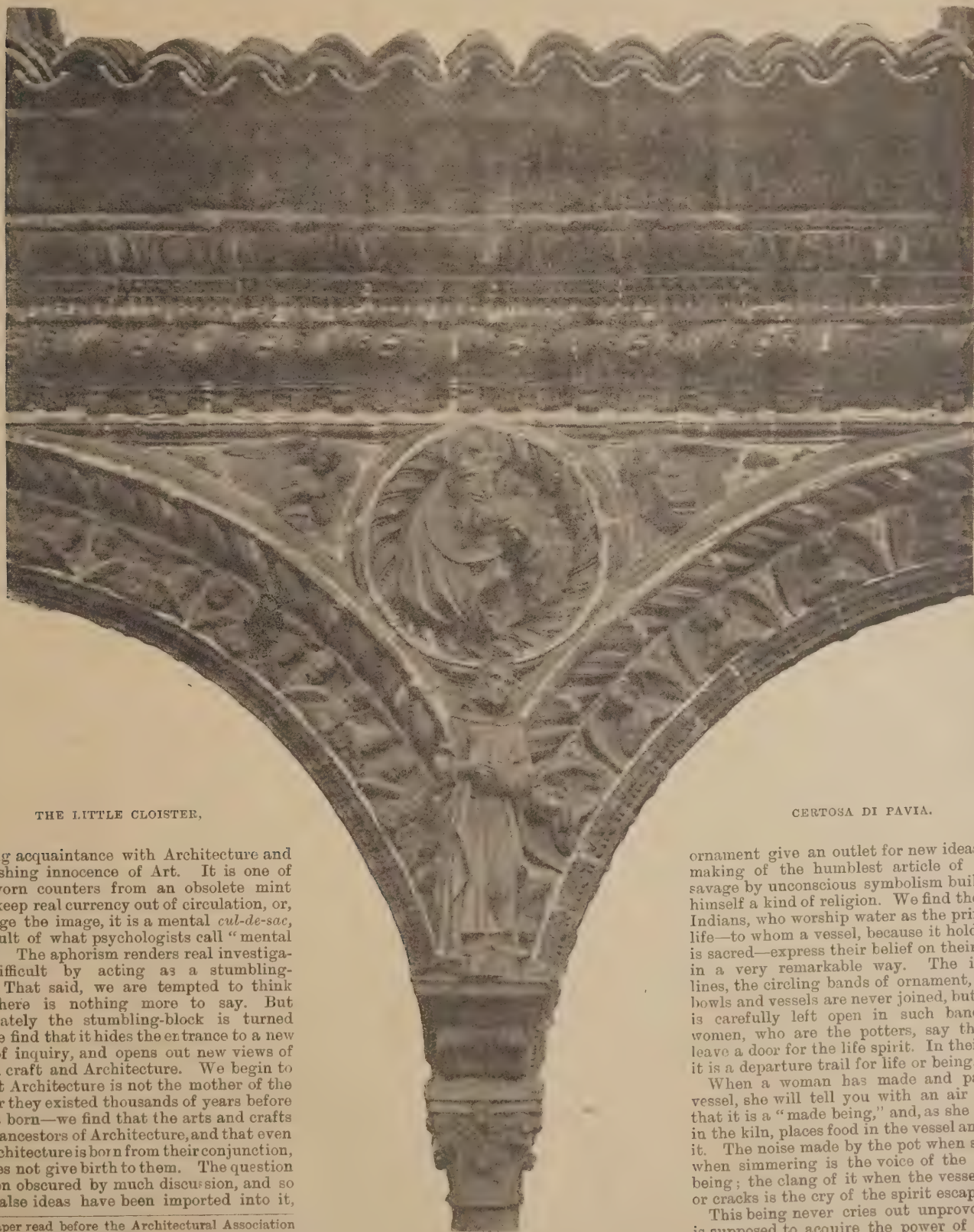
Among these abraded epigrams is this—Architecture is the mother of the arts—a dictum doubtless begotten by some wit with

that the right conception has been overlain by misconception and suffocated.

But if we go back to the beginnings of things, penetrate as far as we can reach into prehistoric origins, we learn at once that the art of personal adornment and the craft of tool-making come first in the evidences of human activity. The art of using tools is acquired in the making of them—the stone-weighted stick becomes a hammer—the splintered hammer becomes the axe.

From splitting skulls to splitting wood the transition was easy and natural. Besides the more immediately insistent needs of protection, shelter, and the satisfying of hunger, there arose in the very earliest times that other need of self expression. Full of wonder at the mysteries with which they were surrounded on every side—the dawn and the

darkness, the gloom and hidden terrors of the forests, the strange creatures by whom the earth was inhabited, the dangers real and imaginary in field and flood—the minds of our half-dumb ancestors were crowded with conceptions seeking birth. This birth they found in what we call art. They eked out their stammering utterance, their gesture speech, with rude-cut symbols. They spoke to each other in their work, and one feels that art—rudimentary if you like, but still art—was the first real speech of mind to mind; and, whether that speech took the form of decoration of weapon or bowl or person, it supplied an outlet for nervous pressure, and the labour of making relieved their minds from the obsessions of crowds of new ideas, new impressions, engendered by the beauties of the outside world. Not only did the making of things for use or



THE LITTLE CLOISTER,

CERTOSA DI PAVIA.

a bowing acquaintance with Architecture and a refreshing innocence of Art. It is one of those worn counters from an obsolete mint which keep real currency out of circulation, or, to change the image, it is a mental *cul-de-sac*, the result of what psychologists call "mental arrest." The aphorism renders real investigation difficult by acting as a stumbling-block. That said, we are tempted to think that there is nothing more to say. But immediately the stumbling-block is turned over we find that it hides the entrance to a new world of inquiry, and opens out new views of art and craft and Architecture. We begin to see that Architecture is not the mother of the arts, for they existed thousands of years before she was born—we find that the arts and crafts are the ancestors of Architecture, and that even now Architecture is born from their conjunction, and does not give birth to them. The question has been obscured by much discussion, and so many false ideas have been imported into it,

ornament give an outlet for new ideas in the making of the humblest article of use, the savage by unconscious symbolism built up for himself a kind of religion. We find the Pueblo Indians, who worship water as the principle of life—to whom a vessel, because it holds water, is sacred—express their belief on their pottery in a very remarkable way. The inclosing lines, the circling bands of ornament, on their bowls and vessels are never joined, but a space is carefully left open in such band. The women, who are the potters, say this is to leave a door for the life spirit. In their words, it is a departure trail for life or being.

When a woman has made and painted a vessel, she will tell you with an air of relief that it is a "made being," and, as she places it in the kiln, places food in the vessel and beside it. The noise made by the pot when struck or when simmering is the voice of the included being; the clang of it when the vessel breaks or cracks is the cry of the spirit escaping.

This being never cries out unprovoked, but is supposed to acquire the power of doing so

* A paper read before the Architectural Association on Friday, November 11th, 1898.



CENTRAL DOORWAY, ORVIETO CATHEDRAL.

by imitation, and no one whistles, sings, or makes any noise during the process of manufacture lest the being should imitate the noise, and by doing so crack the vessel and come out. Here we have art and craft as the early exponent and material source of early religions. In the South Seas we find that even the stone axe, from its associations with its maker, becomes first the symbol of the ancestor and later the object of worship. The handles of these sacred axes are carved by the "sacred men," who, during the whole process, chant songs and prayers to the gods that they may further the work and inspire the craftsman. Thus, as all the world over, the arts and crafts beget the first beginnings of expressed religion, and lay the humble foundation of the faith which made man "raise the soaring spires and sing his soul in stone." Out of arts and crafts all human achievement has sprung.

For we must remember that at this early period each man was an artist because he did not concern himself with art just as children do, and say and think beautiful things naturally; only when we teach them do they become affected and artificial. And all that our ancestors thought of was the suitability of the thing he was making to the use for which it was designed. The decoration of it was a natural instinct as those of sleeping or eating. Impelled by that unconscious passion for creation, as by a spiritual procreancy, the dimly comprehended beauties of the scene around him impinging on his perceptions stimulated his conception—pushed him out of himself into his work. His hut with its contents, was a little exhibition of the arts and crafts in embryo. We are looking at the remains of the first beginnings of Architect-

ture in the lap of time. Our ancestors were the primary craftsmen, and this art expressed his nature, gave form to his spirit, as the plant expresses the principle of growth—the life within the seed.

Nor was this all. The offspring of this primitive artist would naturally imitate their parent. Besides the inherited aptitude, besides his precept they would have the continual stimulus of his example to urge them on to other efforts on similar lines, and thus early arose families of craftsmen—with nascent traditions and methods of work. When the scattered families gathered into tribes and built their palisades, they joined themselves into families of craftsmen and formed the rudiments of a guild, a society within a society, a centre of social activity inside the new society!

Each member of the family worked out in his own craft the budding ideas of early symbolism, doing nothing without a definite object, more influenced by the wonder of the world around him than impelled by a conscious ideal of beauty, the character of his work was at first governed absolutely by the nature of the materials at hand, so that he found lines of beauty in the fracture planes of flint. Then by elaborating the rude notchings in the weapon haft he produced the intricate patterns on his paddle, or he evolved bands of ornament from the marks made by the cords, or the wicker-work moulds which bound together his first rude efforts at pottery. He was taught by difficulty and inspired by Nature. His mind grew as the plant grows, and his art was the fruit—the spore from which, under other conditions, a higher growth was to spring. When in the course of centuries the congress

of the families of craftsmen gave birth to the guilds, their power came not merely from the infinite slowness of their growth, but also from the infinite ramifications of the roots which each individual fibre of that organism sent back through each item of its ancestry into the remote past.

The guild became the wide-spreading tree rooted in society, under whose branches every human being sheltered. It was as much the natural product of evolution as the family or the human being—like the human being also it found its completest development late in history. The hereditary craftsman existed, worked, and trained his offspring long before city life attained any high development, but when that development took place, and corporate life sprang from the associated lives, then the formative idea the soul of the society and its governing power centred itself in the guild.

And when I say that the guild only came into corporate organised existence late in history, it is only late in relation to the time taken in the evolution of society, for in Egypt in some of the earliest monuments we find that the brotherhood of masons had existed long enough even then to become mythical; we find mention of the heavenly architect Ptah, who in conjunction with the chief of the brotherhood of masons, founded the temple of the heavens on the abyss of the waters. The master builder as prince priest and creator is thus bound up with the origins of the religion, the shrines of which in later times his descendants were to build.

Coming down to more historic times, we find that in the development of crafts from family industries to trade guilds, it early became a law that each man shall train his family in his own trade. In far-off Peru, in earliest Egypt and in India, this custom prevailed. It was the same all through Europe. In the Institutes of Theodosius, a Roman youth was compelled to follow the employment of his father, and the suitor who sought the hand of the daughter could only obtain the bride by becoming wedded to the calling of her family. So in mediæval France crafts were inherited, and also in England. Thus the branching of the family through generations into a number of kindred families, carrying on the same occupation, produced the germ of the guild and formed a distinct cluster in towns. In process of time came apprenticeship into the family circle to learn the trade. By-and-bye, with increase of trade, the master develops into the trader, and the workman into the citizen. Thus the craft guild is the typical form of the institution. As Lambert says when the townsmen of Stratford-on-Avon were required in the year 1381 to make a return to the King's Government as to the ordinances of their guild and the date of foundation, they made reply that as to its origin it was "Whereunto the memory of man reacheth not." The saying was a wise one. There is no institution which has had a wider distribution, or which reaches further back into the mists of ancient history, and there is, perhaps, no institution which has had a more important influence on human development.

Not only did the guilds mould and govern social life, they influenced religious life also, for there was then no distinction between the two. From almost the earliest times each guild was dedicated to some presiding genius, some to the Muses, some genius, or in Christian times to a special saint. In the Western world we have St. John, St. Michael, St. George, St. Crispin (cobblers), St. Peter (weavers), Our Lady of Pity, St. John the Baptist (tailors), St. Luke, St. Margaret, St. Barbara, St. Clare.

In the Eastern world we have Adam as the patron of the bricklayers, builders, and sawyers, Nimrod of the smiths, Noah of the carpenters, and Enoch watches over the workers of metal and the makers of copper caskets.

The important meetings and feasts were held on the festivals of the patron saint; the needs of the church were largely met by their funds—they gave windows, altars, reredoses, built chapels, chantries, whole churches even; and when we remember that the first meetings of the Christian Church in the first centuries were held as often in the guild halls, schools, or the

collegia, as in basilicas, and that in these guild halls with their apsidal ends, features absent from the pure basilica, we have the germ of the plan of the mediæval cathedral, we see how the guild has shaped the house of religion. Even in Phœnician days we find that the factories set up in the ports scattered over the Eastern and Western world were used not merely as places of business and halls for the guilds; they were established in the first instance and were continually used as places of worship sacred to the cult of various deities, and a contribution was raised on all the mariners visiting the port for the sustentation of those places of worship; and in the later period of the Empire, Syrian merchants, chiefly Apamean, are found settled not merely in all Italy, but in all the larger emporia of the West—at Malaga in Spain, in Gaul and Germany, at Bordeaux, Lyons, and Paris, at Orleans and Treves. They are found in these Gallic towns after the Frankish conquest, and Salvianus and Gregory of Tours both speak of them, and show that they retained their national customs and organisations. Here, then, at length, we find the Roman cities of Gaul, and probably also of Britain, with their Collegia and Sodalicæ, brought into close contact with the trade associations of the Syrians, representing the Greek and Phœnician tendencies of the commercial East. We must remember that the commerce in those days compares very favourably with the present day. In Central Asia, in Tibet, and Mongolia the plains now known only to scattered colonies of shepherds, or the ignorant inhabitants of isolated villages, were once dotted with flourishing cities, the capitals of powerful kingdoms, bound together as by bands by great trade routes traversed continually by crowded caravans. Merchants from Macedonia found their way to farther China, and threaded the passes of Afghanistan and Cashmere on their way to the Hindoo peninsula. Then from all these countries came traders, themselves masters of some craft, travelling with their wares over the Indus, over the Euphrates to Syria, up the Oxus to the Caspian, thence to the Black Sea and Europe. Now Central Asia is waste, the Oxus no longer flows into the Caspian. The streams of caravans have ceased, and life flows in other channels.

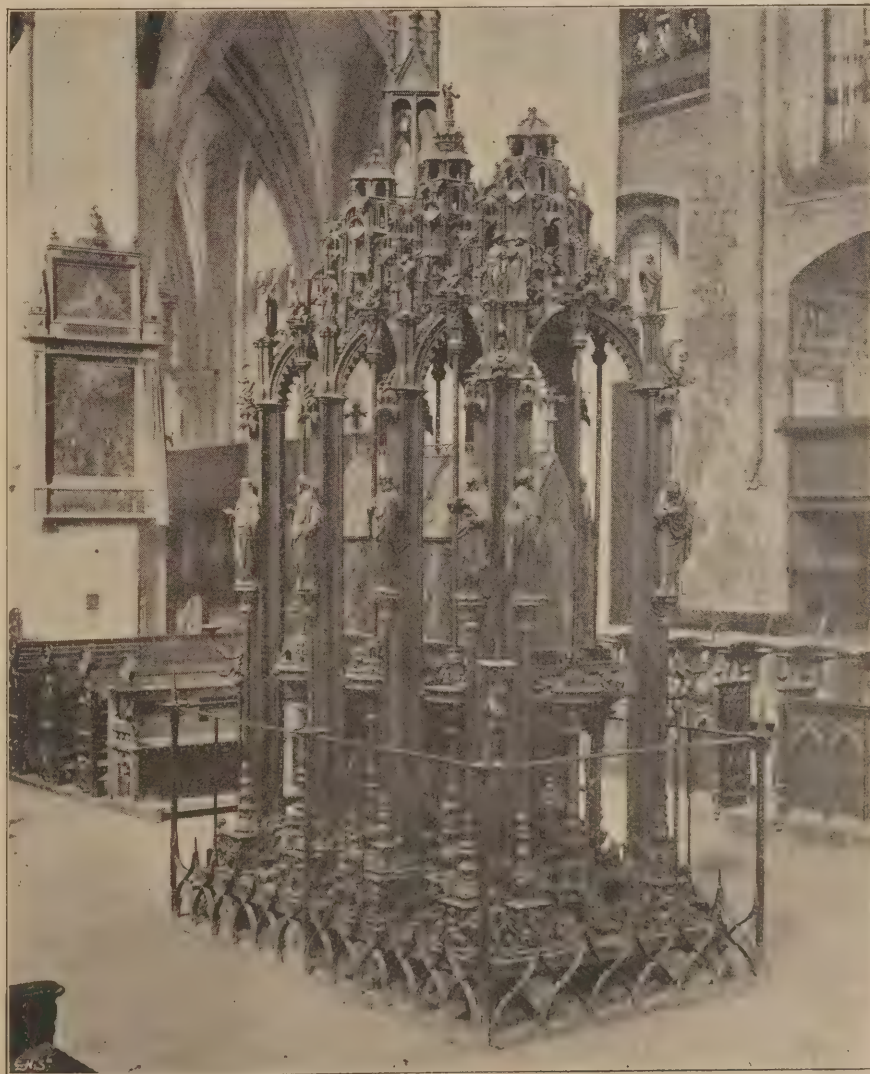
The Phœnicians, with their fellow-civilisations, have faded utterly away. Through their descendants the Greek-speaking Syrians continued their work. But imagine the influence of these wandering guildsmen and their descendants exerted while they lived. Can we wonder that Architecture is a romance book when it was written by men who came daily into contact with these living records of adventure—men with minds stored with strange legend, full of fascinating tales, who threaded the ways of Western Europe, resting awhile at each notable town, the guest of their own or the local guild, where we picture them seated with the master and the wardens at the high table, the swarthy, prick-bearded, keen-eyed Syrians, recounting adventures, pouring out traveller's tales to the open-mouthed craftsman, who from this living book got an inkling of Oriental learning, heard the latest legend, heard of the last new statue, carving, or masterwork in metal, made by members of the Eastern guilds. He would see open before him bales of strange stuffs; the guildsman would display his bronze and silver ware, his belts and brooches, his earrings and bands of gold, and all, from the master to the apprentice, would drink in the influence of the East, as mystical as wonderful to the Western then as now. Thus we get the guilds as the disseminators of culture, distributing centres of intellectual force as well as shapers of society. They were publishers of living, useful knowledge, loops in the network of organisation which art and trade, even in those early times, had thrown over the civilised world.

The influence thus gained by these organisations naturally fluctuated—wars, tumults, invasions, each brought disturbance and destruction with them. But guilds founded on an unchanging human principle grew steadily in power until, in the Middle Ages, in England and the Continent, as Dr. Lambert says, the whole municipal, industrial, and social life moved in the circle of the guild. The guilds

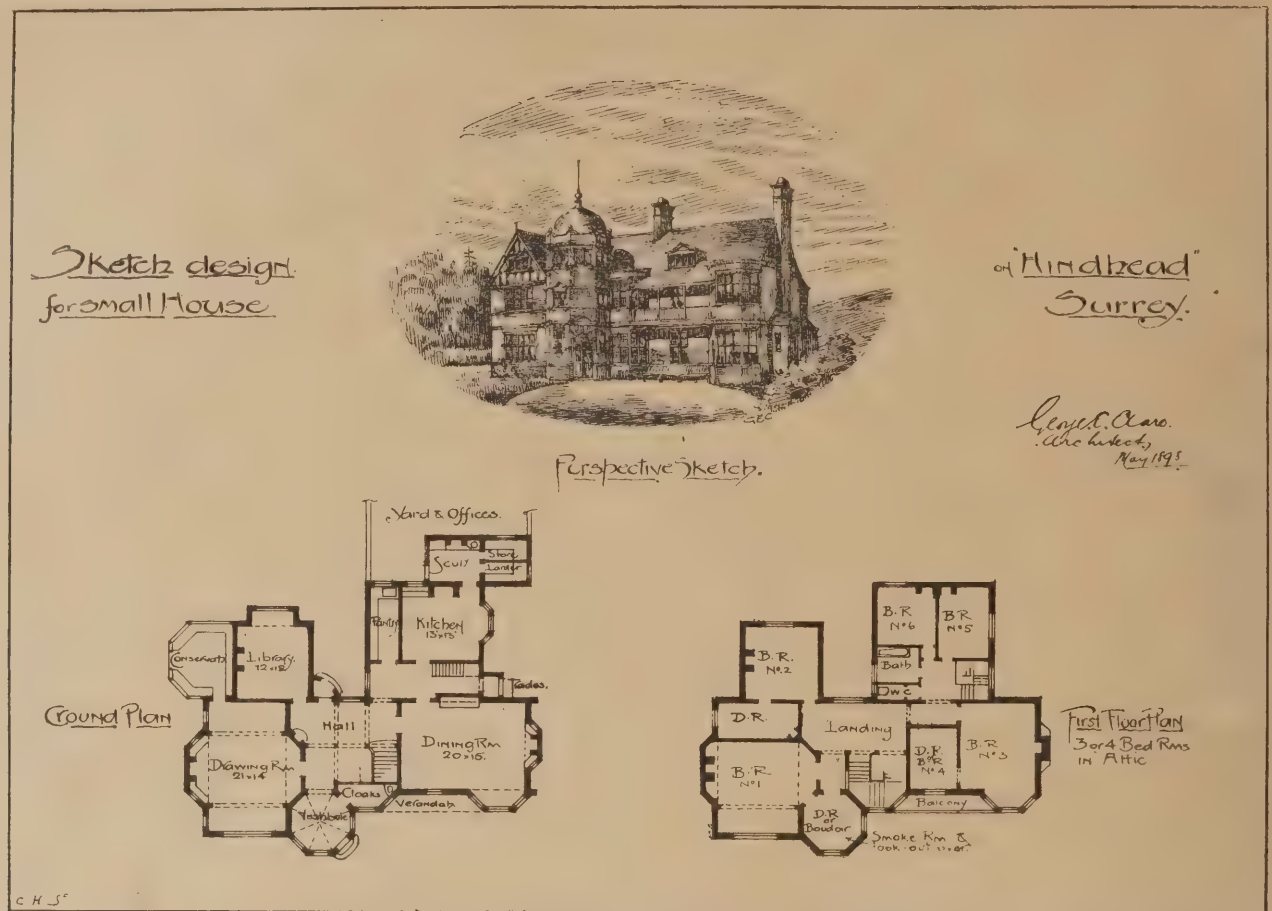
were the chambers of commerce, the friendly societies, the trades unions, the freemasonry, joint-stock companies, the militia, and the police, and in a way were local Parliaments. As early as the end of the twelfth century the Rectors of the Art Guilds in Italy assisted the Podesta, or supreme magistrate, in governing and ordering the cities in which they lived. More than this, the guildsmen, by their shows, pageants, and miracle plays, provided largely for the amusements of their times, and laid the foundation of dramatic art, which later was to give us Shakespeare, Molière, Goethe. They were at once the heart and brain of their people, and in studying their history we are carried back and plunged into that throbbing life which though it produced them they directed, and we see in what an extraordinarily simple way the whole thing was managed. Members of one great family, they sat beside each other in the feasts, played in the miracle play, rode in the pageant, fought side by side with the others, and in siege time together paced the ramparts; they helped each other in distress, saw that likely youths were made apprentices, and sang masses and burned candles before Our Lady for the peace of the souls departed. In studying their records and their works we are touching the living body of a living society; we walk with the young apprentice through the narrow streets to his master's shop; we learn the secrets of the counting house, the mysteries of the crafts, and we understand how it is that our fathers did these wonderful works which we emulate in vain, and how futile it is that isolated individuals should try to imitate or repeat what were the products of wide-based, close-linked society, instead of seeking the same harmonious and intimate relations with their surroundings which our fathers established,

and working out ourselves naturally on the firm basis of individual craftsmanship. But the origins of this want of harmony with our surroundings are to be seen even in the works of the best period of the Renaissance, for after the ebb of that tide of effort which gave us the fine early work at Verona, Venice, and elsewhere, we see traces of the intrusion of the designer into other spheres. We have the painter and the sculptor designing for the metal worker, not executing the work for himself, but getting others to do it, and this invasion of the designer soon developed into the establishment of design as a separate faculty as we know it now.

To return for a moment to the consideration of the prehistoric crafts from another standpoint. These integers of design, detached, disunited, the scattered seeds of Architecture, yet contain in themselves the essence and the promise of the highest art. The natural craft, the uncultured artsmanship, was limited in range and achievement, because it was the product of isolated minds, but when men banded together the gestation of Architecture advanced another stage. The work of each man was modified in aim and character by that of his fellow, just as the single circular cell of the primitive bee became hexagonal when clustered with other cells of other bees. The comb is the logical outcome of bee-society. In like manner each of us is modified by contact with other natures, in the close-packed human crowd. As the body is built up of cells, each modified by the position and functions assigned to it, but each aiding by adding its individuality to the general system—in the production of the complex organism man—so man as an infinitesimal item comes with his instincts and faculties into the social system is modified and developed by new conditions into a newer and higher being. His art has



SHRINE OF S. SEBALDUS, NUREMBERG. BY PETER VISCHER.



DESIGN FOR A HOUSE IN SURREY. GEORGE E. CLARE, ARCHITECT.

undergone precisely similar changes. The rudimentary arts of our ancestors, when brought into mutual contact, were changed in character and raised in aim though their fundamental nature is the same. The personal arts were the individual components out of which the body of Architecture was ultimately to be shaped. The self-centred, single-expression art has become a social expression. The man, no longer concerned solely with himself, is informed by a new spirit. The scattered items are united by the social idea—the work of those items in every department of life is shaped and guided by the spirit of the race, and is the material expression of that hidden life, guiding soul, which everywhere animates society.

Architecture is thus a complex art, a social art; it has never been and never can be a one man art, as painting and the crafts, any more than a body can be composed of only one cell. And as that material envelope of the human spirit we call the body is the absolute expression of the human soul, so that material envelope we call Architecture is the absolute expression of past states of the racial soul. This it is which gave the artists such strength in the past. His was not a detached existence, a separated, solitary-studio life; he had the whole body of the people behind him. He was the point with which the nation wrote its history. He was the tool of the race. And were we psychologists enough, were our powers of divination great enough, we might read in the open scroll of building not only the history of the actual craftsman, but the history of his time and people, and gain a graphic idea of the growth of mind. This because the craftsmen were the means of Architecture—and the buildings were the opportunities of craftsmen.

The key to human development is found in evolution, and the key to Architecture also is found in the gradual evolution from arts and crafts unconsciously. It is the unconsciously produced record of mental development. It is a kind of spiritual skeleton. A cathedral with its innumerable cells and vaults, its pillars, spires, and pinnacles, bears the same relation to the complex organism which produced it that a sponge bears to its secreting cause. It, like

the sponge, is the symbol, the formula, the evidence, of vanished life. Our judgment, therefore, of the cathedral as a thing in itself, merely as the production of the conscious art of one man, is as valueless as a criticism of a sponge would be made by a man who had never seen the living animal.

Just as the sponge is built up under the stimulus of the life of it by the labours of countless silica secreting cells—each cell the descendant of a long line—so the cathedral is made by a number of stone-laying organisms under the stimulus of the collective life, religion, enthusiasm, ordered by the directing mind of the master, who is himself but the servant of a greater power. All the separately acquired skill, all the individual art and craft, all the personal life of each individual is fused into the general mass, and is there given new importance by sharing in that mass. The building is enriched by the work of the individual item, and that work is in turn ennobled by being part of the building. The harmonious aggregate of the personal arts becomes the impersonal, the human—the racial art of Architecture. What is true of the great things is true also of the lesser. The lower order of buildings, to use the common distinction, were produced by humbler organisations, and, because they were the simple direct and logical outcome of special social needs, were beautiful in structure with the beauty that one feels in a leaf, a plant, a shell. The work was beautiful not so much because beauty was sought, but because the work was the natural expression of the lives of men in harmony with their surroundings. Its value to us is in the unconscious evidence it gives of the minds of those who produced it. For what is most precious in our own work is not what we consciously seek for, nor what it is our will to express, but what we unconsciously reveal of ourselves, our race, our society, our condition.

(To be continued.)

A new aisle has just been added to St. John's Episcopal Church, Aberdeen. The architect was Mr. Arthur Clyne, Union Street.

Godalming Municipal Buildings Competition.

BY OUR SPECIAL COMMISSIONER.

THIS competition was advertised early in March, and architects willing to compete were required to send in their names by a certain date. Forty-five applied, and from these the Council selected eleven to compete, the original limit as to cost being extended from the £5000, as at first advertised, to £7000, and Mr. Mountford was appointed assessor. The site struck us on our first visit as somewhat unworthy of a public building of this character, as it is not in the main street, and lies very low, and moreover has a very high ground-water level. An existing concert and drill hall occupies about half this site and frontage, leaving a long and narrow piece for the new municipal offices and fire station. There is also a second but inconvenient entrance to a side road from the back of the site.

The schedule of accommodation was as follows: Ground floor—Court room, magistrates' and witnesses' rooms, surveyor's and sanitary inspector's offices, strong room, rate and water offices, an armoury, and the usual conveniences; fire engine house and men's room and hose-hoist tower, and a number of stables and sheds at the back. First floor—Council chamber, committee room, town clerk's offices, and conveniences. Caretaker's rooms had also to be provided, and the front of the existing hall re-erected in harmony with the new work, the exits re-arranged and a gallery provided, and a space of 20ft. reserved at the back of the hall for future extension. Minimum sizes were given for all the more important rooms, and the conditions required that the resulting areas should be equivalent if the dimensions were varied. The most important of the conditions related to the fire engine house. If this were placed in the rear of the old hall, a



PAIR OF VILLAS AT CHELMSFORD. GEORGE E. CLARE, ARCHITECT.

10ft. way was to be made a *sine qua non* next this hall, but if placed at the front a 6ft. way was admissible.

Of the eleven selected architects eight only sent in plans which we propose to criticise in the assessor's order and the remaining five in rotation as numbered.

The first place is allotted to Messrs. Lanchester, Stewart, and Rickards (No. 1), and their design is very pleasing, notwithstanding its attenuated appearance. The plan is good, bar the very ill-lit corridors, but it emphatically contravenes the conditions, as they have put the fire engine house at the back of the site and only put an 8ft. way next the Hall. They have put a way next Mr. Bradley's property 9ft. 6in. at its narrowest point. It seems, therefore, very unfair on the other and more conscientious competitors, that this design should have been placed first, more especially as the site plan supplied was coloured to show this particular 10ft. way next the Hall. No. 1 also places the magistrate's room at the end of their 8ft. passage, so that when the stipulated 20ft. is used for future extensions at the back of the Hall this room will be much in the way. The entrance hall, corridors, and main staircase are all badly lit, as also are the sanitary inspector's room, the armoury and surveyor's office.

The armoury is smaller than the minimum size given, and the Town Clerks' accommodation is less than stipulated for. The court room is placed at the back and is very well arranged, and in lieu of cells, a couple of prisoners' rooms are provided. The municipal offices and council chamber are placed towards the front, the latter being parallel with the length of the old hall and against it. The council chamber is not well arranged as the doors open at the backs of the councillors, but the electioneering gallery is a popular and effective idea.

The staircase to the gallery of the hall is also utilised for the caretaker (who is well packed away in the roof), but he would fare badly in case of fire. The loggia at the main entrance would be vastly appreciated by tramps and boys as it is quite open.

Architecturally the design is rather like a large hostelry, but then none of the designs convey the Town Hall idea.

The drawings are rather rough, except the

washed perspective, which is neat and forcible. The estimated cost is £7097.

Mr. E. R. Robson (No. 6) is placed second with a compact plan, the only defect of which is a somewhat unimposing staircase. The corridors, etc., are well lit, but the surveyor's clerks' room might be improved in this respect. The engine-house is the best arranged of all the plans; it is near the main street and having doors at the back, the engine can also be got out by the back roadway. A corn and hay-loft is also provided which, if not essential, seems desirable. The court room is well-arranged at the back and three cells are provided. The council chamber is on the first floor next Mr. Bradley's property, and is convenient except that the fireplaces are rather close to some councillors' backs. The design is rather severely harmonious, but is more like a Technical Institute than a Town Hall.

Messrs. Ardron and Dawson (No. 2) are placed third, and show a very pretty specky pencil perspective, which, however, could not be built for the money. The engine-house is inconvenient, as the engines have to turn a corner to get out either way. The police-court is well-arranged, but a very narrow public way next Mr. Bradley's is shown—at one point less than 3ft. 6in. There is a top-lit staircase and a rather wasteful imposing hall.

No. 3 covers nearly the whole site, and could not be possibly be done for £7000. A good deal of space is wasted in the entrance hall and the lighting of the corridors, and some of the rooms are bad. No fixtures are shown in either the court room or council chamber, contrary to the conditions. A 3ft. way and a 10ft. way are provided. The design is heavy Queen Anne.

No. 4. This is a compact plan, and the best drawn set, in a severe Georgian style, the best part of the design being the stables. The corridor of the first floor connecting the hall gallery with town clerk's floor is not happy in design. Here again the engines have to turn their corner. There are no sectional lines on the plans. This plan places the council chamber at the back, and in connection with it is a robing room. The surveyor's office is dark, and the sanitary inspector is put on the first floor. All the caretaker's belongings have to come up the principal staircase.

No. 5 shows a design by a good washed drawing, and is compactly planned. This is the one design to show the hose-tower towards the road, taking up part of the space in front of the old hall. The work room to the engine-house, rates and water offices, and Surveyor's department are not very well lit. The Council chamber is placed like No. 1 next the hall. The design is rather picturesque, and shows a knowing *fêche* with an Antwerp bulge in it.

No. 7. This is decidedly a good plan, but could not be done for less than about £9000, if that. There is a rather wasteful central corridor in addition to the stipulated 10ft. way. The furnace room is on the ground floor owing to water difficulties, which only a local man would know. The stairs are well lit, and a porter's room is provided. This is the one design to show a wooden hoist tower and a watch-room. The design is wasteful with its high tower (bell and clock) and *fêche*, and the roof seems ridiculously steep considering that it is not utilised. The first floor windows in the design seem to weight the front too much, and suggest that they might sink down, as the first floor is recessed somewhat.

No. 8. This is the only plan to give the Surveyor's offices proper light, and to put the council chamber at the back over the police court at a higher level than the rest of the first floor. As in No. 6 the caretaker is well isolated. This plan, like No. 1, contravenes the condition, in giving a 6ft. way next the hall, and placing his fire-engines at the back. The Assessor in his report recommends that a little more money be allowed for these buildings, that they may be worthy of the town.

THE opening ceremony of the new Cottage Hospital took place at Thetford on Saturday week. Mr. J. H. Green, of Norwich, was the architect; and the builders Messrs. Boughton and Son, of Thetford.

THE Archbishop of Dublin has dedicated a new Communion table that has been erected by the Chapter in the Lady Chapel of Christ Church Cathedral, Dublin. The table is made of carved oak, and has a handsome frontal of green on red brocade, with ospreys on a green cloth of gold. The centre-piece is composed of *fleurs de lis* and crowns emblematic of the Holy Trinity.

REIGATE COMPETITION.

To the Editor of THE BUILDERS' JOURNAL.

SIR,—We have carefully read your Special Correspondent's report upon the above competition and your remarks based upon that report.

Whilst agreeing with much that you say, may we, as authors of the first premiated design, be allowed to indignantly protest against a sentence in your remarks. The words referred to are as follows:

"It was only to be expected that the award of the 'assessors' would indicate the bias of a local and personal preference, and this seems to have duly occurred."

We entered this competition absolutely unacquainted and, as far as we know, entirely unknown either personally or by name to any member of the Town Council or the selection committee, and not until after we were selected did we even know the name of anybody on the Council or any person of influence in either Redhill or Reigate.

We hope, in fairness to ourselves, you will make this known, as we feel sure you would not willingly impute or imply the existence of dishonourable conduct to anyone except upon the strongest evidence, and in this case there is absolutely not the slightest foundation for even a suggestion of such a nature.

May we say a word more as to your special correspondent's report.

We agree with him in some of his remarks, but we cannot think, looking at the glaring inaccuracies he has fallen into, that your correspondent gave more than a very cursory glance at the drawings.

He makes a statement, for instance, when speaking of our design which, if it were founded on fact, would certainly place Mr. Arnold Mitchell's admirable design easily first. We refer to the remark that to the whole block of the main buildings there is only one principal entrance. If your special correspondent had glanced for one moment at either the plans, elevation or sections, he could not have failed to observe two prominent main entrances, and two subsidiary entrances also, in most conspicuous and unmistakable positions.

This fact entirely nullifies the correctness of his remarks as to long corridors.—Yours faithfully.

MACINTOSH AND NEWMAN.

"Beechwood," Balham, S.W.,
Nov. 10th, 1898.

Messrs. Macintosh and Newman have evidently misjudged the true significance of the sentence to which they take exception. If they will carefully read it through a second time they will see that nothing whatever is said, implying or inferring that they were placed first as the result of anything but real merit. We certainly did suggest the presence of a personal or local bias, but not a single word is to be found in either our special correspondent's article or in our editorial note imputing a dishonest award in the case of Messrs. Macintosh and Newman. If Messrs. Macintosh and Newman will read our special correspondent's remarks before looking at our own comments, they will see that the ground for complaint is in the awarding of the third premium to an assistant in the Borough Surveyor's office, whose design has very generally been considered unworthy of third position; that the first and second premiums were at least honestly awarded we have never called into question; and we accept Messrs. Macintosh and Newman's statement that they were strangers in the land, so far as the "assessors" were concerned, absolutely and without reserve.—ED. B. J.

"THE SHIP," a famous Dublin inn, associated for upwards of a century with celebrities in art, literature, and journalism, and in the present generation a well-known resort of Edmund O'Donovan of Merv, "Ghazi" Power of Khartoum, John Augustus O'Shea, and a host of other Irish literary men, is to be sold by auction.

MODERN ARCHITECTURAL TENDENCIES.*

By H. V. LANCHESTER.

WE can hardly look forward with any prospect of forming accurate views as to the future without taking some retrospective glances to obtain our bearings. Up to about sixty years ago our Architecture was running in more or less parallel lines with Continental, then we broke away, leaving a few to carry on the previous traditions, such as the Cockerells, Pennethorne, and some of the best provincial men, while others, such as Burges, Street, Devez, and N. Shaw, struck off with the object of securing a more distinct personal touch. Many have been their followers, but the course they steered was beyond the capacity of most, and while the three first were fortunate in leaving us before the great downfall, the last-named is now expiating his sins by the adoption of a severe classicism. While one would feel it hard to lose the work of four such striking men, one could well wish that their influence over their weaker brethren might have been abated. No architect would have dared, prior to their heroic individualism, to have inflicted on his conferees and the public such blatant puerilities as compose the bulk of modern architectural work. Then the lesser mind took refuge in the conventional, unexciting but inoffensive. Now, it unhesitatingly puts forth whatever form of foolishness happens to come up first. Compare foreign schools—with the exception of a few vain and ineffectual excursions into Romanesque, Gothic, and Oriental—they have stuck firmly to the Classic tradition, which, while it perhaps suffers from a slight tendency to sink the individual, more than compensates for this by the way its insistent demands on a thorough training in proportion, welds the whole body of its votaries together and makes possible a definite and deliberate progression which can only be compared to the gradual evolution of mediæval Architecture. Our irregular course has precluded us from taking this position, neither is it practicable for us to take up a foreign style and base our work on that, our national sympathies prevent such a course being satisfactory. Besides, all foreign schools (practically French) seem to most of us to lack what we consider essential to a happy result, in that their designs are too self-contained. They do not allow them to take any colouring from the natural surroundings in which the building is to be placed, everything must be handled and modelled to weld it in with the somewhat sophisticated architectural treatment, consequently their work, while unquestionably supreme in urban buildings, is not infrequently less satisfying amid the rural surroundings of the orchard hedgerow and meadow, than our perhaps cruder efforts. Our strong points may be a preference towards

SIMPLICITY AND SEVERITY

—if we knew how to secure it. An absence of architectural vanity in our contentment to subordinate our designs to natural surroundings if desirable; and the useful check put on superfluous exuberance by our utilitarian spirit. Our weaknesses are due to our almost entire lack of technical skill in handling of mass, proportion, and detail, and our loss of the restraining influence of tradition, the less to be spared on account of our feebleness of technique. As a result we tolerate architectural trash that would be tolerated nowhere else, and even really inspired architects fail to succeed in expressing the ideals that may perhaps be seen lurking dimly behind their work. I am inclined to think, however, or at least to hope, that there are signs that we are awaking to a perception of our present disorganised state, and that we are beginning to see that a severer mental training in the matters that constitute true Architecture is necessary before we can produce work that will be any account in the history of our art. Not

* A paper read before the Discussion Section of the Architectural Association, on Nov. 4th, 1898.

that training will supply the place of the imaginative faculty, but only the power of handling our materials so as to produce a logical and harmonious result. Instead of a heaping together of incongruous and inconsequent fragments, our designs will then appear coherent and inevitable. With regard to the line of training which is being adopted to attain this end, there seems no question that at the present it is based on the Classic tradition. The fallacy of the possibility of evolving at a bound a living architectural style simply from the utilitarian treatment of material, though it boasted an exponent as learned as Viollet le Duc and is undoubtedly fascinating, has long ago been exploded. History shows that no previous development, however great, has arisen except by

THE GRADUAL PATH OF PRECEDENT,

and as we most decidedly feel that the spirit of mediæval times is quite out of sympathy with our own, it need not take much to convince us that but for the irruption of the few individualists that have really distracted us from our natural course, we should have continued the traditional manner in which all were working at the beginning of the century, and which is really a tradition that, with very slight break, can be traced back in various phases and in one clime or another, almost to the earliest periods. Taking this tradition we perforce adapt it somewhat to our own necessities and new views, while our feeling for composition and proportion is cultivated by the study of work that embodies the ideals of what are probably the highest civilisations of the past 2500 years. With this wholesome check on any exuberance that might outrun the bounds of rational and refined work, all our energies can be put into a logical levelling up of our design. Originality may come, perhaps to some of the more gifted, but sound and harmonious design is possible to all.

OUR ILLUSTRATIONS.

"HINDHEAD."

THIS house was designed for a site on the famous hill near Haslemere, Surrey, but was not carried out. The Hindhead commands magnificent views of the lovely undulating scenery of Surrey, extending to a radius of nearly twenty miles. The architect was Mr. George E. Clare, Chelmsford.

SOME SEMI-DETACHED VILLAS.

THESE villas for Dr. Thresh are now in course of erection on a piece of orchard ground in the suburbs of the county town of Essex, pleasantly situated at the junction of the New London Road, with the old Roman Road. Besides the accommodation shown on the plans, two good bedrooms are provided in attics; and coal cellar, larder, and store in basement. The materials used are local red bricks, with Ancaster freestone dressings and Broseley tile roofs. Porches and vestibules are paved with mosaic paving, and halls with ornamental pitch pine block flooring. The woodwork to halls and staircases will be treated with green oil stains in two tints and wax polished. The dining-room grates are fitted with Shorland Bros. "Calorigens," which utilize the back heat of the grates for warming the bedrooms over. A gardener's cottage is also being erected in the rear for Dr. Thresh. The contractor is Mr. C. West, Chelmsford; and architect Mr. George E. Clare, Chelmsford.

THE "Red Church," Bethnal Green Road, has been restored at a cost of £2000.

At a cost of between £30,000 and £40,000, a nurses' home is about to be erected at the Royal Hospital for Consumption, Brompton.

THE Bishop of London has fixed the 17th inst. for the opening of the completed Schools of St. Stephen's, Westbourne Park, W. The total cost has been £10,000.

The Advancement of Architecture.*

BY PROF. AITCHISON, R.A.

(Continued from page 217.)

THE painters and sculptors laugh at us when we say we want the public to show us what they like and what they want, and say, "We struck out a new type of woman never before painted, and new methods of treatment, and the public appreciated it and asked for more;" but their case is quite different from ours. It is not pleasant, I confess, for a painter to paint a picture or a sculptor to model a statue that does not sell, but an architect cannot put up a monumental building in the hopes that the public will approve of it and pay the expense. The most he can do is to show a drawing or a model in public, and persuade men in power or of immense wealth that he is both capable and original, and will be able

TO CHARM THE PUBLIC

by his work. How did the architect of the Erechtheum persuade the State to employ him? So small a monument as that of Lysikrates could well have been shown by a model. To get the proper teaching is not so easy as to say we want it, but I think in architectural education, as in general education, we must endeavour not to teach that which is dead nor that which is useless, but confine ourselves to the necessary and the useful. I think it is obvious that Architecture is the poetry of construction, and consequently the first thing to be taught is construction, and it is not the mere rough knowledge of the main principles, but that exact and accurate knowledge which was possessed by the late Romanesque architects of the properties of stone. They got this knowledge mostly by the failure of their buildings, but they reasoned on the causes of the failure they observed; they thought, and they dared; while we have most accurate means of testing the strength of every material that falls to our hand, and if we be mathematicians we can solve every stress and strain, as the engineers have done. We have

MANY NEW MATERIALS

that our predecessors had not, and some of extraordinary strength and of a capacity for taking nearly every form with ease; I speak here particularly of cast iron. This is not without dangerous qualities when exposed to fire, but we ought not on that account to neglect it. With wrought iron we have other difficulties to contend with besides the danger of fire, for it is very difficult, and still more expensive, to make this in any agreeable or beautiful shape, and to ornament it; but we cannot believe that the mediæval architects would not have largely used both materials if they had possessed them. We have, too, practically a new material in concrete, but this material also is not without its difficulties and its drawbacks, and we have besides the whole of what I may call old-world materials to our hand to deal with structurally in a more perfect way than they ever could have been dealt with before, and the whole category of old shapes to use and new forms to adopt that have never been used before. If the dictum of Sir Joshua Reynolds be true, that by becoming familiar with the invention of others we learn to invent, the great knowledge that we possess of past Architecture should make us

MORE READY TO INVENT;

but in fact, the gift of invention, as far as architectural forms are concerned, seems almost extinct. We have only this to say in excuse, that from the fifteenth century to the middle of the last century, European architects had nothing but Roman Architecture, or its Renaissance imitation, to study and to use; since then we have had Greek and Gothic. Neither of these styles, however, was used to stimulate invention, but merely to copy, and even in the present day it is doubtful whether

the invention of a new form, unless it were surpassingly beautiful, would be tolerated, for antiquarianism has usurped the place of Architecture. We must, of course, study the expressive and beautiful buildings of the past to learn how their effects were produced; but, having learnt that, our object should be to invent other proportions and other shapes, whose effects shall be equal or superior to those of the past; and when I speak of invention it is merely the adaptation of some of the innumerable forms of Nature. In the present day we should say that there was even less invention amongst architects than there was amongst the Romans, for the Romans at least started a new method of adornment when they carved the shafts of their columns or covered their pilasters with running foliage; but, of course, it is to the Gothic architects that we must look for those rapid adaptations that we now call inventions. Gothic Architecture from the time that it emerged from Romanesque passed rapidly through what we call Geometrical and Decorated, till it fell into the mechanical stiffness of Perpendicular. Were these men blessed with greater powers of invention or adaptation than we are? or is it that the gift has become atrophied for want of use? At any rate,

THE SUBSTITUTION OF ARCHEOLOGY FOR ARCHITECTURE

must tend to this result, for if the wing of the apteryx dwindled to the size of your thumbnail for want of use, it is probable that our powers of invention will do the same. I think that we are not so destitute of invention as we appear to be, for in out-of-the-way places in the country you see the elements of new Gothic and new Classic, where the architects have not been very learned, and have not had the fear of the archæologist before their eyes. When one speaks of invention, good invention is meant, and if we have the gift of invention it is only by the constant exercise of it, and by comparing our inventions with the excellence of the past, that we are likely to progress. I feel sure that the Architecture of one century, or perhaps even of one quarter of a century, should not exactly resemble that which went before it, for besides our proclivities and aspirations not being exactly those of our fathers' time, if our knowledge and invention were progressive we should want the one for use and the other for emulation. In poetry we do not want the poets of our own time to portray again the character of times long past, for in that we can take but small interest; but to portray our advancing knowledge and the good, striking, and dramatic characteristics of our own time, as Tennyson so transcendently did; and we must never forget the labour and study he undertook to perfect himself, for he learnt Hebrew to see how the Hebrew poets arrived at sublimity. I do not speak about ornament, whether carved or painted, for that is the business of the sculptor or the painter. I by no means wish to discourage architects from being painters, sculptors, and ornamentalists, so long as they are good architects as well; but it is absurd to give up the advancement of our own art for the sake of being

DABLERS IN THE ARTS

of others. I have said nothing about the art of planning, although that is a most important art, and in these days, where convenience is thought of more importance than anything else, it is the art by which most competitions are gained. No one can deny that it is a useful art, and may be a very impressive one, and I am sorry to say that in its highest form it is not sufficiently studied. I must say something on the results of our own examinations, for they have had a very stimulating effect on the students. The examinations let them know some of the things they ought to study, and give them an object to aim at. Examinations, however, have certain shortcomings like everything human, they test insufficiently. Besides a parasitic growth clings to them: they lend themselves to cramming, whilst to cram is the last thing we should wish any architectural student to do, for it is a pure effort of memory to recollect what has been before written or said and repeat it at a given time, while the

great object of instruction is to teach people to think and act properly. The sort of memory architects want is for the thing to be remembered to be firmly and permanently fixed; while anything crammed, when it has once answered its purpose, is almost immediately forgotten, and leaves scarcely a trace behind. Architecture in every one of its three branches requires accurate thinking to the end in view, and no cramming is of the slightest use in that direction. The only use I ever heard claimed for it is that it enables a man to seem to know what he does not know, which may be useful on occasions.

THE PLAN OR ARRANGEMENT OF A BUILDING

requires to be made perfectly suitable for its purpose, and in the cases when the building is not for common use it should have a certain effect, and if for high purposes the forms require to evoke feelings of dignity, stateliness, sublimity, or awe. I cannot refer to more perfect examples than the Parthenon and the inside of the Pantheon. Plans embody not only the general conception of the building and its supports, but should roughly inform a skilled person of the whole scheme of the completed building. We judge of the constructional skill of the architect by the smallness of the ratio of supports to the total enclosed area. Every one of the three branches of Architecture is not only sufficiently difficult, but may be considered transcendental, e.g., when we look through many plans we see that some are not only more convenient and more striking than others, but sometimes it seems as if the great planner were first and the rest nowhere. As buildings are meant to stand, it has always struck me as rather a paltry trick to arrest attention, to make a building look unsafe, or to put in a piece of construction which forces us to ask how the architect has managed to make it stand. We want everything to look stable, so that our whole attention may be given to the æsthetic effect; but at the same time skill in construction will enable us to give great

VARIETY IN THE DIFFERENT PARTS

of the building, some parts being slight or slender as compared with the important members of support, which must necessarily be bulky. No building should be put up that has not some evidence of the intention to make it comely, unless it be those buildings that are intended to convey horror or antipathy, of which I spoke before. Every building wants character, and that character should show its use; and when buildings are for the purposes of dignity, reverence, or awe, it is most important that their proportions should excite these feelings, and that any sculpture or painting that is put on them should heighten their effect in the same direction. Although it may seem a paradox to say so, the special convenience that should attach to every building is not so important in the highest sort of monuments, as for the monument to excite a feeling of sublimity, and for this reason that high thought clothed with beauty is much more lasting than ordinary wants. If we could call to life the High Priest of the Parthenon he might tell us that Iktinus and Kalikrates made the Temple

VERY INCONVENIENT FOR THE SERVICE,

but for more than fifteen hundred years that service has been abolished, and we are still enamoured of the sublimity of the temple. The principal things that want teaching when construction and the art of planning have been mastered are the proportions that have raised the various emotions in existing buildings, the art of moulding and the exercise of the inventive faculties, for it is doubtful if invention is denied to any average human being, although some have it in such profusion that it is easy to them to invent, and you probably recollect Plato's saying that those entrusted with public duties should find them easy. I have so often said before, the construction should be the best that is known and practised, and that any construction that is used merely because it is old is mere pedantry. In every new building we arrange, difficulties arise in giving the necessary parts that æsthetic expression that we wish them to

* The inaugural address, delivered by the President of the Royal Institute of British Architects, at the first general meeting of the session 1898-99, held on Monday, November 7th, 1898.

have. It is comparatively easy to mask the construction so that we may use the æsthetic solutions of deceased Architecture, and so long as we pursue this course Architecture can never advance. What should be done is to encourage the student to solve the difficulty in his own way, and that is

WHY IRONWORK IS SO SERVICEABLE,

because in that the student has nothing to copy from, and he must use his inventive powers. Very long columns and stanchions, for instance, have junctions that must be kept together by ugly lugs and bolts or some other cumbersome addition, and these have to be made graceful or beautified. There are difficulties about moulding in iron, and in trying to solve these difficult problems the student should be recommended to aim at simplicity and elegance. If after many trials he cannot do anything towards a solution of these problems, he should abandon Architecture. As regards the practice of some of the younger members, there is too much straining after effect; too much recourse to easy means of arresting attention, such as by rustics; too much partiality for curious and incongruous forms; the sewer-arch or water-opening is too much adopted for entrance doorways and attic windows—anything for a novelty! corners of square openings are rounded off, and projecting members are slightly curved or bellied out. Now there is, in my opinion, nothing like straight lines for dignity, and the rounded corners and bellied door and window heads mostly produce meanness. Another device is to make columns like those barrels that are used to fill in the odd spaces in ships, where the middle diameter is nearly double that at the base and necking—

A GROSS AND VULGAR CARICATURE

of the entasis of the Greek columns. This device truly arrests attention, but only to make the judicious observer note the absence of any feeling but for vulgarity. Architecture is a very difficult fine art, and these attempts to attract attention easily, merely show want of proper training and laudable ambition. Horace's maxim is as true now as it was then, that "you should study Greek examples by day and by night." The simplicity, grace, and restraint of Greek work cannot be too much studied, and that profusion of ornament that is now so common is not only opposed to Greek practice, but to good taste, for, as it has been truly observed, nothing great is obtained without simplicity. There is one feature we want badly, and that is a well-designed large window, for there is great demand for these in the new public buildings, and we have nothing but the huge Roman semicircular window of the Baths, and the west end perpendicular windows, which have little claim to beauty. There is a

GREAT WANT OF STUDY OF LIGHTING;

half the effect of large complex interiors is got by concentrated light against "a mighty contiguity of shade," while most of our buildings are spotted all over with windows. One of the architectural devices the student should study is to get harmonious grouping of immense windows with those of ordinary and small size, and another is how to treat the problem of the seventeen-story building; for though we have not yet adopted this American device, the increasing scarcity of ground and price of land in large cities tend to produce it. The only use of these addresses is to correct mistakes in teaching, to point out, if one can, where the defects in our practice lie, and to stimulate each other to greater exertion, and if possible to find out the way to the advance of our art. The chief things that act as incentives to mankind are the hope of wealth, the hope of honours, and the hope of immortality; and I certainly think that we might well increase one incentive by insisting on being paid for our work, for we are not paid now. I think the powers that be might well make another incentive more common by bestowing honours on the Profession, which is now hardly recognised, although it does so much to raise the reputation of the nation by designing monuments which persons from all parts come to see. I can only hope that the prospects of immortality may induce those with congenial genius and the highest

ambition to devote themselves to Architecture, and to spare no thought and no labour in perfecting their work, so that it may vie with the best Greek work in grace, and with the Mediæval in impressiveness. We all wish that a great architectural genius may arise, for the sake of our art and of our country; and it is good for everyone but the genius, for his highest traits are mostly brought out by misery. As Shelley says, "We learn in suffering what we teach in song." I think, or at least hope, that with all the present teaching, striving, and devotion, we shall find the true path of progress, and that in the near future Architecture may realise the transformation of the dragon-fly:—

To-day I saw the dragon-fly
Come from the wells where he did lie.

An inner impulse rent the veil
Of his old husk: from head to tail
Came out clear plates of sapphire mail.

He dried his wings: like gauze they grew:
Thro' crofts and pastures wet with dew,
A living flash of light he flew.

Colonel Prendergast, in proposing a vote of thanks to the President, congratulated him upon the honours that had been showered upon him during the last year. He had not only gained the blue ribbon of the Academy, but, what was more striking to them, he had again been elected to the presidential chair of the Royal Institute. The speaker passed on to the subject of the Californian University Competition, commenting on the French School of Architecture, which had carried the position. He had the profoundest admiration for the French system. People were always talking about originality; he would like to know what originality was worth unless they knew the science and grammar of their art. It was here where they were doing the greatest mischief—to tell the young men of the profession who, like all other young men, would like to shirk the duties of life, that they might start a style of their own and ignore the work of those who for centuries past had been making the Profession what it was to-day. The public required to be educated on this subject, and he did not see how it was to be done if architects were not educated themselves. To suppose that they could invent a new style was the most ridiculous thing that ever entered man's head. Architecture *nascitur non fit*. He was perfectly convinced that he was the greatest enemy of the rising young men of the present day who told them that they were fit to start and lead the world to something better. The most refined, the most artistic of European peoples had this cancer starting amongst them; one of their publications, *L'Illustration*, had been giving illustrations of "the coming style." Anything more ludicrous, anything more detestable, it was impossible to conceive. The writer on this subject charged full tilt at the architects who, he said, were tied and bound by their worn-out doctrines and terribly refractory styles. The new school were the valiant pioneers of the ideal, who pushed forward manfully in the *melée* and produced works—original works—which proved more eloquently than words what the modern style would be. Colonel Prendergast finished with a brief reference to the subject of iron construction.—Professor Roger Smith seconded the vote of thanks, taking up the previous speaker's theme.—Professor Smith said he did not believe in

THE POSSIBILITY OF A NEW STYLE

being adopted in the present day, except on the suggestion of new materials and new wants which might modify the present form of building. We were filled with the forms, our minds with the knowledge, our eyes with the sight, our memories with the recollection, of the buildings which covered the West of Europe. It was impossible to build without remembering these buildings, and it was impossible for the public to admire buildings without thinking of the forms which had been wrought out with the utmost pains at different periods; and he believed that for some time to come originality must mean not new features,

but some new modification of existing features, with possibly new combinations. As to new proportions he felt a little misgiving. The illustrations of the professional journals showed what progress was being made in building to-day. It was a quiet advance, but an advance they must recognise; he felt sure it would continue with the years.—Mr. William Woodward, before the vote of thanks was put, interposed with an appreciation of Messrs. Brydon and Young, as the architects for the new Government buildings. He regarded this matter as the most important architectural event of this age, and the non-mention of it in the President's address as a serious omission.—The President briefly acknowledged the vote of thanks.

The President prefaced his address by an allusion to the death of M. Charles Garnier. The Institute did him the honour some years ago of bestowing upon him the Royal Gold Medal, and that with great justice, for certainly M. Charles Garnier had given a new expression to French Architecture. French Architecture had peculiarities of its own, but M. Charles Garnier had added a new leaf to its laurels, and they all felt extremely sorry that he had been carried off—not at a very early age, but yet too soon for one who shed light upon the whole civilised world. When they recollected that the architect of the great library at Venice attained the age of ninety-three, and had not then taken to spectacles, they might consider that M. Charles Garnier had been cut off many years before his time. But he was a man of nervous organisation, and with the heavy labours put upon him, especially in connection with the Opera, his health could not withstand the strain.—Mr. Aitchison was sure they would all join in a vote of condolence to France and the French Academy.

MR. W. WESTLEY MANNING has, at the Clifford Gallery, in the Haymarket, a number of oil paintings of pastoral and coast scenery in England, Holland, and Brittany. They are delicate in colour, tender in their tone relations, dainty in treatment, and they show a distinctly sympathetic attitude on the part of the artist towards the gentler aspects of nature. For the most part, the subjects they illustrate have been well chosen, and cover a good deal of ground, so that the exhibition has a very satisfactory air of variety. It is a pleasant display of work which has in it many of the elements of popularity.

At the last week's meeting of the London County Council, Mr. Benn, chairman of the Highways Committee, asked permission to withdraw a report of his committee recommending the Council to expend £1100 in making the necessary alterations to the Victoria Embankment wall to enable the Boadicea statuary group presented by Mr. J. I. Thornycroft to be placed in position. Mr. Benn said that a letter had been received from the Office of Works asking to be furnished with particulars of the proposal of the Council to erect the statue, and pointing out that under statute it was necessary for the Office of Works to give their written consent before any statue was erected in London. The report was then withdrawn.

THE Bishop of London was the principal speaker at a meeting at Peterborough to raise further funds for the restoration of the Cathedral, the Marquess of Exeter presiding. Mr. Bodley, the Chapter architect, said the south-western gable first required attention, and it was becoming very shaky. He proposed to work on very conservative lines. The arch would not be taken down, as in the case of the north-western gable. The Bishop of London congratulated the Dean and Chapter upon the successful completion of the work already undertaken. There had been adverse criticism, but the original beauties of the cathedral had never been tampered with, while the fabric had been put into substantial repair. Dean Ingram stated that during the last fifteen years over £40,000 had been spent on the restoration of the fabric, and a further £10,000 would bring the work to a completion.

SOME INTERESTING FURNITURE.

MESSRS. COLLINSON AND LOCH, of Oxford Street, the well-known firm of decorators, furniture makers, and manufacturers and dealers in art fabrics, are about to amalgamate with Messrs. Gillow, the old-established firm of decorators and upholsterers, whose foundation dates back to the last century, and who, beside a large connection as house furnishers, are one of the largest cabinet makers in this country. Prior to their removal from their Oxford Street premises, Messrs. Collinson and Loch have organised a sale of part of their stock, which sale opened on Monday, the 7th inst. This sale is well worth the attention of all who like soundly designed and carefully made furniture, and the rich parquetry and inlay, of which this firm has made a special feature, will be, in particular, admired. The furniture offered comprises, among other pieces, those which have distinguished Messrs. Collinson and Loch's showrooms during the past, including several cabinets and tables in ivory inlay, which have been specially designed and made for various exhibitions of late years. These pieces have been designed by experienced and well-known artists, and executed by specially trained craftsmen, who in many cases have been educated in Messrs. Collinson and Loch's own workshops; and their value as unique works of art, and the nature of the skilled labour lavished upon them, makes it impossible to offer them on such terms as are met with in ordinary selling-off sales of stock furniture, but a substantial reduction has been made in each instance as the circumstances warranted, as may be seen on a reference to the illustrated priced catalogue just published by the firm, which gives in each case the original price of the various pieces, and that at which they are offered during the sale. This catalogue has been prepared with great care, and with its illustrations constitutes a record of considerable interest and value for the connoisseur of furniture. Messrs. Collinson and Loch have in their collection examples of almost all the latter styles of furniture design, not to mention one or two examples in the Jacobean manner, and contemporary Continental style. They have for sale, in particular, many developments of the French fashion of design in the last century, and some excellent reproductions of our own Sheraton work and other English furniture of about the same date. Messrs. Collinson and Loch's method during the last few years has been, first, to make exact copies of any particularly fine examples of old furniture which they may be so fortunate as to secure, and second, to elaborate and compose new pieces in the feeling and according to the lines of the best examples. It is in this department of their art that the firm is best known, and particularly with reference to their inlaid designs, and, above all and foremost, in their inlaid ivory cabinets and tables. These, in most instances, have been designed by Mr. Stephen Webb, and executed with a delicacy and precision, by Messrs. Collinson and Loch's employés, which could not be surpassed in the work of any epoch of cabinet makers. It will be of particular interest to architects to know that it was for this firm that Mr. Thomas Colcutt did his first work in furniture design, for which, twenty years ago, his name was famous. One or two of his pieces may still be seen at Oxford Street, though most of them have been sold long ago, and it will surprise the visitor to notice how widely Mr. Colcutt's ideas have been assimilated and incorporated in the designs of the wholesale cabinet makers of the present day.

On the roof of a brewery at Maidstone is to be seen one of the most remarkable vanes in England. It represents an old brown jug and glass. The jug, which is made of copper, stands 3ft. 6in. in height and 3ft. in diameter, and is capable of holding 108 gallons. The glass, also of copper, has a holding capacity of eight gallons.

OXFORD IMPROVEMENTS.

FOR the past few years the building operations in Oxford, following a period of considerable activity among the colleges and University institutions, have been comparatively few and unimportant, with the exception of the new Town Hall, and during the twelve months just elapsed the work calling for attention is even less than usual. One or two works of some magnitude have, however, been commenced. The principal of these is the new home for the Radcliffe Library, which is now housed in the University Museum on the first floor facing west. The space occupied by the unique collection of books is urgently required for other purposes, and by the generosity of the Drapers' Company a suitable building is about to be erected for the purpose, the sum which the Company are prepared to contribute being variously put at from £15,000 to £20,000. The new building will be on the south side of the Museum, facing South Park Road, and the foundations up to the ground floor level have just been put in by day work, for the Drapers' Company, by Mr. E. Long. The total length of the south front is 134ft., and the width 39ft. 2in. In the basement will be a store room 90ft. by 27ft. 4in. It is understood that a three-story building will be erected, and the principal staircase will be approached from the south front, and there will be a connection by means of a passage with the old library. Mr. T. G. Jackson, R.A., is the architect, and Clipsham stone, with Gibraltar facing, is being used. Among the other work in connection with the college it is interesting to note that

KETTLE HALL

in Broad Street, which was formerly the residence of Dr. Mee, has been converted into a part of Trinity College, and arranged for six additional sets of rooms. The hall was built by Dr. Kettle, President of Trinity, 1597-1643, as an annexe of the college, and is therefore now restored to its original use. Dr. Mee is now in residence in a large and handsome house in Queen Anne style, which he has had erected at the corner of Mansfield Road and Jowett Walk. One of its features is a spacious music room, about 30ft. by 20ft. There is a very fine hall with an elaborate staircase and a beautiful fireplace. The material used is Deddington stone, and the roof is covered with Broseley tiles. Messrs. Symm and Co. are the builders, and Mr. B. Jackson, of London, was the architect. The Robinson Memorial Tower at New College was formally opened on June 25th. It rises to a height of about 80ft., and contains two lecture rooms and six sets of undergraduates' rooms. The tower forms the central feature of the new block of buildings in Holywell Street. The tower which it is proposed to erect at

ST. MARGARET'S CHURCH

will be a prominent feature in that part of Oxford, rising as it will between 80ft. and 90ft. Mr. H. R. Franklin, of Deddington, is at present putting in the foundations. The walls will be 4ft. thick, and the inside measurement is 13ft. 6in. square. Mr. G. F. Bodley, A.R.A., is the architect. The chancel roof of Holywell Church has been recently redecorated, and is much admired. The arrangement of the forty-five square panels is as follows:—In the centre of the vault at the east end of the roof a panel is filled with a design of a gold chalice on a blue ground, surrounded by white flowers. The adjoining four panels each contain an angel on a blue ground. These five panels form a cross. Around these are panels filled with designs of flowers on a white ground. There are four different designs—Iris, Crown Imperial, horse chestnut, and briar roses—which are repeated, but with different gradations of tone and colour. At the west end of the roof another five panels have blue grounds, but without figures. They have instead a cruciform pattern of white datura flowers. This second series of blue panels carries on the blue in the colour scheme, but with a lesser accent than the one containing the angels. The latter are painted with wax medium on canvas, and are fixed on to the roof by means

of a bed of white lead. The rest of the roof is painted also with wax medium, but on to the plaster, which, however, was first coated with white paint. The painting was done by Mr. Henry Strachay from designs by Mr. E. P. Warren, architect. The Oxford Gas Company has during the year completed several sections of the entire rearrangement and enlargement of its works according to the plan decided upon some time ago. A large and lofty building, 170ft. long and 62ft. wide, has been built on the site of an old gasholder, and some offices and a dwelling-house. The contractors for the supply of the purifiers, valves, and apparatus were Messrs. C. and W. Walker, of Donnington, Shropshire; and, for the fencing, Messrs. Isons, Kidman, and Watts, Oxford. The most noteworthy change in Cornmarket Street is the erection of a commanding building of bright red brick and terracotta, highly ornamented. A handsome design for the clock to be erected on the Plain, St. Clement's, has been submitted for approval by the architect, Mr. P. E. Warren. The fountain is under a roof of oak, supported by columns, and above are three dials illuminated by electricity. The steps and fountain will be of York and Portland stone, lined with copper, the columns and dwarf walls of Milton stone, and the roof of oak covered on the outside with Stonesfield or Naunton stone slates. The Corporation has carried out several special works during the twelve months under the direction of the City Engineer (Mr. W. H. White).

TAR MACADAM ROADWAYS

have been made in substitution for granite setts and pebble pitching at Carfax, Bear Lane, and near to St. Peter-le-Bailey old churchyard; and in substitution for ordinary macadam at the west end of Cowley Road, and at the east end of High Street, in which latter place the tramway lines and sides have been paved with McDougall's patent setts. The street extensions include Hill View Road, Frenchay Road, Heyfield Road, and Museum Road, and Jowett Walk has been completed, so that there is now a thoroughfare from Mansfield Road into St. Cross Road. In connection with the latter work, the remaining portion of the eastern section of Love Lane has been closed and absorbed into the adjoining properties. A further extension of Frenchay Road has also been planned, and the present lane leading from Heyfield Road to the Swing Bridge will be closed and built over. The works at Carfax Tower being finished, the improvement has been completed, as far as the street is concerned, and the surface paved with York flagging. The western end of Queen Street has been widened, and the new public garden on the site of the old St. Peter-le-Bailey churchyard finished, planted, and thrown open for public use during the past summer.

SEWER AND SURFACE DRAIN EXTENSIONS

have been made in Hill View Roads, Frenchay Road, Jowett Walk, Heyfield Road, Bear Lane, and Avenue Lane. Extensive works of storm water relief drainage, at a cost of about £1800, have been executed in South Park Road, Parks Road, Museum Road, St. Giles' Street, Mill Street (Osney), Bevington Road, St. John's Road, Walton Well Road, Jackdaw Lane, and St. Aldate Street, with a view of minimising the flooding during the severe storms which have several times visited Oxford during recent years. Another important improvement in the surface water drainage has been carried out by building a large culvert in lieu of an old and ruinous one in High Street along the frontage of the Botanical Gardens, at a cost of upwards of £300, and an arrangement has been made there whereby the small quantity of water entering the culvert in dry weather can be diverted into the sewer, while the storm water will overleap the outlet, and flow into the river as before. The plans, specifications, estimates, and quantities have also been completed for the sewage utilisation works required on the Sewage Farm extension. Contracts have been entered into amounting to nearly £10,000, and the works will be commenced immediately.

Bricks and Mortar.

EFFINGHAM HOUSE, ARUNDEL STREET,

November 16th, 1898.

"I know what it is to live in a cottage with a deal floor and roof, and a hearth of mica slats; and I know it to be in many respects healthier and happier than living between a Turkey carpet and a gilded ceiling, beside a steel grate and a polished fender. I do not say that such things have not their place and propriety; but I say this, emphatically, that the tenth part of the expense which is sacrificed in domestic vanities, if not absolutely and meaninglessly lost in domestic discomforts and incumbrances, would, if collectively offered and wisely employed, build a marble church for every town in England; such a church as it should be a joy and a blessing ever to pass near in our daily ways and walks, as it would bring the light into the eyes to see from afar, lifting its fair height above the purple crowd of humble roofs."—JOHN RUSKIN.

THE gas explosion at the Capitol, in Washington, is a distressing piece of news. Despite certain extravagances of style and the fact that what was planned and commenced in marble has been finished in stucco, the Capitol is a building of great beauty and even greater impressiveness, while of course it is instinct with historical associations of supreme interest. The Supreme Court room, which is wrecked, was a beautiful room, formerly used as the Senate Chamber.

THE projected removal of the famous Ponte Vecchio, or Old Bridge of Florence, the only one now left of any importance, with its mediæval houses lining either side of it, is creating a great stir in the artistic world, both in Italy and the rest of Europe. A committee has been formed for the "Protection of Old Florence," which includes amongst its members the most illustrious Florentine names, and a circular has been sent out to all parts of Europe soliciting signatures against this act of vandalism.

THE work of strengthening the foundations of the old St. Stephen's cloisters at Westminster, which was entered upon as soon as the Session closed in consequence of the discovery of some serious cracks in the superstructure, is now almost completed. First taking the precaution to shore up the defective wall with stout balks of timber, the workmen excavated underneath and for some distance around the parts which were giving way, and then, upon a bed of concrete, underpinned the wall by inserting iron girders. So far all is well; but before long other sections of the cloisters, which it should be borne in mind are a remnant of the old Palace of Westminster, destroyed by fire, will have to be similarly treated.

THE Dean and Chapter of St. Paul's has just unveiled the latest of Sir William Richmond's triumphs in the decoration of St. Paul's Cathedral. Consisting of the finished decoration of one of the "saucer" domes in the choir, it exhibits Sir William Richmond at his best, alike as an artist and a symbolical teacher. The general theme of the treatment is Christ reigning upon the Cross, and the world being represented as a wheat field with a fountain of life flowing through from the tree of life beneath which Adam and Eve are discovered kneeling.

THE lectures on Venetian painting which Mr. Roger Fry is giving every Wednesday afternoon at the late Lord Leighton's house are having a decided and deserved success. It is now hoped that Mr. Fry will continue the series after Christmas, and may thus be

enabled to develop the treatment of his subject, particularly his analysis of individual painters, at greater length. The only disappointment, indeed, felt hitherto by his hearers has been in the consciousness that the lecturer was omitting, through pressure of time, a good deal which they would like to have had. The third lecture included, among other things, a lively and sympathetic appreciation of Carlo Crivelli. Between this great painter's Art and that of the late Aubrey Beardsley, Mr. Fry, at the end of his remarks, drew a comparison as discriminating as it was unexpected. Both, he said, belonged to a class of artists—rare, indeed, but strongly marked—whose work has a consistent logic and unity of its own, though it is not that of nature.

THE old Irish Cathedral of Clonfert has latterly received a good deal of attention as the result of an effort to raise funds for its restoration. A good deal of restoration has already been carried out—details are given in our Professional Items column this week—and now the work is hindered for lack of resources, pecuniarily. The restoration of the chancel is almost finished, and it is estimated that £1000 will complete the restoration of the nave. Clonfert Cathedral, to which we devoted a short article some time ago, is particularly interesting. It was founded by St. Brendan, in the year 558; thirty-nine years before St. Augustine landed in England. The doorway, of Hiberno-Romanesque Architecture, dates from the year 1166. The east window is nearly a thousand years old. The cathedral is small, but very beautiful in many respects. It is now used as the parish church. The south transept is in ruins and roofless. The north transept is completely gone. Clonfert at one time was a city and celebrated for its schools. It is now not even a village. In the reign of Queen Elizabeth, before Trinity College, Dublin, was founded, it was proposed to found the University in Clonfert.

IN the year 1175, when Roderic O'Connor, King of Ireland, carried on his negotiations with Henry II. of England, the Abbot of Clonfert was one of the ambassadors sent by him to Windsor. Clonfert Cathedral suffered greatly from the incursions of the Danes, who frequently sailed up the river Shannon from Limerick and attacked it. It was burnt six times during 744—1174, and was plundered three times between the years 949—1065. In the year 1541 it was almost totally destroyed. Bishop Wolley repaired the cathedral in 1664. Since that time up to the present, a period of over 230 years, some alterations and improvements have been effected, but no general work of restoration has been done, until this which has been recently commenced, consequently the building is greatly in need of repair. The preservation of a Cathedral, the existence of which connects the present with the past—the nineteenth century with the sixth—is a work of more than ordinary interest, and one which will commend itself to the approval of all.

THE exhibition, which is now open at the South London Art Gallery, of the works of noted draughtsmen of many schools and periods, has something more than a merely curious interest. It is not only a collection which shows amusingly the contrasts between artistic devices of different dates, and makes intelligible the evolution of modern illustration; but it has also a definite educational importance as a means of comparing the relative values of the different processes by which the original drawing executed by the artist can be reproduced, and made accessible to the greatest number of his admirers. In these days, when illustrative activity is so great, such a show cannot fail to be helpful both to the profession and the public, for it explains many things which the inexperienced person might fail to realise, and it accounts for much of the variety in processes which is a feature of our times. The manner in which the draughtsmen have suited their style of execution to the necessities of the reproducer, and have adapted themselves to the demands made upon them, can also be plainly traced, a matter of great moment to the student.

APART from the educational aspects of the show, there is a very sufficient reason for its existence. Simply as a display of Art work it completely justifies itself, and makes a strong appeal to the public. The original drawings alone, without the prints produced from them, are thoroughly attractive, and artistically of great moment. An original work by Durer, designs by Cruickshank, Phiz, Seymour, and Leech, and a long series by such deceased artists as Lord Leighton, Sir John Gilbert, Sir John Millais, A. B. Houghton, Pinwell, Du Maurier, and Fred Walker, and by such living men as Sir Edward Poynter, Mr. Holman Hunt, Mr. F. Sandys, Mr. Luke Fildes, Mr. J. W. North, Professor Herkomer, Sir John Tenniel, and Mr. Phil May, combine to make up a collection of peculiar significance and of the possible public interest.

IN the course of planting operations on the estate of Mr. H. C. A. Day, Walta Park, near Clevedon, the remarkable discovery has been made of what is supposed to be the grave of an ancient Briton. The grave, on being opened, was found to be nearly full of fine soil, which contained some arrow heads, also portions of the skeleton of a man of above the average height, probably 6ft 2in. or 3in. The grave consists of five stones, the upper or covering stone weighing upwards of a ton, while the bottom is paved with irregular flat stones. The grave was found at a depth of 18in. from the surface. A stone celt, or axe head, in excellent condition was also found near by a few days previously.

THE Cardiff Museum and Art Gallery has received a gift of pictures, prints, and porcelain, valued at £4000. The donors are Mr. Charles Thompson and Mr. Herbert Thompson, of Cardiff, executors of the late Mr. James Pyke Thompson, founder of the "Turner Gallery" at Penarth. The collection now handed over to the museum consists of eighty-eight water colour drawings, twelve oil paintings, eight pastels, forty-three etchings and engravings, and sixty-four pieces of porcelain. Most of these have been on exhibition at the Cardiff Museum for several years as a loan collection. To this collection the executors have added a number of valuable drawings and etchings from Mr. Pyke Thompson's private gallery, which have been selected at their request for this purpose by Mr. W. M. Rossetti, Mr. Frederic Wedmore, and Mr. T. H. Thomas. The intention of the original owner of this collection was to bring together a series of examples illustrating the development of British Art in several departments during the last 100 years. Its value will for this reason be best appreciated by Art students. The oil paintings include a unique example of George Romney's work, entitled "The Bleaching Ground," "Cardigan Bay," by David Cox; and "Gipsies Resting," by G. F. Poole, R.A. Among the watercolours are eight sketches by Cox, and a fine drawing of "Ewenny Priory" by J. W. Turner. The collection of porcelain includes several beautiful examples of Nantgarw and Swansea ware, on which the best Art of Billingsley has been expended, and will considerably strengthen the exhibit of local pottery, which already constitutes an important feature of the Cardiff Museum.

A MEMORIAL to the late Christina Rossetti was dedicated in Christ Church, Woburn Square, by the Bishop of Durham last week. The memorial consists of a reredos, in which are five paintings of the Saviour and the Evangelists, designed by Sir Edward Burne-Jones, single figures of great beauty and splendid in colour. The architectural setting is of "Perpendicular" Gothic, designed by the Vicar of Christ Church, Mr. J. J. Glendinning Nash, and executed by Messrs. Walker and Sons. In the pavement in front of the memorial will be inserted a slab of marble from one of the ancient Roman quarries, with the following inscription: "The above paintings, designed by Sir E. Burne-Jones, Bart., are dedicated to the glory of God and the loving memory of the late Christina Georgina Rossetti, who worshipped in this church, and fell asleep in Jesus, December 28th, 1894. 'Give me the lowest place.'"

We are afraid that the extraordinary carelessness of the authorities of the Rembrandt Exhibition in Amsterdam will make people who own valuable pictures very chary of lending them. One of the finest Rembrandts in existence, the famous "Esther, Haman, and Ahasuerus," which belongs to King Charles of Roumania, was placed against a wall in which a projecting nail had been left, and is now irretrievably damaged. It will, we fear, be very little consolation to King Charles that he has been awarded £400 as compensation. The carelessness which made such an accident possible is inexcusable.

The landscapes in oil and watercolour by Mr. Oliver Hall, which are to be seen, with a series of his lithographs, at Messrs. Dowdeswell's Gallery, have a very marked technical character that will appeal to everyone who craves for something more than the merely literal interpretation of Nature. They are in manner definitely decorative, and give an abstract suggestion of illusive effects of atmosphere and light and shade rather than a minutely exact expression of easily observed facts. They have, in consequence, a peculiar charm, a touch of romance that comes as a delightful relief to the prevailing materialism of modern Art; and they mark the artist as one of the few masters of style that the present day school has produced.

MESSRS. A. and C. BLACK will shortly publish an interesting work on the Rock Villages of the Riviera, by Mr. William Scott. The book will deal with some of those picturesque and out-of-the-way hamlets which visitors to the South may have seen perched on hill-tops or hidden in the valleys, away from the beaten track of tourists. The district referred to is that part of Liguria which commences at the French frontier; and a brief historical outline traces the origin and development of these little "Villages"—as they were called—from the early days of the Genoese Republic, through the interesting period when some of them, revolting from the oppression of Ventimiglia, formed the "Community of the Otto Luoghi," and proceeded to carry out their ideas of Home Rule. Several of the villages still possess a number of their old documents, account books, and other records, and these are now laid under contribution for the first time.

ANDREW MARVELL is to have from the hands of the London County Council a commemorative tablet on the boundary wall of Waterlow Park, next Highgate Hill, to mark the site of his cottage. The inscription runs: "Four feet below this spot is the stone step formerly the entrance to the cottage in which lived Andrew Marvell, some time M.P. for Hull, and Latin under-secretary, patriot, poet, wit, and satirist. Born 1620, died 1678. He was buried in St. Giles-in-the-Fields. This memorial brass was placed here by the London County Council, November, 1898." When the cottage was pulled down some years ago, Sir Sydney Waterlow had the stone step built into the boundary wall.

SIR WALTER BESANT, lecturing the other day upon "Norman London," observed that London originally stood in the centre of marshes, part of which extended over the area of Southwark and Battersea. The London of that period contained within the City walls 136 parish churches, all of which, as their dedication showed, were built by the Saxons; and a population of from 100,000 to 120,000. One point worthy of noticing was that in the 12th century, a river wall ran through the middle of Thames Street. It was built on the edge of a cliff some 12ft. to 14ft. high, and along the foreshore which was reclaimed quays were erected for the landing of commerce. On the south of Cheapside were numerous narrow streets, built without the slightest regard to alignment, in which the riverside population lived. The Cheapside of that day was very different from the great thoroughfare as we know it. It consisted chiefly of a market similar to that of Covent Garden, while on the stalls various articles were for sale. No vehicles passed through, all the carrying being done by pack horses. The two forts

built by the Normans, viz., Baynard's Castle and the Tower, were intended to allow the King free access to the City whilst overawing the citizens.

A JOINT report for presentation to the London County Council has been prepared by the Improvements and Housing of the Working Classes Committees respecting the Holborn to Strand and Clare Market scheme. The following recommendations are made: (a) That, having regard to the nature, extent, and importance of the Holborn to Strand improvement and to the special circumstances connected with the case, the Improvements Committee shall, notwithstanding existing references to the committees, be charged with the clearance and laying out of all property comprised in the Clare Market scheme and of the whole area between Holborn and the Strand, the sites agreed by the two committees to be set apart for working class dwellings being subsequently handed over to the Housing Committee. (b) That the Housing Committee do supply information to the Improvements Committee as to any negotiations now on foot for the purchase of any property on the Clare Market area. (c) That it be referred to the Finance Committee to make any necessary re-arrangement of the accounts between the two committees. (d) That the Improvements Committee do consult the Housing Committee when formulating any street improvement which would appear to involve a scheme for rehousing the persons of the labouring class to be displaced, or when preparing for submission to the Home Secretary any rehousing scheme in connection with a street improvement sanctioned by Parliament and undertaken by the Council.

THE pictures and other objects of Art and decoration, the property of the late Sir Richard Quain, Bart., M.D., have been sold at his late residence, 67, Harley Street, by Messrs. Samuel B. Clark and Son. The large and well-known gallery picture, "All Hallows Eve," by David Maclise, R.A., realised 205 guineas; and a portrait of a black and tan terrier, by Sir E. Landseer, 225 guineas. The same sale included also a small square of old tapestry, which realised 350 guineas; and a Sèvres tea service of eleven pieces, richly gilt on a green ground with beautifully painted panels, presented by Queen Amélie to the late owner, 52 guineas.

MR. W. WALLACE BRUCE, chairman of the Housing Committee of the London County Council writes:—Up to the present time the London County Council has only built dwellings to rehouse persons displaced by its schemes for the clearance of unhealthy areas, and by the construction of the approaches to the Blackwall Tunnel. In both of these cases the plans of the dwellings have to be submitted to the Home Secretary or to the Local Government Board. These authorities have a very high standard, and dwellings on the plan of many of the Guinness buildings would not receive their sanction. It is impossible to build up to this high standard, and at the same time to charge very low rents, unless a portion of the rent is charged to the ratepayers.

"ST. AUGUSTINE'S CHAIR" will be exhibited some time in December by the Rev. Dr. Cox, F.S.A., at Burlington House, at one of the sessions of the Society of Antiquaries. Over sixty years ago there stood in the corner of the basement of the pre-Norman tower of the Church of Stanford Bishop, near Bromyard, an old decrepit oaken seat or settle. It had been moved there early in the present century because it was considered too common-looking for the chancel, where it used to stand. Local tradition not only called it Augustine's chair, but stated that it was used by St. Augustine when he was missionary in those parts. During a comparatively recent restoration of the church, the masons, wanting a fire, were about to break up the old chair, but the parish clerk begged it, and placed it in the garden of his cottage. From this forlorn position it was rescued, in 1888. This is not, of course, the "Chair of St. Augustine" to be seen in Canterbury Cathedral.

ARE ARCHITECTS' ASSISTANTS UNDERPAID?

To the Editor of THE BUILDERS' JOURNAL.

DEAR SIR,—It was gratifying to read the letter of "Provincial Assistant," published in last week's number of your paper, and it is indeed pleasant to find that someone is at last protesting against the miserable underpayment of architects' assistants.

Although your correspondent's letter appears to be rather one-sided, it may be agreed that, as far as capable assistants are concerned, the Profession is not overcrowded.

It is to those persons, miscalled architectural assistants, who lack sufficient training, and are content with meagre salaries, as well as to those qualified men who are silly enough to give their services for little or nothing, that we owe this grievance.

One would think that some amount of organisation would put matters right. Could we not form an association, and have certain qualifying examinations for men who have served a term of years as pupils in architects' offices? There could be two or three grades with various classes in each grade, so that a student, passing first class second grade, would be engaged as a first class second grade assistant, and receive a salary not less than that arranged for him by the Association. Why should this be deemed *infra dignitatem*, as savouring of a trades union? Our principals have their scale of fees, why should we not have ours? Doubtless many difficulties would attend the formation of such an association, but it could be done if every assistant did his share in bringing it about. Many would be the advantages of such a union. Shall we quench the spark which has been lighted? Let us rather raise a voice which shall not easily be silenced, which shall rouse the Royal Institute and other architectural societies from their lethargy. Then will come architects' registration, and the tone of the Profession will be heightened. Then shall Architecture take her place as foremost in the fine arts, the most essential to our country's welfare, and become a lasting monument to the greatness of our nation.—I am, dear Sir, yours faithfully, "ANTICIPATION."

To the Editor of THE BUILDERS' JOURNAL.

DEAR SIR,—I have read with great interest the correspondence in your columns upon the above subject.

I should like to suggest that the fault of small salaries being paid lies not so much with the employers as with the assistant himself. As an assistant of ten years' varied experience, I have found that, in the majority of cases, if a man is worth £3 3s. he can get it; but it is a waste of time a man getting £2 2s. (and being only worth it) to think he is worth double that sum. Speaking of a large proportion of assistants, one looks down the advertisement columns of the building papers, and there one sees frequently an assistant advertising, "Design, Supervision, Detail, Perspective, Quantities, &c., &c." salary £2 2s. It takes a lot of believing, sir, that a man with such a knowledge cannot command more.

On the other hand, architects themselves are to blame. They engage a person advertising as mentioned, only to discover that he is a dear man even at two guineas. There are many such assistants—indeed, I might almost say the majority—who ought never to have seen a T-square, and it is in this direction that we must look for a solution of the question. A combination is a wrong idea; we cannot have an "Amalgamated Society of Draughtsmen" putting good and bad on one level at so much per hour.

No, Sir, in my humble opinion, what governs salary is ability.—Yours truly,

"COMPASS."

LAST week Princess Christian opened the tenth annual exhibition of Amateur Art Work at the Imperial Institute. The display in all classes was very creditable.

Professional Items.

ACTON, W.—The Passmore Edwards Public Library, Acton, W., which is being erected by the District Council of Acton, with the aid of Mr. J. Passmore Edwards, is to be carried out in Portland stone for all parts to which the public have access. The plan shows that all the public rooms are on the ground floor, and that the maximum areas for these departments have been secured. The public entrance is located in the middle of the main front facing High Street, and leading into a central hall, out of which the various reading rooms as well as the lending library are reached. Facing the entrance to the left is the newspaper room, 50ft. by 30ft., having windows to the east, and a tall gable window at the south end of the apartment. Dormers for light and ventilation occur between the arched roof principals, and a ventilating turret in the centre is provided. Slopes will be placed under the windows round the room, and newspaper stands and tables will, of course, occupy the central area. To the right-hand of the visitor, and also facing the entrance, is placed the lending library, with good space for borrowers. This part of the building is lit by a glazed lantern. Mr. Sidney Powell, of Acton, has the work in hand as builder. The architect is Mr. Maurice B. Adams, F.R.I.B.A.

BIRMINGHAM.—The new church of All Saints, Birmingham, has been dedicated by the Bishop of Worcester. At present only the chancel and nave have been completed, and a baptistry and tower are to be added when funds will permit. The total cost already incurred amounts to £3300. The building has been erected by Messrs. Collins and Godfrey, of Tewkesbury, from the plans of Mr. J. A. Chatwin, Temple Row, Birmingham.

BRISTOL.—Extensive premises are being erected by Messrs. Ford and Canning in Baldwin Street, Bristol, to be known as "Canada House." The first portion of the block has already been built, and is almost entirely let, and the remainder, which will occupy the circular corner and extend a little way into Queen Charlotte Street, is expected to be ready for occupation by the end of the coming spring. The style of the building is more or less a continuation of the present block, that is a phase of Flemish or Dutch Renaissance. The materials used for the front are Cattybrook face bricks with dressings of orange rubber bricks and freestone. The roof will be of slate. The offices internally will be light and commodious, and will be provided with capacious strong rooms and sanitary accommodation of a high class. One wing will be set apart for the latter purpose. The floors consist of basement (to be used as a bonded cellar), ground, first, second, third, and attic. The architects are Messrs. Gingell and Bond, of Alliance Chambers, Corn Street, and the work is being carried out without the aid of a contractor, Messrs. Ford and Canning's own men being employed, under the superintendence of a building manager. The cost of the whole block will be about £10,000.

CARDIFF.—Cardiff has just been provided with a new Custom House of a neat if not very ornate design. The front wall is of Portland stone, and the sides consist of glazed bricks, relieved with Portland stone dressing. The total depth of the building is 94ft. The frontage to Bute Street is 40ft., and the elevation is the same. The premises are floored throughout with wood blocks. The staircases are of stone, with ornamental rails. The whole building, which was erected by Messrs. William Thomas and Son, contractors, Tresillian Terrace, Cardiff, from plans drawn by Mr. Banner, Office of Works, Whitehall, London, cost £5000.

DEVONPORT.—The St. Levan Wesleyan Chapel was last week formally opened. The building, which fronts Stuart Road, is constructed of limestone with Bath stone dressings,

in a simple style of late Gothic, having a capacity for five hundred sittings. The roof is of the open timbered character. Mr. W. N. Richards, architect, of Devonport, prepared the design, and the building contract has been executed by Mr. Kerswill, of Plymouth. Including the contract price, £2387, the estimated cost of the erection and furnishing was £2919.

DUBLIN.—During the last twelve months a considerable amount of work in connection with the restoration of Clonfert Cathedral has been carried out by Mr. A. P. Sharp, builder, of Dublin, to the plans of Mr. J. F. Fuller, F.S.A. Special attention has been given to the chancel, which is one of the oldest parts of the Cathedral—more than a thousand years old. This has been thoroughly repaired. The belfry tower, the buttresses, and the roof, have been also repaired. The sacristy has been successfully preserved without altering the ancient character of the structure. Other necessary work has been accomplished. A thorough system of drainage has been carried out around the entire building. Messrs. Craven, Dunnill, and Co., of Shropshire, have laid down tiles in the chancel. A new heating apparatus, supplied by Messrs. A. K. Fayle and Co., of Parsonstown, has been placed in the chancel. Through the instrumentality of a friend of the late Bishop Wynne, a carved oak communion table, specially designed by Mr. J. F. Fuller, F.S.A., has been presented to Clonfert Cathedral.

EAST HAM.—The foundation stone of the East Ham Free Library was formally laid on Saturday week. The library is to be built on the Plashet Recreation Ground, and the cost of erection is to be £4000. Mr. Sylvanus Trevail, F.R.I.B.A., is the architect.

GLASGOW.—The High School Building Construction Classes on Saturday visited the Glasgow slaughter-houses in process of reconstruction in Moore Street. The fencing throughout byres is of steel, hydraulic lifts replace the old-fashioned winches, and new steel roofing is likewise provided, so that when ultimately completed the new arrangements will place the building amongst the first of its kind. The work is being proceeded with by sections. Over forty students took advantage of the permission granted by Mr. A. B. McDonald, the city engineer. The cost, meantime, is over £30,000.

LOWESTOFT.—A new technical school (the only one of its kind in Suffolk, outside Ipswich) has been erected at a cost of about £7400 by the Lowestoft Corporation. The new buildings have been designed by Mr. George Leighton, architect, of Ipswich, in the Renaissance style, with a modern rendering of the Collegiate type. Effect has been gained by the massing and proportion of the various parts of the whole, rather than ornamentation. The features of the North or Gordon Road front are the boldly designed gables at each end, with the deeply recessed windows, the arched panels forming the heads being filled in with figure carving of bold and graceful lines. The main entrance is from Clapham Road, through vestibules (planned to exclude the cold air) to the spacious entrance hall with the attendant's office. The corridor, 9ft. wide, runs the whole length of the building. It is lighted from both ends and from the centre, and in addition by a large window on the grand staircase. A similar corridor gives access to the rooms of the first floor, and there is ample space for arranging specimen cases. The accommodation provided is ample and up-to-date. A very fine room is that devoted to the teaching of building construction, machine construction, and for some advanced subjects. The fittings throughout have been specially designed by Mr. Leighton for their respective uses and requirements. The heating work on the low pressure hot water system with radiators and coils have been executed by a Lowestoft firm, Messrs. W. J. Brooke and Co. The general contractor has been Mr. Arthur Bedwell, of Lowestoft. The masonry has been done by

Mr. Whitehead, of Regent Road, Lowestoft, and the whole of the work has been carried out under the personal superintendence of the architect.

NEWPORT.—The new Church of All Saints has been formally consecrated. The church has been built from designs of Messrs. Graham, Hitchcock, and Co., by Mr. E. C. Jordan, in Early English style, of Risca stone, with Bath stone dressings. It consists of a nave and two aisles, with a handsome, well-proportioned tower, and has seating accommodation for about 600 worshippers. The reredos, pulpit, lectern, reading desk, &c., are of oak, beautifully carved, the reredos especially being beautifully designed, and with carved figures representing the scene of the Last Supper. The contract for building was £6500, but the extras for furnishing, laying-out the ground, and other necessities has brought the total cost up to about £10,000.

PRESTON.—The Theatre Royal has been rebuilt. Full advantage of the cantilever principle of support has been taken, so that while a maximum of strength for the whole structure is secured, not so much as a solitary pillar deprives the audience of sight of the play. The heating of the building is effected throughout by means of low pressure apparatus; the lighting is by electricity. The architect was Mr. John P. Briggs, of Arundel Street, London; and those responsible for the many sections of the work are:—General contractor, Mr. Chas. Walker, Preston; artistic decorations, Mr. Bookbinder, London; electric lighting, Messrs. Vaughan and Brown, Ltd., London; upholstery, &c., Messrs. Gray and Co., Preston; seating, Messrs. Shoolbred and Co., London; heating and other apparatus, Messrs. Dilworth and Carr, Preston; gas plant, Mr. J. Edge, Preston; steel constructional work, Messrs. Foster Bros., and Co., Preston; general painting and plumbing, Messrs. E. Park and Sons, Preston; act drop, Messrs. Hicks and Brooks, London; tiling, the Porcelaine Tile Co., Cobridge; ceramic work, Messrs. Webb and Co., London; marble dados, Mr. Wm. Hodgkinson, Preston; stage machinery, Messrs. Lyons and Co., London; Glass decorations, Messrs. Clarke and Co., London; carving on elevation, Mr. Arrowsmith, London.

SOUTHWOLD.—A new bridge has been built at Southwold. The new structure has brick abutments, and retaining walls, the superstructure being formed of steel trough girders. The parapets over the span are of wrought iron lattice work; the width across the bridge is 26ft., and the waterway 20ft. There are brick piers at each end of the bridge, the approaches being fenced with cast iron standards and wrought iron rails. The plans were prepared by Mr. Henry Miller the county surveyor. The estimated cost of the entire work is £1050.

TONG.—Mr. Briggs Priestley, M.P., has formally opened the new Board School which has been erected at Highfield for the Tong School Board. The school has been built on the central hall principle. The number of places, the provision of which has been sanctioned by the Education Department, is 396, but if more are required these can easily be secured by erecting a separate building for cookery classes, and utilising the extra space in the main building, which would then be at disposal. The cost of the works, exclusive of the site, is about £7000. Messrs. W. and J. B. Bailey, of Bradford and Keighley, are the architects, and the following firms have been engaged on the works:—Messrs. Coates, Murgatroyd and Son, Idle, masons; Mr. Richard Raper, Dudley Hill, joiner; Messrs. Thomas Nelson and Son, Bradford, slaters; Messrs. J. Booth and Son, Dudley Hill, plumbers; Messrs. J. Laycock and Sons, Stanningley, plasterers; Mr. D. E. Hutton, Shipley, painter; the heating apparatus was provided by Messrs. J. Booth and Son and Mr. Thomas Mears, Bradford; the wrought iron work by Messrs. Taylor and Parsons, Bradford; and ventilators by Messrs. Cousland and Mackay, Glasgow.

Correspondence.

PARPOINTS.

DEAR SIR,—Permit me to call attention to two recent misapplications of the term "Parpoint" in your pages. The writers, no doubt, meant to imply coursed walling with rough face. What I believe to be a true parpoint is a wallstone the full width of a wall, such as is used for a dwarf wall faced both sides, or in walling above a roof at the gable end of a building. These parpoints are the most costly of their class of wallstones. The ordinary walling is faced with stones of 7in. average bed, and ranging from 7in. to 3in. in depth, the length varying considerably. The backing is either random rubble or brickwork. The face is classed as:

1. Clean-cut wallstones.
2. Clean-cut, slightly pitched.
3. Pitched face wall stones.
4. Insides.

"Clean-cuts" have a cracked face only, practically square to the bed. No. 2 are similar stones, having 4in. knocked off with a pitching tool around all edges of one face. No. 3 are stones which have not cracked squarely, and require portions of the face knocking off by hammer alone, or by the pitching tool.

The above are known as "Outsides," and stones unfit for the above classification as "Insides," which are used for inner walling, &c. The term "Shoddies" is applied by many to all untooled wallstones in courses, for what reason I have hitherto failed to get an explanation.—Yours truly, C. C.

Enquiry Department.

THE SKY-SCRAPER.

To the Editor of THE BUILDERS' JOURNAL.

SIR,—Could you, or any reader, give me the name and numbers of any paper that has had articles on American steel skeleton construction as applied to high building, and oblige, yours, etc., "SKELETON."

An illustrated article on this subject will shortly appear in these columns; but for more immediate reference perhaps some reader will supply the names of journals wherein the subject has been dealt with.

INTERNAL DAMPNES.

To the Editor of THE BUILDERS' JOURNAL.

DEAR SIR,—Can you tell me (through the medium of your paper) what is the cause of dampness in internal walls of a house built six months ago? The house has been occupied about six months, and the dampness did not show itself until the recent wet weather; neither does it show itself in the partitions, and therefore cannot be attributed to the plaster or distemper. The walls are built with bricks made from clay obtained about ten miles from the sea. Would they attract sufficient moisture to cause the dampness? Thanking you in anticipation, I am, yours faithfully, J. F.

It is just possible that the moisture may be due to condensation. If so, the remedy is to be found in efficient ventilation, by means of an outlet near the ceiling level into the chimney. It is hardly likely that the bricks are to blame—at any rate, inspection of other buildings in which the same bricks have been used would soon show whether it were the case. The present distance of the brickfield from the sea hardly affects the matter, for clays quite free from salt are to be found close to the sea, and others strongly impregnated many miles inland.

THE Coronet Theatre at Notting Hill Gate will open on the 28th inst. The architect is Mr. W. G. R. Sprague, who also has in hand the Royal Duchess at Balham (to be completed early in the spring), and the Terriss Theatre, opposite the Town Hall at Rotherhithe.

Under Discussion.

EDINBURGH ARCHITECTURAL SOCIETY

Mr. John Kinross, A.R.S.A., Hon. President, delivered his address to the Society a few days ago. Mr. P. E. Nobbs presided. Mr. Kinross began by contrasting the munificence of such men as Usher, Findlay, and McEwan, in beautifying the city by the erection of public buildings, with the conduct of the landowning and speculative classes, who were everywhere, but specially in the suburbs, doing their best to sacrifice the amenity of our streets for their own gains. He insisted on wide streets with ample light being necessary for the health of the community, and spoke strongly in condemnation of timber fronts to shops and all flimsy and perishable types of Architecture generally. Mr Kinross in conclusion uttered a warning against the dangers of copying the features employed by great or popular architects, for many things were only allowable when treated consummately in the hands of a master. It was not the good work of great men that got copied, but the easily imitated and least worthy things they did.

BRITISH ARCHÆOLOGICAL ASSOCIATION.

At the first meeting of the Session 1898-9, held at the Society's head quarters in Sackville Street, Piccadilly, W., Mr. C. H. Compton, V.P., in the chair, many objects of mediæval religious art were exhibited by Mr. Andrew Oliver, consisting of several crucifixes and one processional cross with reliquary; also four axes, and an ivory figure of St. Michael and the Dragon of Spanish workmanship, and a figure of our Lord with movable head of ivory. This also is Spanish of the sixteenth century, the hands and feet are lost, they were, doubtless, also of ivory. The most interesting exhibit was a hanging lamp of rough terra-cotta in the form of a fish of Early Christian date.—Mr. Patrick, hon. secretary, reported the discovery early last month at Paul's Wharf, Upper Thames Street, of a portion of an ancient wall 4ft. or 5ft. in height, composed of massive random built Kentish ragstone, resting on a grille of squared timber. The wall apparently had no squared face, it was found at a depth of 12ft. or 13ft. below the present ground line in excavating for new buildings under the superintendence of Messrs. Stock, Page, and Stock, who thoughtfully communicated the above particulars.—The Rev. H. J. D. Ostley, hon. secretary, reported further discoveries at Dumbarton, where the Crannog was recently found.—The Rev. Caesar Caine read a paper on "Our Cities sketched Five Hundred Years ago." The subject of the paper was a description of a most interesting fourteenth century transcript by an unknown scribe of Geoffrey, of Monmouth's History of the Britons, now in the British Museum and numbered Bib Reg. 13A. iii. A characteristic feature of this manuscript is the addition to the text of many drawings of persons and places. The scribe would seem to have travelled much, and to have been well acquainted with the places of importance on the road from London to Edinburgh, and has embellished the margins of the vellum pages, with sketches of the chief buildings. Thus we have the Tower of London, the Castle of Edinburgh, the walled border town of Carlisle and York Minster, all delineated with skill and clearly recognisable. The Abbey Churches of Bath, Gloucester, Winchester, with many others, and innumerable coats of arms and banners, add very great interest to this little old world volume. Mr. Patrick, hon. sec., exhibited on behalf of Mr. J. T. Irvine some very carefully measured drawings of the beautiful seventeenth century oak pulpit which, until recently, adorned the church of Yaxley, Hunts. Yaxley Church was visited by the Association during the recent congress, and many of the members were sorry to see the several parts of this fine piece of wood carving which was scarcely injured, thrown down and lying on the floor at the west end of the nave in order to give place to a brand new pulpit. The date of the pulpit is 1631.

Views and Reviews.

TIMBER MEASUREMENT.*

Two exceedingly valuable little books on the measurements of timber have just been produced by Mr. E. A. P. Burt, one being a guide to the cubing of round timber, and the other to the ascertaining of its weight for computing railway rates. They evidence an immense amount of most careful calculation and wise arrangement by an expert upon the subject, who has endeavoured and succeeded to supply to all who sell, purchase, or use timber, a ready and correct method of measurement. Plenty of examples are given, and everything is clearly explained.

* "Guide to Round-Timber Cubing Rule," by E. A. P. Burt. William Rider and Son, Ltd., Bartholomew Close, E.C. 2s. 6d. "Round Timber Measurement Tables for Railway Rates," by E. A. P. Burt. Rider and Son, 1s.

THE TESTING OF WATER AND SEWAGE.

Quantitative chemical analysis is a delicate operation, as a rule only to be undertaken by a properly qualified analytical chemist; yet analyses of water, and also of sewage effluent, are frequently needed, and must be made by the comparatively inexperienced. A simple method of doing this is admirably explained by Dr. Thresh, whose little book on the subject has now reached a second edition, many of the amateur's difficulties being overcome by the employment of chemicals in the form of soluble solids, securing absolute cleanliness combined with exactitude of measurement. As the metric system is used, to which chemists are accustomed, but not the general public, the fact must be noted—its advantage, where decimal analysis is needed, being obvious to all. A most useful feature of the book, too, is its inclusion of a series of specimen reports upon inspection and analyses, showing how they ought to be drawn up.

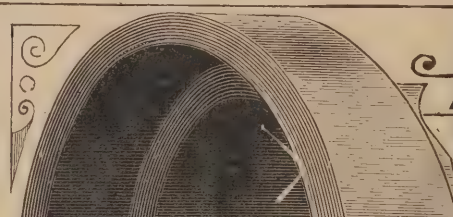
"A Simple Method of Water Analysis." By John C. Thresh, M.D., D.Sc., D.P.H. Second Edition, Enlarged. J. and A. Churchill, 7, Great Marlborough Street, S.W., 2s. 6d.

CARPENTRY AND JOINERY.*

This is a well printed little handbook of some 300 pages, dealing with the subjects of its title in the orthodox manner, as prescribed in the syllabus of the City and Guilds of London Institute, and perhaps, in consequence thereof, being mainly a replica, at least so far as the illustrations are concerned, of all those similar text books that have gone before, the compilers of which seem imbued with the idea that it is their whole duty to faithfully copy their predecessors both in truth and fault. Of this latter, the work now before us seems to possess fewer than most of those we have seen, but there are still one or two absurdities introduced, to wit, the utterly preposterous sheet of joints on page 73, copied, if memory serves us rightly, bodily from "Newlands," itself the work of a man who was perhaps everything but a joiner, but as his work is the bible of the Institute, Mr. Webber is doubtless wise in his selections. That he is a clever draughtsman, the neatness and appositeness of his diagrams testify, and the sharpness of the printing and general get up of the book are creditable alike to printer and publisher, but that it will fulfil the author's hope, as expressed in his preface, "that it shall become a work of reference for apprentices and craftsmen," we very much doubt. That it is an admirable text book for those enterprising youths who have a desire to pass the examinations and hold the certificates of the City and Guilds of London Institute, we can honestly affirm, as we can also of any other half-dozen of similar productions that have appeared annually since that body was inception; but—and this is a very important but—the requirements of this body, as exemplified in their examination papers, and the everyday practice of skilled carpenters and joiners, are two totally different things.

* "Practical Carpentry and Joinery." By F. C. Webber, Lecturer at Merchant Venturers' College Methuen and Co., Essex Street, Strand, price 3s. 6d.

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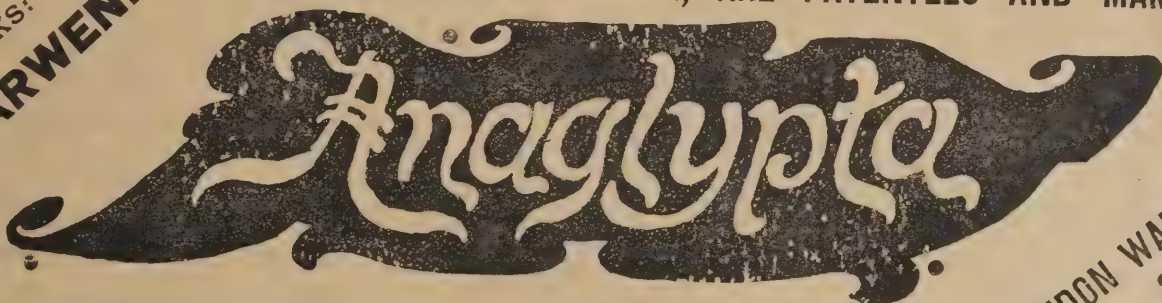
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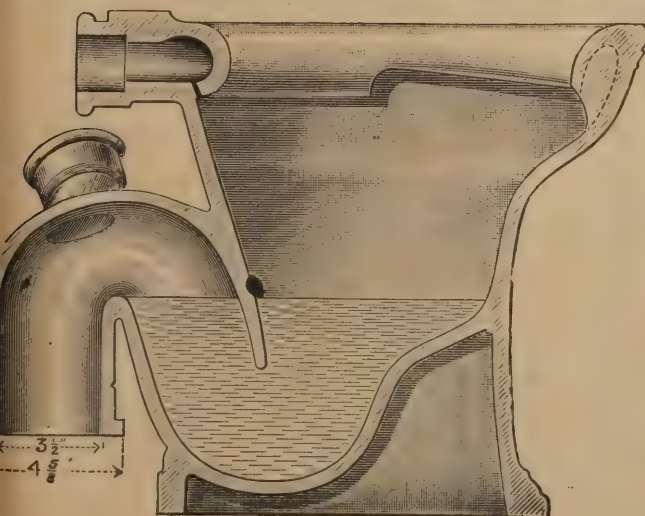
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TO BUILDERS.

The Guardians of the Poor of the Holborn Union desire to receive TENDERS for ALTERATIONS to the DRAINAGE SYSTEM at their Schools, Mitcham, Surrey.

Persons desiring to Tender may obtain a specification and form of Tender upon application any day between the hours of TEN a.m. and FOUR p.m. to the Guardians' Architect, Mr. A. SAXON SNELL, F.R.I.B.A., of 22, Southampton-buildings, Chancery-lane, W.C., and depositing with him a £5 Bank of England note, which will be returned to persons sending a bona-fide Tender in the manner and at the time and place specified below.

Tenders must be signed, sealed, and endorsed "Tender for Drainage Work, Mitcham Schools," and addressed and delivered to me at my Offices not later

than FOUR p.m. on WEDNESDAY, NOVEMBER 23rd, 1898.

The Guardians do not bind themselves to accept the lowest or any Tender.

By order,

H. O. HILL,
Guardians' Office, Clerk to the Guardians.
Clerkenwell-road, E.C.
November 8th, 1898.

HERTFORD UNION.

TO BUILDERS AND OTHERS.
The Guardians of the Poor of this Union invite TENDERS for the ERECTION of ADDITIONAL VAGRANT WARDS at the Union Workhouse, Hertford.

Drawings and specification may be seen at the Office of Mr. RUSSELL AUSTIN, 13, Villiers-street, Hertford, and form of Tender and quantities obtained from him on and after THURSDAY, NOVEMBER 17th, between the hours of TEN a.m. and SIX p.m.

Sealed Tenders, marked on the outside "Vagrant Cells," to be delivered to me, the undersigned, not later than NOVEMBER 25th, 1898. The Tenders will be opened at the meeting of the Board on NOVEMBER 26th, 1898, at ELEVEN a.m.

The Guardians do not bind themselves to accept the lowest or any Tender.

The person whose Tender is accepted will be required to enter into a contract, in writing, for the execution of the works.

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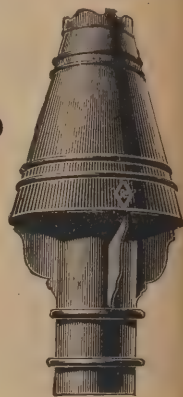
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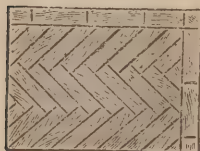
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By SHERARD COWPER-COLES,
Assoc. M. Inst. C.E., M.I.Mech.E., M.Inst.E.E.

(Continued from page cvii.)

WITH regard to the best working conditions of zinc sponge, most authorities recommend a current density of 18 to 20 amperes per square foot of cathode surface, and aqueous solutions of zinc sulphate acetate, or ammonium chloride, or tartrate, as being the most suitable for its deposition. Herman's process has also been experimented with on a commercial scale, the chief feature being the addition of the sulphates of the alkalies or alkali earths to a weak solution of zinc sulphate. Zinc deposits

obtained from hot electrolytes appear to be more porous than those obtained from cold electrolytes. When the articles to be zincd are first placed in the bath it is found advantageous to use as high a current density as possible, and after a few minutes to reduce it to about 15 amperes per square foot. Smee appears to have been one of the first—if not the first—to deposit cadmium. Since he published the result of his experiments the matter has received but little attention, partly due, no doubt, to the scarcity and

CONSIDERABLE COST OF THE METAL;

it can now, however, be obtained of good quality at a low rate. Its use has hitherto been confined to the production of the yellow sulphide, Cds., as an artist's pigment, and to the use of the photographer in the form of iodide, Cd₂I₂, and bromide, CdBr₂. Cadmium melts at the same temperature as tin; an alloy of 3 parts cadmium, 15 bismuth, 8 lead, 4 tin, fuses at the remarkable temperature of 140°

F., 72° below the boiling point of water, which has led to its being selected for the manufacture of fusible alloys for electric cut-outs. Cadmium resembles tin in colour and appearance and is very malleable and ductile at the ordinary temperature. Smee obtained good tough deposits of cadmium from an ammonia sulphate solution, made by adding ammonia to the sulphate and dissolving the precipitate in a very small excess of the precipitant, but was unable to obtain good deposits from sulphate or chloride solutions. In 1849, Messrs. Woolrich and Russell, of Birmingham, took out

A PATENT FOR DEPOSITING CADMIUM.

They prepared a solution by dissolving metallic cadmium in nitric acid of commerce, diluted with about six times its bulk of water, which they preferred to add at a temperature of some 80° or 100° F., adding the diluted acid by degrees until the cadmium was dissolved. To this solution of cadmium they added a solution of carbonate of soda (made by dissolving 1lb. of ordinary crystals in a gallon of water) until the cadmium was precipitated. The precipitate thus obtained was washed three or four times with tepid water when it was ready for use, various solvents being used, but the one preferred was a solution of cyanide of potassium, which was added in sufficient quantities to dissolve the precipitate and leave one-tenth of the solution in excess. The best working strength for the solution was found to be 6oz. (troy) of the metal to the gallon, the temperature of the bath being about 80° or 120° F. Bertrand claims to have obtained white adherent coatings from an acid sulphate solution, and a solution of the bromide slightly acidulated with sulphuric acid. A strong solution of the double salt of cyanide of cadmium and potassium will deposit the metal rapidly and in a bright form, a cadmium anode dissolving very freely.

ITS INERTIA TO CHEMICAL ACTION,

as compared to zinc and brass, renders cadmium suitable for coating the terminals and connections of primary and secondary batteries, and for coating small shot (for sporting purposes) and steel bullet jackets, in the one case to prevent the leading of the barrels, in the other the corrosion of the steel. Table No. 3 shows the weights and thicknesses of zinc coatings, and Table No. 4 the cost of various thicknesses of zinc and cadmium coatings. In coating iron and steel with copper the iron is first of all thoroughly cleansed either by pickling or sand blasting, and then coated with copper in an alkaline bath, the salt most commonly used being double salt of cyanide of potassium and cyanide of copper. As soon as a good coating of copper has been obtained in the alkaline bath, the article is then removed and placed in a copper sulphate bath. Hydraulic rams and gun barrels are coated to some extent with copper, but otherwise the process is not much used. Experiments have recently been made to apply copper sheathing to iron hulls direct by electrolysis, a portable vat being arranged to fit to the side of the vessel; but the process has not met with commercial success up to the present, owing to the excessive cost of the process, and on account of the copper being electro-negative to the iron or steel hull.

An examination of master and operative plumbers applying for registration under the National Registration of Plumbers was held on Saturday week by the Worshipful Company of Plumbers at King's College. Twenty-one candidates presented themselves for examination from various parts of London, also from Cambridge, Carmarthen, Guildford, Maidstone, Ramsgate, Windsor, and Worthing. The tests in workmanship included lead-bossing, pipe bending, and joint making, and the examination questions included the subjects of roof covering, contamination of drinking-water from faulty connections, arrangement of bath, sink, and closet wastes, drainage of town-houses, and disconnection with sewers. Nine succeeded in passing the examination in practical workmanship.

TABLE NO. 1.—RESULTS OF EXPERIMENTS TO DETERMINE THE TENSILE STRENGTH OF WIRE, ZINC, AND LEAD GALVANISED.

	Diameter.	Area.	Actual Breaking Load.			
			Tons.	Pounds.	Tons per Square Inch.	Pounds per Square Inch.
	Inches.					
Plain...	0.121	0.0115	1.16	2598	100.9	266,000
Hot galvanised ...	0.120	0.0113	1.05	2354	92.9	208,100
Lead coated ...	0.120	...	1.15	2634	104.0	233,000
			1.175			
			1.20			
Plain...	0.092	0.006648	1.20	1190	79.9	179,001
Hot galvanised ...	0.091	0.006504	1.20	1050	72.1	161,439
Lead coated ...	0.091	0.006504	1.20	1230	84.4	189,114

TABLE NO. 2.—OUTPUT OF WORK OF COMBINED ZINCING AND PICKLING PLANTS OF VARIOUS SIZES—100 HOURS PER WEEK, 5200 HOURS PER ANNUM.

Size of Plant.	Output of work per week in square feet, at 10z. of zinc per square foot.	Output of work per annum in square feet at 10z. of zinc per square foot.	Output of Work in Tons per Week, 1-16in. to 3/4in. Plate.					
			1-16in. Plate.	3/4in. Plate.	3-16in. Plate.	3/4in. Plate.	5-16in. Plate.	3/4in. Plate.
amperes.			tons cwt.	tons cwt.	tons cwt.	tons cwt.	tons cwt.	tons cwt.
2,900	10,284	534,768	5 15	11 10	17 4	22 19	28 14	34 9
4,500	15,508	806,416	8 13	17 6	25 19	34 12	43 5	51 18
5,600	20,011	1,040,572	10 8	20 19	33 9	44 13	55 1	66 19
7,000	25,180	1,302,360	14 1	28 5	42 7	56 4	70 5	84 6
8,800	31,017	1,612,884	17 5	34 11	51 19	69 5	86 10	103 15
10,100	36,186	1,881,672	20 4	40 8	60 11	80 15	100 19	121 5
11,600	41,356	2,150,812	23 1	46 2	69 4	92 6	115 7	138 8
14,000	46,525	2,419,300	25 19	51 18	77 17	103 17	129 16	155 15
14,500	51,695	2,688,140	28 16	57 12	86 10	115 8	144 4	173 0

TABLE NO. 3.—WEIGHTS AND THICKNESS OF ZINC COATINGS.

Weight of Zinc per Superficial Foot.		Weight of Zinc per Superficial Yard.		Thickness of Coating.	
oz.	1	oz.	9	in.	in.
3 1/2		6 3/4		.001698	or 50/100
4 1/2		10 1/4		.001273	" 50/100
5 1/2		14 1/4		.000849	" 100/100
6 1/2		18 1/2		.000424	" 200/100

TABLE NO. 4.—COST FOR VARIOUS THICKNESSES OF ZINC AND CADMIUM COATINGS.

Cost of Zinc per Square Foot.	Cost of Cadmium per Square Foot.	Weight of Deposit per Square Foot.	Thickness of Deposit.	
			Zinc.	Cadmium.
d.	d.	oz.	in.	in.
.0107	2.625	.1	.00016	.0001
.0267	6.545	.25	.0004	.00025
.053	13.125	.50	.0008	.0005
.080	19.670	.75	.0012	.00075
.107	26.25	1.0	.0016	.001

* A paper read before the Society of Engineers, on October 3rd, 1898.

THE CONSTRUCTION AND VENTILATION OF HOUSE DRAINS.

By PROF. A. BOSTOCK HILL, M.D., D.P.H.,
F.S.I.

IT might at first sight be thought that a subject like this in the present stage of sanitary science had been definitely settled, but, as a matter of fact, we find that on some points authorities still hold divergent views. The question of amount of fall, materials of pipes, &c., no doubt are agreed upon; but certain other points give rise to controversy on different forms of procedure in different districts. . . . The question of the relation of house drains to so-called compound drains and sewers has been forced on public attention by certain well-known decisions of the High Court; decisions given mainly to settle the point—what is a drain and what is a sewer? The subject is of importance, because sewers by Section 13 of the Public Health Act are vested in the local authority, while drains, of course, are the property of the private individual. In the past, at all events in the Midlands, it has been customary for

THE SMALL CONTRIBUTORY DRAINS

from a row of houses to join a larger one which connects with the public sewer. Most of the difficulties have arisen in cases of this kind. As regards the construction of these drains the size and methods of disconnection and ventilation are the chief points to be considered. As to size of drains, the smallest which will convey the necessary quantity of liquid is certainly best for reasons of cleanliness. From a single house a 4in. pipe is ample, yet I have been very surprised to find that in case of recently erected cottages a 6in. pipe has been insisted upon by some surveyors, and, as far as I can understand, the only reason urged for this is the less likelihood of the pipe becoming blocked. But, even if this be true, which I take leave to doubt, there are many corresponding disadvantages. From small houses the soiled water chiefly comes down in gushes, the pipe itself, if it be as much as 6in., is never nearly filled, but the sides get splashed, and they are in a very short time dirty, and have on their surfaces matter in a state of putrefaction. Again, it is impossible to flush a pipe as large as 6in. coming from a single small house, so that, although such a pipe may not become so frequently stopped up, still it is in a condition in which sanitary science has conclusively proved a house drain should not be. It is, however, on

THE QUESTIONS OF DISCONNECTION AND VENTILATION

that the greatest differences occur. The by-laws in many towns state that every drain shall be cut off by an intercepting trap from the sewer. The judges have decided that a so-called compound drain on private property is a sewer, therefore, say certain authorities, we must insist on the presence of an intercepting trap between each of the contributory drains, and the common drain which has become a sewer. Let us suppose, for the sake of argument, that legally a compound drain, though on private ground, is a sewer. As the by-laws were formulated some years previous to the legal decision, we may take it as at least doubtful whether the compound drain was intended by the sanitary advisers of those who framed the by-laws to be so considered; and we may also consider whether though legally a sewer it is desirable, from a sanitary point of view, to treat it as such, as regards our methods of interception and ventilation. Let us consider this for a few moments.

THE OBJECT OF A DRAIN

is to remove, as quickly as possible, from the neighbourhood of the dwelling, foul water which has passed into it. The law here steps in, and those who choose to consider it binding insist that at each junction of the sub-drain with the compound drain (legally a sewer) there shall be a disconnecting trap between the house drain and the compound drain, so

that in a row of six houses we shall have six intercepting traps between the various sub-drains and the compound drain. Each of these traps holds a considerable quantity of liquid and solid matter, and, as a trap is an obstruction to the regular flow of the liquid passing through the drain, each of these syphons becomes for the time being a small depositing tank where solids in suspension precipitate themselves. The compound drain is treated in one of two ways: either it is made to discharge

INTO THE STREET SEWER

without an intercepting trap at all, and connected with a ventilating shaft running up to the roof of one or more houses, or else an intercepting trap is put just where it enters the road, an air inlet as in the case of the other traps being provided, and a ventilating shaft being taken from it at or near its highest point. In the latter case we ventilate only that part of the sewer which is on private property. In the former case we utilize private property for the ventilation to some extent at least of the public sewer. Under this system, which I regret to say is becoming common in many instances in the Midlands in new property, the following must of necessity occur. Each of the syphons on the branch drain holds foul water; in the case of the house having a water-closet, which is the rule at the present time, the trap holds faecal matter as well. The inlet which is on the drain just on the house side of the interception trap, and which, when no water is coming down, may act as such, becomes an outlet every time a flush of water is sent down, and the fouled air, which the length of house drain contained coupled with the gas which has been given off by the fouled matters in the trap, is discharged into the air in close proximity (in some instances not more than 6ft. or 7ft.) to the back doors of the houses. Closely connected with this question is that of the

VENTILATION OF DRAINS AND SEWERS.

I have been somewhat surprised to find that many surveyors at the present time are recommending the ventilation of sewers up houses on private ground. Such a proceeding is—and as I believe, I have shown on other occasions—attended with considerable danger to health; and I wish to enter here a protest against a method which I believe to be utterly wrong in principle, and which tends to distract public attention from the real source of the nuisance, and which palliates an evil instead of removing it. It is common knowledge that nearly all newly-laid sewers on the separate system, if they be ventilated by ventilators at the crown of the road, are, when first put into operation, a nuisance to the public. It is equally well known, I believe, that the cause of this nuisance is the stagnation of sewage, the deposition of solids in some portion of the sewer, consequent putrefaction, and the production of offensive gases, so that when a sewer gives offence to the nose it is a sign that it is not doing what it was intended to do, viz., carry fresh sewage, which in itself is always inoffensive. When this state of things occurs the public demands that the nuisance be abated. Owing to the very large number of schemes which have been completed of late in the smaller towns and rural districts these complaints have become quite common, and there has been a tendency, which I consider to be unscientific, to endeavour to remove the nuisance from the nose, instead of removing the cause which produces it. I wish finally to take this opportunity of entering my protest against some of the systems which are officially being carried out, and notably that which instead of preventing the formation of noxious gases tends to bottle them up, and discharges them some few feet above the roofs of private houses. . . .

THE new Infectious Diseases Hospitals, which have been built for Leeds at Manston, near Crossgates, were recently formally opened.

THE Mersey Docks and Harbour Board has accepted the tender—amounting to £250,000—of Mr. C. J. Wills, Manchester, for the construction of a new dock, &c., in connection with Queen's Dock.

Builders' Notes.

At a time when ironmasters look more than ever for their profit from the recovery of residual products, some facts gleaned from an official German report may be interesting, as they show the worth of furnace slag when converted into building bricks. The slag in this new process is first broken and then passed through water, which causes disintegration, the silica being separated in a soluble condition, and, as such, hardens in the air and combines readily with caustic lime. The slag grains are next compressed with the silica, and by the addition of a small quantity of burned or slacked lime—ten per cent.—the subsequent hardening is facilitated. Six to eight days in such case is sufficient.

THE famous regatta town of Henley-on-Thames is destined to important developments in the near future. The extensive property known as the Bolney Estate stretches from Henley to Shiplake and Harpsden, with an area of upwards of 1700 acres, and, including the residences of Bolney Court and Harpsden Court, has been sold to a London syndicate by Messrs. Simmons and Sons for £50,000. This transaction is likely to have a great effect upon the development of building property in the neighbourhood of Henley, all the land on the north side of the town being practically locked up. The Bolney Estate possesses a frontage to the Thames extending from Marsh Lock to beyond Shiplake Station, the Reading and Henley Road intersecting the estate, which is well timbered.

WORK at the Jamaica Bridge, Glasgow, continues. The heavy part of the work may be said to have been finished four weeks ago, when the last block of these even arches was placed. The arches are solidly built into five piers and two abutments of great strength and solidity. With each of these resting upon steel caissons 15ft. in diameter, and filled with concrete, there is every confidence assured in the stability of the new bridge, which will no doubt form the main connection between the north and south parts of the city for another century anyhow.

FOR the past fortnight or so, since the spandrels were filled up, workmen have been engaged laying new cast-iron pipes in the iron troughs which are embedded on both sides of the bridge. These pipes are 27in. in diameter, as compared with the 13in. pipes now run underneath the service bridge. There are also being laid out in parallel troughs 24in. gas pipes, which will give an adequate lighting service to the southern suburbs and Paisley Road district for many years. That the bridge will itself be brightly lighted at night seems certain from the elaborate electric installation now being introduced, and handsome pillars and pendants will enhance the parapets. While the bridge will be a little more ornamental than the old one, it will be much easier kept clean, as most of the granite above the level of the pavement will be polished. Sections of the base and coping, which were sent to Aberdeen to be polished, have been returned with the appearance of the material greatly improved. The rough-dressed ballisters will all be treated in the same way. The bridge, which is 80ft. wide, or 20ft. more than its predecessor, will look extremely handsome and showy under the rays of the electric light, besides affording greater freedom to pedestrians and no cause for congestion of vehicular traffic. It is a little over three years since a start was made with the demolition of the old structure, and considering the variety of difficulties met with under water, the contractors do not consider too much time has been occupied in rebuilding. It is satisfactory, anyhow, that not the slightest shrinkage occurred when the casings or supports were withdrawn from any of the arches. Not unfrequently this does happen in bridge building.

PARIS ABATTOIRS.

By R. STEPHEN AYLING, A.R.I.B.A.

THE ABATTOIRS OF "LA RIVE GAUCHE."

At the time of the erection of the Abattoirs of La Villette it was anticipated that they would be of sufficient size to supply the wants of the whole of Paris, but experience proved this to be untrue, and thus the small existing abattoirs of the Left Bank have still been retained.

They are in many respects faulty in arrangement, and in 1887 the Municipal Council voted the erection of a new abattoir to supersede them. In the same year the site was selected, and M. Ernest Moreau, honorary architect to the City of Paris, was appointed to prepare designs, which were approved, and the work was commenced in 1893. It has been ascertained that the total consumption for the whole of Paris amounts annually to about 349,000 beasts, 226,000 calves, 1,751,000 sheep and 226,000 pigs, and as the population of the Left Bank amounts to one-quarter of the total population, it was decided to erect these



FIG. 29.

échaudoirs round the great entrance court, rendering access easy, and affording facilities for carting the dead meat; (2) by placing

only one échaudoir on the side of the slaughter court, which is proportionately nearly double the size of those at La Villette; and (3) by arranging the bouvieries and bergeries in direct communication with the slaughter courts, so that the animals have only to cross the waiting court to arrive at the place of slaughter.

This latter is an admirable arrangement, as each animal is brought in separately, and does not see other animals killed.

ABATTOIR FOR BEASTS, SHEEP, AND CALVES.

The entrance for this portion is from the Rue des Morillons, and consists of six large gates, with smaller gates for foot passengers. The piers are in masonry, surmounted by sculptured oxen.

On either side of the entrance are two buildings, AA, devoted to offices of the Octroi, offices of the Butchers' Trade Committee, caretakers' apartments and residences. They are built in brick and stone and are two stories in height. Weighing tables are provided on the sides near the gates for use as the carcasses leave the échaudoirs. Placed centrally with the entrance gates is the Pavilion, B, which contains offices for the collection of municipal taxes, sanitary and veterinary inspectors' offices, police station, and ambulance corps (Fig. 29). Beyond these buildings to the right and left is the large entrance court with the fountain (Fig. 30) in the centre, and on either side a parterre planted with trees, with roads for carts leaving the échaudoirs. Round



FIG. 30.

buildings of sufficient size to enable that proportion of work to be carried out. They are thus arranged for the slaughtering of 87,250 beasts, 56,550 calves, 437,890 sheep, and 63,995 pigs annually, and space has been left for future extension if found necessary.

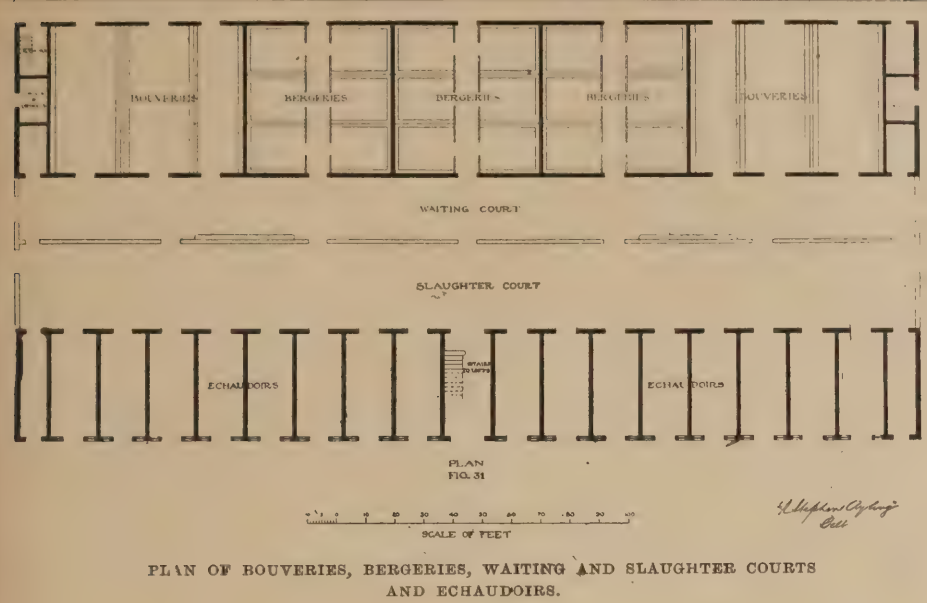
The new abattoirs are situated in the sixteenth arrondissement, and are surrounded by the Rue de Dantzig, Rue des Morillons, Rue Brancion and the Chemin de fer de Ceinture. The buildings are not yet quite completed, the abattoir for horses being at present not started.

The site covers an area of twenty-five acres, and is divided into three portions, viz.: (1) the part devoted to the killing of beasts, calves and sheep; (2) for pigs; (3) for horses, and each of these parts is distinct in itself, with separate entrances. As at La Villette, the railway adjoins the site, and it is by this means that the animals are brought to the abattoirs.

M. Moreau has endeavoured, and very successfully, to avoid some of the serious defects in planning which exist at La Villette, (1) on account of the immense area occupied by the échaudoirs, some are necessarily a long way from the entrance: (2) the échaudoirs are placed on each side of the slaughter courts, which are too narrow for the purpose; (3) the bouvieries and bergeries are in isolated buildings, separated by streets, thus the animals have to be driven for a considerable distance before they reach the slaughter courts. It will be noticed on the plan (Fig. 28) that these defects have been avoided (1) by grouping the



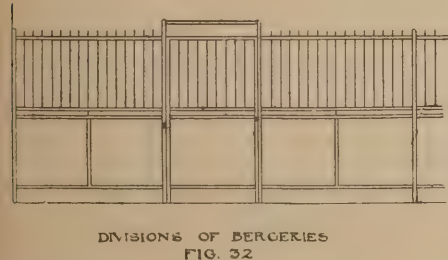
FIG. 33.



this courtyard are four large buildings each containing cattle stables, waiting courts, killing courts, and échaudoirs.

Fig. 31 is a plan of one block, the others being exactly similar. In the centre of one side are placed the bergeries (sheep stables), E, divided into eighteen pens and with feeding troughs round the sides. The divisions are formed of iron framing, the lower part being filled in with half brickwork cemented, and the upper part with iron railings (Fig. 32.) On either side of the bergeries are the bouveries (stables for oxen), F. These are separated from each other by dwarf walls, which are cemented. Iron hooks and rings are fixed in the walls, to which the animals are tethered. At the opposite side of the block are the échaudoirs (scalding and cutting up rooms), G, eighteen in number, and in the centre a staircase giving access to the loft over, which is used as a forage and litter store.

Between the stables and échaudoirs are two courts, H and I, one 21ft. wide, in which the animals wait before being killed, and the other, 29ft. wide, used as the slaughter court. These courts are separated by a dwarf wall 8ft. high, which has seven doors in its length. The animals are brought from the waiting court to the adjoining killing court separately, and it is in this particular that the system is so very greatly superior to that at La Villette. In the latter, the animals have to traverse streets in their journey from the stables to the slaughter courts, which, in addition to danger from refractory animals, necessitates them being brought in numbers and having to stand near whilst their companions are killed. As will be seen, the slaughter courts are 29ft. wide, and work is only done on one side, whilst



THE ABATTOIRS OF LA RIVE GAUCHE, PARIS.
BLOCK PLAN.

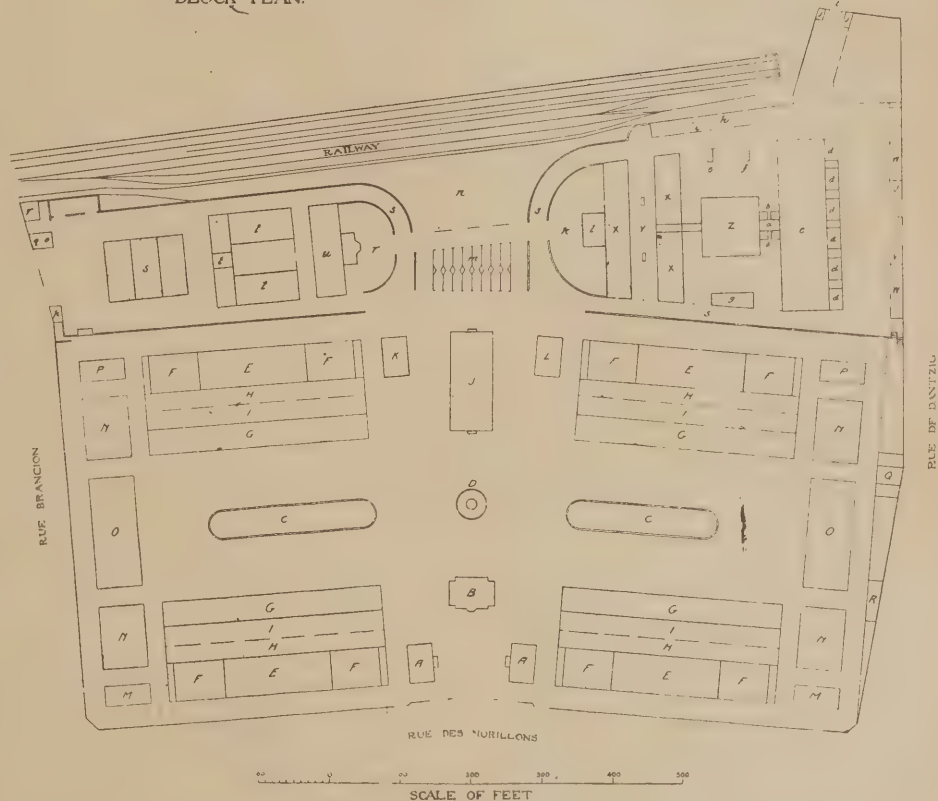


Fig. 28.

at La Villette, the courts are but 33ft. wide, and killing is carried on at both sides.

Effort has been made to give to each of the four blocks of butcheries equal importance, a large surface for circulation and cartage, and also to so place them that they are all in view and easily accessible.

Should any of the animals run away, they can only do so in the waiting court, and so a grave source of danger is avoided.

Sanitary conveniences, and stairs for access to the lofts over the stables, are provided at the ends of the building adjoining the bouveries.

The two courts are spanned by one iron and glass roof as at La Villette. Fig. 33 shows a killing court, with échaudoirs on one side, and the dwarf wall separating the courts on the other. Figs. 29 and 30 show exterior views of these buildings, which are executed in brick and stone, with red tile roofs. The whole of the floors of the stables, échaudoirs and courts are in cement.

(To be continued.)

MR. ROBERT VIGERS, president of the Surveyors' Institution, sat as arbitrator in the case of "Milledge v. the School Board for London," a claim for compensation in respect of the freehold in four houses at Tollington Park, Holloway, known as Nos. 31, 35, 41, and 43, Marriott Road. It appeared that the four houses in question were each

COMPLETE LIST OF CONTRACTS OPEN.

DATE OF DELIVERY.	WORK TO BE EXECUTED.	FOR WHOM.	FROM WHOM FORMS OF TENDER MAY BE OBTAINED.
BUILDINGS—			
Nov. 18	Elgin—Block of Buildings	Lady Gordon Cumming	Reid and Witlet, Elgin.
" 18	Maryport—Rebuilding Vaults... ..	.....	C. Eaglesfield, Maryport.
" 18	Pitlochry—Public Hall ... ..	.....	W. S. Pennell, Pitlochry.
" 18	Barrasford—School Additions... ..	.....	Armstrong and Knowles, Newcastle-on-Tyne.
" 18	Carmarthen—Bridge	County Council	County Surveyor, Shire Hall, Carmarthen.
" 19	Armley—Chapel ... ..	.....	W. Hanstock and Son, Branch-road, Batley.
" 19	Kingston-on-Thames—Cottage ... ..	.....	V. Davidson, Bartley Lodge, New Malden.
" 19	Lancaster—Hospital	Sanitary Committee	Borough Surveyor, Lancaster.

COMPLETE LIST OF CONTRACTS OPEN—continued.

DATE OF DELIVERY.		WORK TO BE EXECUTED.	FOR WHOM.	FROM WHOM FORMS OF TENDER MAY BE OBTAINED.
BUILDINGS—Continued.				
Nov.	21	Edinburgh—Extension of Offices	Commissioners H.M. Works	H.M. Office of Works, 3, Parliament-square, Edinburgh.
"	21	Hastings—School Additions	School Board	A. Wells, Queen's Chambers, Hastings.
"	21	Sandbach—School Additions		A. Price, Elworth, Sandbach.
"	21	Pontlottyn—School	School Board	James and Morgan, Charles-street Chambers, Cardiff.
"	22	London, S.W.—Laundry Additions	Metropolitan Asylums Board	A. and C. Harston, 15, Leadenhall-street, E.C.
"	22	Oldham—Enlargement of Post Office	Commissioners H.M. Works	H.M. Office of Works, Storey's-gate, S.W.
"	22	Roths—Hotel		51, High-street, Roths.
"	23	Bushey—Enlargement of School	School Board	W. H. Syme, 4, High-street, Watford.
"	23	Uxbridge—Hospital Additions	Joint Hospital Board	B. Freeman, 24, New Windsor-street, Uxbridge.
"	23	Windermere—Alterations to Bank		E. Walker, Public Buildings, Windermere.
"	24	Bridgend—Chapel		Giles, Gough, & Trollope, 28, Craven-st., Charing Cross, W.C.
"	25	Hertford—Vagrant Wards	Guardians	R. Austin, 13, Villiers-street, Hertford.
"	28	Clifden—Extension of Infirmary	Guardians	County Surveyor, Galway.
"	30	Baldon—House		Isitt, Adkin, and Hill, Prudential Buildings, Bradford.
"	30	Rhiwfaur—School	School Board	W. W. Williams, 63, Wind-street, Swansea.
Dec.	21	Dec. 1, London, S.E.—School Additions	Governors	A. J. Gale, 4, Sergeants'-inn, Fleet-street, E.C.
"	2	Hastings—Coastguard Station	Admiralty	Works Dept., Admiralty, 21, Northumberland-avenue, W.C.
"	3	West Hartlepool—School	School Board	School Board Offices, Park-road, West Hartlepool.
Jan.	24	Sheffield—Urinal and Wall	Health Committee	C. F. Wike, Town Hall, Sheffield.
No date.	24	London—Tunneling Works	London County Council	Engineer's Department, County Hall, Spring-gardens, S.W.
"	"	Allerton—Nine Houses		E. Drake, 142, Allerton-road, Allerton.
"	"	Carlisle—Five Houses		Mrs. Roper, 5, Alton-street, Currock-road, Carlisle.
"	"	Kirkstall—Chimney		Kirkstall Brick Co., Canal-side, Kirkstall, near London.
"	"	Lenton—Business Premises	Co-operative Society Limited	Ball and Lamb, 23, King-street, Nottingham.
"	"	Morecambe—Hotel		Harrison, Hall, and Moore, 36, Albert-road, Morecambe.
"	"	Pool—Villa	J. W. Foster	W. A. Hobson, 82, Albion-street, Leeds.
"	"	Rotherham—Seven Houses and Stables, &c.		E. Hutchison, Howard-street, Rotherham.
"	"	Sale—Ten Shops		S. Smith, Sale.
"	"	Arnside—Shops, &c.		J. Stalker, Kendal.
"	"	Belfast—Stores		W. J. Moore, Whitehall-buildings, Ann-street, Belfast.
"	"	Belfast—Alterations to Inn		W. J. Moore, Whitehall-buildings, Ann-street, Belfast.
"	"	Belfast—Houses		W. J. Moore, Whitehall-buildings, Ann-street, Belfast.
"	"	Bishop Auckland—Roofs		Mr. Farr, Coachbuilder, Bishop Auckland.
"	"	Bradford—Residence		J. Jackson, Barry-street, Bradford.
"	"	Dalton—Alterations to Inn		Settle and Farmer, Ulverston.
"	"	Drighlington—Alterations to Inn		A. D. Kaye, 71, Albion-street, Leeds.
"	"	Kilbrandon—Church Repairs		P. Fisher, Kilbrandon.
"	"	London, S.E.—Rebuilding Houses		S. D. Bhabha, 8, Drakefell-road, St. Catherine's Park, S.E.
"	"	Utley—Residence		Judson and Moore, Keighley.
"	"	Wakes Colne—Six Cottages		J. W. Start, Cups-chambers, Colchester.
"	"	Whitehead—Sanitary Work		J. Russell, 16, Waring-street, Belfast.
"	"	Harrogate—Business Premises	J. B. Charles	Bland and Bown, Harrogate.
"	"	Chesterfield—Business Premises		W. C. Jackson, Chesterfield.
ENGINEERING—				
Nov.	19	Sheringham—Protection Works	Rural District Council	W. Jaffrey, 3, Victoria-street, Westminster, S.W.
"	21	Wednesbury—Widening Bridge	Corporation	Borough Surveyor, Town Hall, Wednesbury.
"	21	Bognor—Sea Wall, &c.	Urban District Council	A. C. Bridges, High-street, Bognor.
"	21	Ashton-under-Lyne—Precipitation Tanks, &c.	Corporation	J. T. Earnshaw, Town Hall, Ashton-under-Lyne.
"	21	Broadhaven—Pier	Office of Public Works	D. and C. Stevenson, 84, George-street, Edinburgh.
"	21	Stafford—Stone Breaking Machine	Corporation	W. Blackshaw, Borough Engineer, Stafford.
"	22	London, E.C.—Workshop Machines	East India Railway Company	Sec., East India Railway Company, Nicholas-lane, E.C.
"	22	London, S.W.—Four Boilers	London County Council	Engineer's Department, County Hall, Spring-gardens, S.W.
"	22	London, S.W.—Barges	Uganda Railway Committee	Crown Agents for the Colonies, Downing-street, S.W.
"	22	Castle Donington—Sewerage Works	Rural District Council	H. Walker, Newcastle-chambers, Angel-row, Notts.
"	23	Woodhall Spa—Oil Engine	Urban District Council	J. E. Chatterton, Horncastle.
Jan.	6	Johannesburg—Carburetted Water Gas Plant	Town Council	R. Whyts and Co., 22, Bury-street, St. Mary Axe, E.C.
"	24	London—Tunnel	London County Council	Engineer's Department, County Hall, Spring-gardens, S.W.
No date.	"	Barrow-in-Furness—Boilers	School Board	School Board Offices, Barrow-in-Furness.
IRON AND STEEL—				
Nov.	21	Lancaster—Pipes	Water Committee	J. Cook, Town Hall, Lancaster.
"	22	Glasgow—Pipes	Corporation	W. A. Chamen, 75, Waterloo-street, Glasgow.
"	22	Southampton—Valves	Corporation	W. Matthews, Waterworks Engineer, Southampton.
Dec.	19	London, S.W.—Rails, &c.		Agent-General for Victoria, 15, Victoria-street, S.W.
No date.	"	Glasgow—Iron Roofing		Wilks, Sloan, and Co., 112, Bath-street, Glasgow.
"	"	London, S.E.—Steel Joists	London County Council	W. Adams, Belvedere-road, Lambeth, S.E.
"	"	Crosshills—Pipes	Water Co. Ltd.	Sec., Water Co., Crosshills, Keighley.
"	"	London, W.C.—Pipes	British Electric Traction Co. Ltd.	C. H. Gadsby, Donington House, Norfolk-street, W.C.
ROADS—				
Nov.	19	Abertillery—Road	Urban District Council	J. McBean, 1, King-street, Abertillery.
"	23	Minster—Granite Spalls	Guardians	C. Taylor, Minster, near Ramsgate.
"	24	Witham—Granite	Urban District Council	W. B. Blood, Witham.
No date.	"	Harrogate—Road	Stonefall Park Estate Co.	Whitehead and Smetham, Albert-street, Harrogate.
"	"	Winchester—Flints	Town Council	City Surveyor, Winchester.
"	"	Eccleshill—Streets, &c.		J. Crawshaw, Mount View, Eccleshill.
SANITARY—				
Nov.	21	Droylsden—Sewers, &c.	Urban District Council	Engineer to the Council, Droylsden.
"	21	Dublin—Sewer	Rural Sanitary Authority	T. Phelan, Board Room, James-street, Dublin.
"	21	Stafford—Sewers, &c.	Asylums' Board	J. E. Wilcox, Union-chambers, Birmingham.
"	21	Ulverston—Sewers	Rural District Council	J. Greenwood, Union Offices, Ulverston.
"	24	Birmingham—Sewers	Public Works Committee	J. Price, Council House, Birmingham.
"	25	East Retford—Sewers	Urban District Council	J. C. Melliss, 264, Gresham House, E.C.
"	28	Stourbridge—Sewers	Drainage Board	W. Fiddian, Town Hall Offices, Stourbridge.
"	28	Thame—Sewers	Urban District Council	J. Taylor and Sons, 27, Great George-street, Westminster.
"	28	Bromsgrove—Sewers	Rural District Council	E. B. Marten, Church-street Chambers, Stourbridge.
"	29	Hale—Sewers	Urban District Council	J. M. D. McKenzie, 7, Market-street, Altrincham.
"	30	London, S.E.—Sanitary Reconstruction at Workhouse	Guardians	Offices of the Guardians, Brook-street, Kennington-road.
Jan.	15	Callao—Sewerage Works	Municipality	Commercial Department, Foreign Office.

COMPETITIONS.

DATE DESIGNS TO BE SENT IN.		DESIGNS REQUIRED.	AMOUNT OF PREMIUM.	BY WHOM ADVERTISED.
Nov.	18	Sheffield—Board School		J. Moss, School Board Offices, Sheffield.
"	24	Brightwell—Hospital		Wellington Urban District Council.
"	28	Preston—Hospital		Fyde, Preston, and Garstang Joint Hospital Committee.
Dec.	1	Aberavon—Extension of Market	£21	Aberavon Corporation.
"	12	Morley—Schools		Morley School Board, Gildersome-road, Morley.
"	31	Stockholm—New Stations		Secretary, Royal Administration Swedish State Railways.
Jan.	1	Hull—Library	£50, £30, £20	Public Libraries Committee.
"	2	Harrogate—Pump Room	£50, £30, £20	Corporation of Harrogate.
"	2	Harrogate—Alterations to Old Pump Room	£30, £20, £10	Samuel Stead, Boro' Surveyor, Municipal Offices, Harrogate.
"	2	Bradford—Fire Brigade Station	£100, £50, £30	Corporation of Bradford.
"	14	Burnley—School, &c.		Burnley School Board, Ormerod-road, Burnley.

Property and Land Sales.

Plasht Hall Estate.—Fifteenth Sale of Freehold Building Land, close to the Romford-road.

MESSRS. TUCKETT and SON are instructed by the Trustees of the late John Gurney, Esq., to **SELL by AUCTION**, at the Princess Alice, Forest-gate, on **THURSDAY EVENING, NOVEMBER 24th**, at **SIX o'clock**, 20 very prominent **SHOP PLOTS**, in the best part of White Post-lane, and 64 Plots for private houses, having 16ft. frontages to the extension of Halley-road. Immediate possession. Free conveyances. Deferred payment. Interest 4 per cent.

Particulars of Messrs. YOUNG, JONES, and Co., Solicitors, 2, St. Mildred's-court, E.C.; or of Messrs. TUCKETT and SON, Land Agents, Surveyors, &c., 2, Basinghall-street, E.C.

FAIRMILE PARK, near Cobham, Surrey.—A **FREEHOLD BUILDING ESTATE** of about 40 acres, with possession.

MESSRS. DRIVER and CO. have received instructions to offer to **AUCTION** at the MART, Tokenhouse-yard, Lothbury, **NEXT SPRING** (unless previously sold by private contract), the above property, situate in a favourite residential district, about a quarter of an hour's walk from the Oxshott and Fairmile Station, and about a mile and a half from Cobham Station. The estate comprises Building Land, ripe for development, the higher portion (sloping to the south) possessing charming views over the intervening country to Epsom Downs; and a Residence known as "South Lodge," with stabling and garden; Eight small Villas, some Cottages, and the "Griffin" Beerhouse. On a portion of the estate brickearth is being worked, and will be included in the sale as a "going concern."

Particulars and plans, when ready, can be obtained of **CHARLES JEFF**, Esq., Solicitor, 48, Lime-street, E.C.; and of Messrs. DRIVER and Co., 23, Pall Mall, S.W.

SURREY.—Choice BUILDING ESTATE.

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FOR SALE, a compact and valuable **FREEHOLD PROPERTY** of 53 acres, with a frontage to the main Brighton road of 2000ft., and perfectly ripe for development, with residences of a good class. Prettily timbered. Gas and water mains along the frontage. Would be divided.

Plans and full particulars of the owner's agents, Messrs. GREEN and SMES, Auctioneers and Estate Agents, Blenheim Mansions, Queen Anne's-gate, London, S.W., or Mr. W. M. LEACH, Auctioneer and Estate Agent, Crawley, Sussex.

CANNING TOWN, within five minutes' walk of Custom House Station.—A small Freehold Building Estate, comprising a little over six acres, ripe for immediate development.—With possession.

MESSRS. VENTOM, BULL, and COOPER are instructed to **SELL by AUCTION**, at the Mart, Tokenhouse-yard, on **TUESDAY, NOVEMBER 29th**, 1898, at **TWO o'clock** precisely, about **SIX ACRES** of valuable **FREEHOLD BUILDING LAND**, comprising the only uncovered land lying between Canning Town Station and the Recreation Ground, and possessing important frontages to the Freemasons and Prince Regent roads; tithe and land tax free.

Particulars may be had of Messrs. HERBERT SAXELBY and Co., Solicitors, 7 and 8, Ironmonger-lane; at the Mart; and of the AUCTIONEERS, 35, Old Jewry, E.C.

By **EDWIN FOX and BOUSFIELD**,
At the AUCTION MART,

On **WEDNESDAY, NOVEMBER 16th**, at **TWO**.
By Order of the Trustees of the late Edward Dewick, Esq., and another.

CITY of LONDON.—Walbrook.—FREEHOLD ESTATE, comprising No. 31, Walbrook, and No. 1, Bond-court, covering superficial area of 1790ft., well lighted and possessing the conspicuous frontage on the upper stories of about 38ft., with a depth of 53ft., thus affording scope for the erection of a handsome modern building for commercial or professional purposes. The site is at present covered with the very substantial five-story premises, for many years occupied by Messrs. Herring, Dewick, and Hardy, wholesale stationers, and is thoroughly sound, each floor carrying heavy weights. Possession on completion of the purchase. The property is thus available for occupation in its present form, for investment by re-letting, or for more profitable utilisation by creating a ground rent on building lease, or devoting capital to the erection of such a noble pile as will ensure a large return.

Particulars at the Mart; at Messrs. EDWIN FOX and BOUSFIELD's Office, 99, Gresham-street, Bank, E.C.; and of the Vendor's Solicitors, Messrs.

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23, Bush-lane, E.C.

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MESSRS. TOPLIS and HARDING will **SELL by AUCTION**, at the MART, E.C., on **FRIDAY, NOVEMBER 11th**, at **TWO o'clock** punctually:—

The valuable **FREEHOLD PROPERTY** known as Nos. 5 and 6, Waldegrave-terrace, Strawberry-hill, Middlesex, producing rentals, actual and estimated, amounting to £60 per annum, together with a plot of **FREEHOLD BUILDING LAND** adjoining, ripe for development, and having a frontage to Waldegrave-terrace of about 55ft., a depth of about 154ft., and an area of about one-third of an acre.

Particulars, plans, and conditions of sale may be had at the Mart, E.C.; of F. G. MELLOWS, Esq., Solicitor, 9, Fenchurch-buildings, E.C.; and of Messrs. TOPLIS and HARDING, 66, Cannon-street, E.C.

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MESSRS. PROTHEROE and MORRIS beg to announce that their **SALES** of the above take place at the MART, London, E.C., the **LAST WEDNESDAY** in **EVERY MONTH** and on other days as required. Special attention given to the Sale of Estates in Plots.

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Further particulars on application from **EGBERT RUSHTON, C.E.** (by exam.), Engineer, Surveyor, and Inspector. 1

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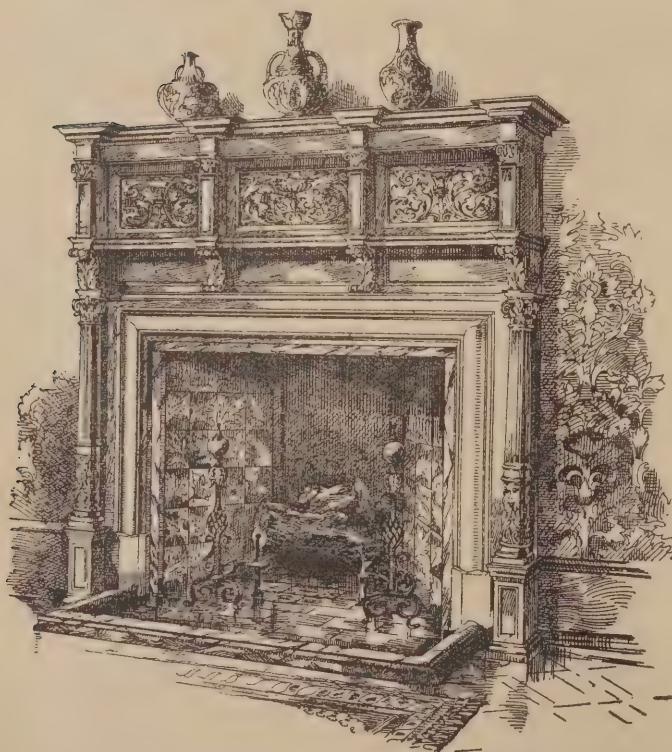
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An Architectural Causerie.

Criticism: Its Application to Regenerative Art.

"In order to define what is fairest, you must delight in what is fair."

So wrote Ruskin in his early years, in his first work upon "Modern Painters." With that advanced enlightenment, which was the sure sign of his genius, he saw the true dominating spirit of creative Art, and placed his discerning finger upon it. It is one of those truths which are remarked by many as being unquestionable. "Why," we can hear them say, "it is apparent, and what I myself could have written," but this is a fallacy on their part. The real impressive truths have always this striking correctness, to which fact we doubtless owe the feeling of a long acquaintance. Yet the intellectual and critical background necessary for the culture of such clearness of vision is incalculable. It requires a mind, great indeed, to break through this illusive satisfaction, searching until it finds, and dragging into the broad light of day the knowledge which it has gathered so painfully in the dark. Yet considering this artistic confession of faith by the cold glare of to-day, its truthfulness is still impressed upon us with resistless force, even while we wonder at the serene abandon which permits of such a confession. It seems to urge us with agonising earnestness to cast aside the stereotyped forms and old threadbare fallacies which are still, to a certain extent, clogging our progress, like weeds the young growth of the wheat. Go to the woods! Violate the secrecy of untrodden glades! Seek out the solitude of leaves and singing brooks, mark the clear profile of mountain ranges, the changing shadows chasing each other over the green slopes, and the fleecy masses of cloud overhead. All this it cries on regenerative Art to accomplish, and then having partaken to the full of the inimitable beauty, create, build, make, a lasting memorial of the fairness of things everywhere around you. The thought is in strange uniformity with that of the gospel of criticism given with such excellence of expression by Matthew Arnold. These two men, so widely different in temperament and the expression of their faith, have striven both in one direction. Matthew Arnold pointed out that degenerative periods of literature were largely due to the disuse of the critical faculty. Critical effort was choked, pushed out of sight, by a great burst of creative power; so much so, that it disappeared for a

time, almost completely, from the field of literature. Yet of this independent burst of creative effort little survives, to bear without blame, the final judgment of time. Ruskin, when he calls on us to go to the fields and paths of pure excellence, is urging indirectly for the exercise of the critical side of Art. "Whatever is in Architecture fair or beautiful," he says, "is imitated from natural forms;" and it is to the critical faculty that natural forms are made to give reasons of their beauty. For to make use of natural beauty we must analyse its charm, divesting it of its halo of mystery, and drawing its secret from it to ourselves, whence we can utilise it to the glorification of Art in all its branches. Who is more analytical and critical than Ruskin himself in his apprecia-

tion of writing Ruskin doubtless owed to his critical faculty exercised in this, as in other branches of Art. The mature style of Robert Louis Stevenson, which has gained for itself an almost universal admiration, was not formed without infinite trouble, and that necessary critical appreciation of the great stylists in literature. The artist cannot express himself alone, unaided by the work of previous exponents of his Art. He must study continually, he must search with this critical faculty of which we speak for the wandering beauty, the indefinite charm, in all around him. A satisfactory application of the artistic gift can only be obtained by an intense and wide knowledge, conversant with the beauty of past and current forms. Once this is recognised and observed in its entirety, there would follow a rejuvenated outburst which could easily put



FONT BY JACOPO DELLA QUERCIA IN THE SOUTH KENSINGTON MUSEUM.

Vide ARTS AND CRAFTS AND THEIR RELATION TO ARCHITECTURE.

tion of Architecture in "The Stones of Venice?" He inquires closely into every form of beauty, every felicity of proportion; while his analysis of decoration is such as to give us, if we are in sympathy with him, a complete grasp of the great necessary principle of the application of ornament. Here we have the ideal treatment of the subject, for no one can deny that this great book is not in every way an appreciation of Venetian Art. Yet it reserves to itself the right to qualify its praise with severity of judgment, and to temper mere admiration with critical thought. It is apart from the subject, though we will mention it, that Ruskin in his appreciation of, and lofty ambition for Art, has obtained an excellence, a serenity of expression in his writing, which even Matthew Arnold could not better. The opening words of this book have become a jewel of literature for all time. It is a poem written in prose, where beauty of expression, purity of thought, and charm of manner meet to make an excellent whole which has been unsurpassed in this century. This per-

to shame our present artistic output. Yet in this we do not think of the Art of to-day as poor or ineffectual, however unambitious it may be. Ruskin gives us guidance again when he says, "We may not be able to command good, beautiful, or inventive Architecture, but we can obtain an honest Architecture;" and in this we have our own case. Whatever has been accomplished by the Art of to-day, whether it is inferior or second-rate, there can be no doubt of its honesty. The hall-mark of the time is at least honesty of purpose and genuineness of aim. This being so, we cannot despair of its future, for where there is honesty there is truth, and from the pinnacle of truth the climb is straight to the completion of beauty. With all the hope that can be drawn from Ruskin, there is also a warning, which, we think, would not be out of place to end with, "The aspect of the years that approach us is as solemn as it is full of mystery; and the weight of evil against which we have to contend is like the letting out of water."

F. B.

ON REFLECTION.

London's Proposed Hotel de Ville.

WE are glad to notice that the project for adequate accommodation of the London County Council's executive under one roof, is again approaching consideration. The excellent work done by the L.C.C. since its inauguration, and the far-reaching power it exercises in promoting the welfare and prestige of London, entitles it to the distinction of an imposing site, and monumental design, for its official home. Apart from these reasons, the needs of economy, and a thorough efficiency in its administration, demands a new scheme of accommodation. Eighteen months ago it was shown that there was immediate want of extra accommodation for 500 clerks and other public and executive chambers incidental to the work of the Council, and these needs have considerably increased since then. It may be considered to have been due to want of tact, and a lack of careful exactness in the statements of the Council, which last year brought about the rejection of the "London County Buildings Bill" by the House of Commons, with a majority of eighty-one on the vote. It was shown that the Council's project, for the fulfilment of which a sum of £1,000,000 was asked, could not be realised for less than £2,000,000, and this tended to promote a disbelief in the Council's sincerity and good faith. It was further stated that the Cockspur Street-Trafalgar Square site was the most expensive available in all London. We hope that when the Council presents its next Buildings Bill it will get what it wants.

The Westminster Cathedral.

FEW people who pass along Victoria Street have probably remarked the growth of the new Roman Catholic Cathedral in Astley Place. This huge building is now advanced far enough to allow of some idea being formed of the scope and intention of the design, for the clerestory is now generally complete, and much of the exterior scaffolding is now removed. It is premature to say much of a building which is still so far from being completed, but the precision and power of the designer, as well as the daring originality of his style must be admitted by all. It is little to prophesy that Westminster Cathedral in ability, as in size and importance, will be Mr. Bentley's masterpiece; and we dare further to prophesy that it will take rank in history as one of the foremost buildings of the century. It exhibits the architect's remarkable mastery of the difficulties of scale and proportion in the detail, in marked degree, and is full of thought and of subtleties in arrangement and uses of material. The style is an anomaly, but exhibits little that is incongruous. It is best described as "Byzantine," and we learn that Mr. Bentley spent three months in Constantinople and adjoining districts before maturing his design. The campanile is not to be built at present, and it is to be hoped that Mr. Bentley will modify it. The cathedral is so closely surrounded by lofty buildings that it would be impossible to raise a tower to a height which would enable it to be seen from the adjoining streets; and, for the purpose of identifying the church from a distance, a much lower tower would meet all ends.

Mr. Wilson on Arts and Crafts.

WE publish today the concluding portion of Mr. H. Wilson's essay, which was read as a paper before the Architectural Association on the 11th inst. Apart from the great literary gifts and abilities of the author, this essay deserves a wide attention for the erudite

epitome it renders of the origin and functions of handicraft, and the Arts and Crafts guilds of early times; and also for the many valuable instances and illustrations which are here collected and presented in establishing Mr. Wilson's assertion, that so far from Architecture being the "Mother of the Arts," as the catch-phrase has it, the very existence of Architecture must be referred to the activity and importance of the various handicrafts from time immemorial, and, more directly, to the collective enthusiasm and enterprise of the so-called guilds. In the middle ages the life and aspirations of the guilds was the life and aspirations of the cities and the nation. The whole municipal, industrial, and social life moved in the circle of the guilds. The guilds were the disseminators of culture, they were the centre of intellectual activity, they were the great religious force, they were the medium through which the ideals, the learning, and the shifts and contrivances of foreign civilisation were absorbed and assimilated into the life of the people. In this connection Mr. Wilson has much to say upon a matter that is all too imperfectly understood, and he draws a picture which must awaken the enthusiasm of all whose sympathies truly lie with Architecture.

Architects' Architecture.

THE obvious conclusion to be drawn from the early part of Mr. Wilson's paper is that we should try and reawaken the impulses and the conditions of labour under which the great Architectural epochs throve, if our own Architecture is ever to take place in the same rank with that of the Middle Ages; and this is the line of reasoning which the author has followed. In applying his principles we think Mr. Wilson is least happy. He admits that "to evolve living art out of this muddle of dead systems seems almost hopeless," and the practical suggestions he offers to those who would now set about and evolve this "living art" out of the muddle, necessarily constitute somewhat of an anti-climax to the wide, general regard and tense strenuous method in which he has dealt with his subject in the body of his paper. If the substantial and essential truth of Mr. Wilson's contention, which all may put to the test of their historical knowledge, their observation, and their convictions, were but generally acknowledged and admitted, the men whose enthusiasm best qualified them to advance the principles—to evolve this living art—will discover or compel the opportunity they desire. Some men there will be who will cry aloud at the new creed, "What! am I to give up my 5 per cent. on the contract and my 2½ per cent. on the quantities, and start at a carpenter's bench?" But anyone who should raise such a protest stands convicted as useless to the cause. In the light of these new principles he is "damned from here to eternity." Not only is he opposed to the principles put forward by Mr. Wilson, but he has no understanding of what they mean or imply.

Liability of Employers.

FROM the Queen's Bench we have a remarkable instance of the irresponsibility of the English working man, and the protection that is extended to him by the State. The plaintiff in an action for compensation—a youth of nineteen—joined it seems a street crowd that was watching some workmen erect an iron electric light standard in the Chalk Farm Road. The plaintiff, with the rest of the crowd, declined to move away when warned of the danger, and when in moving the standard to allow a tram to pass, it fell over, plaintiff's foot was crushed so badly that the surgeons had to cut part of it off. It is a wholesome maxim which lays down that a fool is well paid with the fruit of his folly, but although it was shown that the

defendant had used all due care in his operations, a discriminating British jury awarded the street-gazer a sum of £300. He was a plumber, the defendant was an employer. The plaintiff will, no doubt, avail himself of any opportunity that may present itself to lose a bit more of his foot on the same terms. It is difficult to understand what an unfortunate vestry contractor is to do in such a case. He may not hustle the Queen's subjects upon the public road, he cannot stop the tram service, and he cannot command a cordon of police at will. If plaintiff had been killed outright, his case would have won small sympathy; and unless the defendant is a man of transcendental virtues, he must be heartily sorry that he was not.

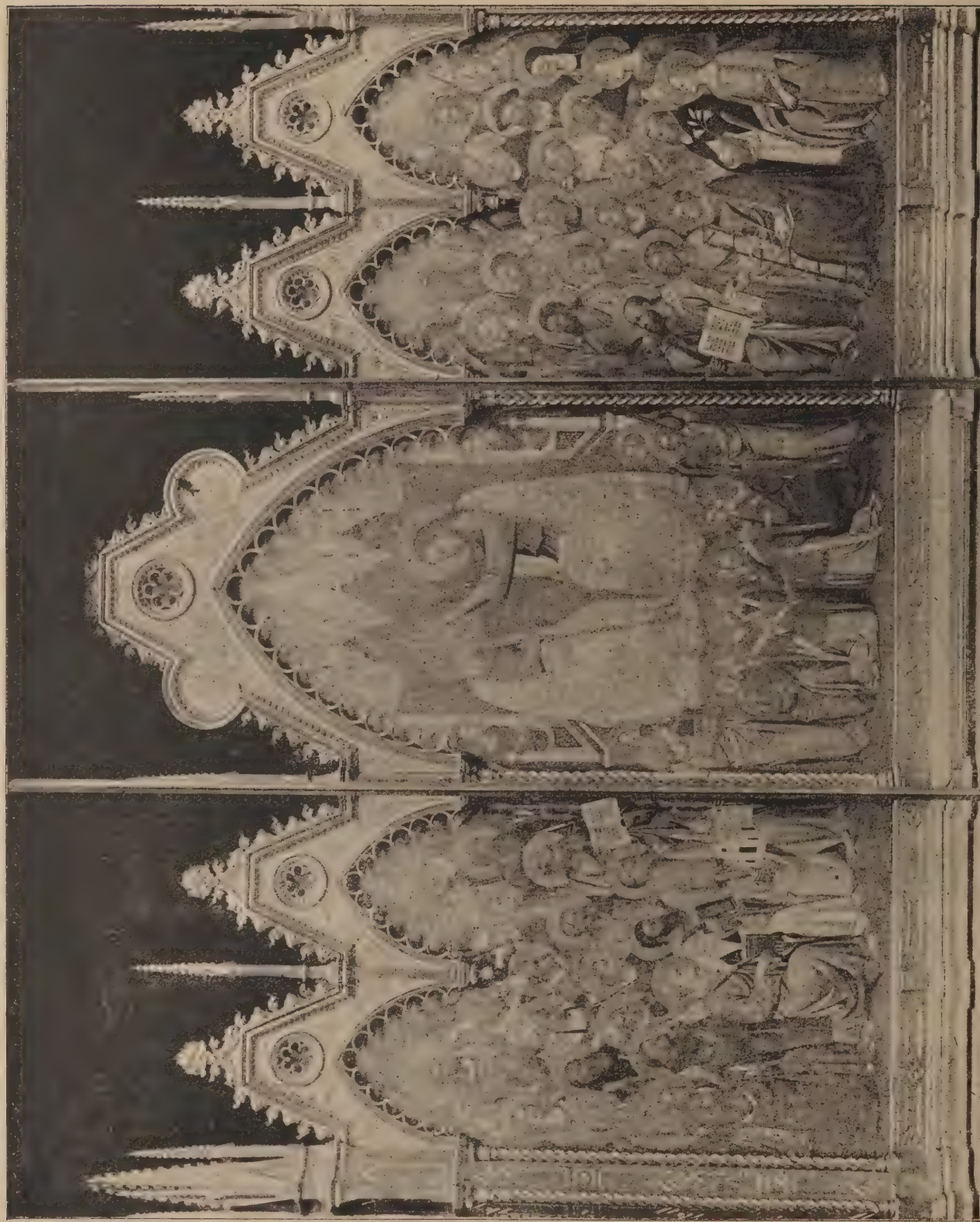
The East End Water Famine.

THE examination of the chief engineer to the East London Water Company, before the Royal commission, establishes a fact which has for some time been pretty clear, namely, that the late so-called "water famine" was due, not so much to lack of water, as to reckless waste. The chief cause for the trouble seems to have been lack of proper appliances to collect the water. It was a "cistern famine" more than any other sort. People left the taps open, filled what vessels they had, and let them run over. In one part, the sewer men could not remain in the sewers for the flood, which fell directly the turncock turned off the water. Throughout the drought the domestic supply never fell lower than eighteen gallons per head a day. By a more careful husbanding of their water early in the year, this Company states that it can meet all demands should a similar scarcity of rain occur during the next or following summers. We would suggest also that it would be well to enforce the use of proper cisterns. It seems that cisterns are required under the regulations of the Company, but the rules on the subject are evaded. In some houses, cisterns of wholly inadequate size, are fitted, and in others the cistern is only put in in order to secure a supply, and so soon as the water is turned on is taken away again. In this way one cistern has been made to serve a whole row of houses. We have heard of the same use being made of an intercepting trap, but cisterns are not "covered in," and there should be no difficulty in securing a fulfilment of the rules.

THE question of rebuilding the Central School of Arts and Crafts in Regent Street is being discussed. The school has only been in existence two years, during which time it has grown altogether beyond the capacity of the present temporary premises. Last session there were 539 students on the books, of whom about 140 attended every night. The annual cost of maintenance is £3000, and the return from fees only £150. The fees, of course, are merely a pledge of earnest purpose, not at all a serious contribution towards the expenses. The Technical Education Board proposes to acquire the leasehold interest of Oxford Mansions, within a few yards of the existing school.

MR. H. B. BRABAZON'S water colour drawings and pastels at the Goupil Gallery have that exquisite certainty of statement and that delightful charm of suggestion which are only found combined in the work of an artist who has in the mastering of his craft never forgotten the obligations he owes to Nature. Years of faithful practice are needed to reach such a level of technical proficiency as he has gained, and prolonged observation of the most sensitive kind will alone give the intimate knowledge of the open air which he shows in every touch. The exhibition is extremely important as a display of command over materials; but it is of the highest possible value as an assertion of principles that have been tested and perfected during a long life devoted to artistic aims of exceptional purity.

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ORGAGNA. RETABLO OF ALTAR IN THE NATIONAL GALLERY.

Vide ARTS AND CRAFTS AND THEIR RELATION TO ARCHITECTURE.



DONATELLO SINGING GALLERY, FLORENCE.
Vide ARTS AND CRAFTS AND THEIR RELATION TO ARCHITECTURE.

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ARTS AND CRAFTS

And their Relation to Architecture.*

By H. WILSON.

II.

NOW it must be evident that if Architecture is thus a natural, social, racial art, if it be produced not by the will of single individuals, but is the expression in masonry of the working of the time-spirit, then it must be clear that what we are doing to-day cannot be called Architecture simply because what passes for such is produced under quite different and quite artificial conditions. It may be interesting—to the sociologist; it may at times be beautiful; it is not, properly speaking, Architecture. Modern building, when it is beautiful, is always the work of artists who by hazard have made bricks and mortar their medium of expression. They would have done notable work in any material; but, in judging of the building of a nation, we must take the mass of it and not the sporadic works of men who were artists first and builders afterwards. Judged by the mass of building raised to-day, there is little to be proud of in the art that produces such works as—*any building each of you particularly dislike.*

This brings us down to our own day. The fact is that Renaissance is notable pre-eminently for architect's architecture. It is the work of

* A paper read before the Architectural Association on Friday, November 11th, 1898.

architects who design as distinguished from those who did. But though it and the Architecture of design was so produced, the men who did it were real craftsmen in the complete sense of the word. Look through any biography of the mediæval masters and you will find that they were almost without exception trained first as goldsmiths, painters, or sculptors, workers in wood, ivory, and mosaic—they were employed only as designer architects, when they had attained eminence in the crafts. The hard training of work in material had filled them with ideas and enlarged and rounded their ideals. Having mastered one or more arts before they touched design as a separate thing, their work had a sculptural completeness impossible of attainment in any other way. But we must not forget that much of this completeness was added after the design had been made by the unifying labours of the creative craftsmen associated in the guilds, then in the very height of their power. Though the skeleton designs were prepared by the master sculptor and the proportions settled before the building was begun, the designs were overgrown, veiled, and clothed by the individual creation of the special workman to whom each portion of the building was assigned. Those workmen trained under and elected into the guilds put into their work unhindered, though directed by the designer, all that their skill enabled them to express of ideas and the tradition of their guild, and for many years we do not perceive the necessarily mechanical methods to which the designer considered as the user of a separate faculty was necessarily reduced.

But these mechanical or scientific methods

are there, becoming more and more evident—as time goes on—until the building is turned into a mere sitting for a variety of the delicate and beautiful works of men who without ceasing to be artists are daily less associated in the vital design of the building. Their work ceases to have those organic relations to the whole which we find even in eighteenth century buildings in England. This because, though designed by architects, they were carried out by the master workmen, who, in almost all the details, had a free hand. The change goes on, the art of design is in the process of evolution into artifice; the designer becomes more and more specialised into a constructing draughtsman, the maker of graphic specifications for buildings instead of the actual maker of buildings. Little by little he loses hold of the guilds, and this causes the artist to become a specialist each in his own department; the guilds dissolve, and as the importance of the design increases their powers decrease, and that great tide of life—of whose existence they were the evidence—finally ebbs away, leaving as the last product of the Renaissance—the final flower of all that cultivation—the modern architect, high and dry on the arid peaks of individual effort, cut off from any possibility of doing as he might wish, condemned to the more than Sisyphean labour of producing something out of nothing, while deprived of means to do it. That is the position in which we found ourselves but a little while ago.

It is manifestly illogical to blame the architect for being the result of a perfectly natural process of evolution; it is equally illogical to expect from a man the work of a multitude, or to get from a molecule the momentum of a mass.

It is all very well to show why a thing is wrong, but it is important for us to know what we ourselves are to do—and this, though difficult, is not impossible. In the first place, as Architecture is built up by the harmonious co-operation of the natural aptitudes of many individuals, it is necessary for each to follow his own particular bent, and to devote himself to that work to which he feels most drawn. In the vast field of building there is ample room for the effective working of every talent and the display of every power. And, inasmuch as all the crafts are necessary to Architecture, there need be no strife for precedence, for we all, as in life, are interdependent. Just as there are diversities of gifts, but the same spirit, so there are diversities of crafts with the same art working in all, embracing all, inspiring all. The lead worker who does a fine font, the silversmith who creates a chalice, the modeller, the plasterer, the mason, the waller, and the sculptor, the carpenter, the joiner, and the carver are all necessary, and all equal, in so far as each does the work to the best of his ability. There is neither greater nor less in the kingdom of art—all are the servants of their own souls, as they are the servants of God—and that is the heart of the whole matter.

I do not mean by suggesting that each man should take up a craft, to advise the dilettantism which dallies for an hour or two in the evening over some easy bit of work, done at a loose end, without reference to any actual building, although even that is not to be despised if it leads to a truer perception of the nature of building. I mean this, that each should determine to be—as the old men were—a craftsman first and an architect afterwards, for it is futile to talk of directing the handicrafts if we are not in some degree craftsmen ourselves.

Moreover, the value of the craft study lies not alone in the manual and mental training we derive from it, but in this that the very processes of work suggest other designs, the original pencil sketch is modified or abandoned as the thing we make takes form. When we have done the work, and placed it in some corner of the studio, the critical faculty which was held somewhat in abeyance by the ardour of work reasserts itself, we see defects of design and remedy them. As the light fades or changes, the work takes on new aspects, and becomes the starting point of an entirely new and living set of ideas, a fruitful source of suggestion while it remains there. Whereas, when the original



NEREID. ONE OF THE ELGIN MARBLES IN THE BRITISH MUSEUM.

sketch, drawing, or design has been handed to a tradesman, not only do we lose the full power of modifying work in progress, not only do we lose the suggestiveness of process, but the work when done is neither our own nor the workman's, it is an illegitimate birth, and bears the marks of it on its face for all who have eyes to see. What is true of the lesser art is true of the greater—unless you live with your buildings, unless your craftsman's knowledge is hourly used to support up your artistic inspiration, and organise the work of other craftsmen associated with you, not all the drawings in the world will produce a building fit to be called a piece of Architecture. And that, in spite of the hopeful enthusiasm and the passionate earnestness which characterises the rising generation. Now having tried to tell you what might be our aim, let us consider how our object is to be accomplished.

This, again, though difficult, is not altogether impossible; we must first consider

already been made. This beginning is to be seen in the revival of interest in individual craftsmanship, and in the result of that revival the School of Art and Handicraft in Regent Street which you all know so well. I see beginnings of better things in the increasing numbers of men who are forsaking the easel for the furnace, the drawing-board for the banker, the office stool for the forge and the workshop. For many, perhaps most, architects this is impossible, but it is possible for everybody to co-operate with the men who are trying to improve the standard of work by doing work themselves.

This co-operation might take many forms. The decorative work required in any building, instead of being handed over to the commercial firms, might be entrusted to the various men now working who have made those crafts their own. The design would naturally be left to the craftsman, after the general scheme of the building had been explained. The amount of work which the

less acknowledged, is, when well and simply done, just as valuable to society as the beautiful craftsmanship which appeals to every passer-by. We cannot all be craftsmen, but there is room for all if we only make room for ourselves.

Moreover, that those architects who are favoured by fortune with a plenitude of building work have it in their power to create almost at once a school of associated craftsmen who might do for the buildings of to-day what the Associated Craftsmen of North Italy—led by such men as Orgagna, Niccolò Pisano, Lorenzino Maetani, Mino da Fiesole—did for the buildings of their day. All the elements are here. When we have sculptors like Alfred Gilbert, Thornycroft, Bates, Stirling Lee; painters galore; metal workers like Alexander Fisher, Nelson Dawson, Reynolds, with their pupils and followers—what more could we desire? Our happiness is always next door awaiting us. There is no need to search the world for it, and that true happiness we seek is found in the full activity



PANEL FROM THE FRIEZE OF THE PARTHENON: NOW IN THE BRITISH MUSEUM.

what our actual position is to-day. We, as the descendants, in point of time, from the scholar-architects, of the Renaissance, find ourselves in an age in which labour is organised, not to produce the finest kind of work, but to regulate the hours of labour and the rate of wages. The Trades Union takes the place of the guild. Separated thus from the very means by which fine building was done, architects are themselves organised into a profession, and, instead of being actually concerned in the work of building, produce briefs and diagrams from which erections are raised. Almost from necessity the methods of the counting-house have to be employed in the simulation of art. The man whose energy and intellectual labour supplies the directing power and lays down the lines of work is, also from necessity, very rarely present while that work is carried on. The specification, the contract drawings, and details are the modern substitute for co-operative design carried out under the eye of the master builder. How to begin to evolve living art out of this muddle of dead systems seems almost hopeless, but I believe that a beginning—and that a very hopeful one—has

architect would be spared is incalculable, and his building would gain in distinction.

The droves of young sculptors who now haunt the studios in search of work might win their spurs in architectural sculpture, which is practically a lost art; while the still more numerous painters might be given commissions for wall decoration, instead of handing that work over to the wealthy and over busy firms. And so on, round the whole crafts. In a very short time we shall have a large number of craftsmen who will be fit to erect buildings by themselves, without the aid of the professional architect.

This, however, does not by any means exhaust the ways in which the new architecture might develop. Those who do not feel called to the crafts could take up the engineering side of building—for the vast work of providing for our daily extending commerce must obviously go on. The necessity for careful honest engineering work, the still greater need for efficient and continual supervision, seems to me to offer numberless opportunities of congenial and remunerative work to capable men; and this work, though

of every faculty, in the opportunity of the complete and rounded development of the whole man. But it is essential that our architects should abate somewhat of the professional dignity which encloses them, and give the craftsmen freer play; then in time we may see a new Architectural Association on the ruins of the old, but it will only be done when we have for ever got rid of the architect as an isolated intellect, a being divorced from the art of building.

Colonel Prendergast, proposing a vote of thanks to Mr. Wilson, said it was always pleasant to hear a discourse from an enthusiast, and he was perfectly certain that Mr. Wilson was deeply imbued with enthusiasm in the Profession. There were heaps of "rocks" amongst the remarks they had heard, and it was a mistaken view to suppose that the workmen could be transposed to the position held by the architect in any great work where unity of design was required. Mr. Wilson had truly remarked that the ancient guilds had given way to Trades Unions. Now, when everything was a question of wages, how on

earth could we come to terms? There was no doubt the great workers of the Renaissance periods were allowed considerable freedom; in Spain the architect was known as the master builder—but he was also the architect. They could not put up a great building and allow every craftsman to do just as he pleased in it. There must necessarily be a directing mind; then if their workmen were of the right stuff they would supply that colouring, without which no great work was, in his opinion, altogether successful.

Mr. Halsey Ricardo seconded the vote of thanks. The work of the present day, he went on to say, was out of key with the life of the present day. They felt that the work going on to-day was extraordinarily interesting and extraordinarily able, and yet it was not in touch with the present day. The houses we were building would have a curious, pathetic interest in fifty years, like the houses built fifty years ago, when the Gothic revival was setting in. We had unequalled building

with three things prominent in his mind. First, the fascinating description of the old trade guilds of the past; second, the hope held out of the faulty methods of the present day being superseded by something better—a hope fostered by the attention given in the present day to technical education; lastly, they had just heard Mr. Halsey Ricardo's steel and concrete views, which had completed his feeling of bewilderment. He felt that there was so much to be said on the subject, that, instead of saying it, one had better think about it. He did feel that at the bottom of all these art questions there was one prime point. Are you going to be a man or a machine? We should welcome any effort which was made in the present day to change the hard mechanical lines upon which so much of our work was done and to make men more human by making them greater craftsmen. He thought there was great hope in that direction. It was most encouraging to note how the word "craft," which was almost

had his place, and so had the architect. If they allowed a body of craftsmen to take the place of the architect, and arrange the details of the building without a guiding mind, the result would be that the Architecture would be left out, and the building made up of a number of pieces of craftsmanship, which, although interesting in themselves, would be entirely separate, bearing no relation to each other. He could not see how it was possible to get rid of the architect, though, of course, it did not matter whether they called him an architect or a foreman so long as his was the master mind. He did not see that under present conditions, the craftsman's enthusiasm was seriously cramped.

Mr. Thomas Blashill confessed to a little surprise at the course Mr. Wilson had pursued. He agreed with and much appreciated the early part of his paper, wherein he treated of the question as to whether Architecture was, or was not, the mother of the arts. Here, Mr. Wilson's view was one they might consider,



PANEL FROM THE FRIEZE OF THE PARTHENON: NOW IN THE BRITISH MUSEUM.

facilities to-day. We could build in concrete, and we had other materials at our disposal, yet we proceeded building without regard to these facilities. Another new material was steel, which we used on the sly; if used vertically, it was cased in Doric columns, and if horizontally, it was thinly covered with stone to look like an impossible lintel. We did not know how to use this material, because we were not in touch with it. If we were we should use it more frankly and more methodically, scorning the present devices, which often gave our building the appearance of want of security and want of grit. We had extraordinary powers to-day which past centuries never had, and he hoped we should come to recognise those powers, and not ensconce ourselves behind some building of another date; this was insincere, and nothing insincere had any life in it.

Mr. Christopher Whall said his whole attention had been devoted to an endeavour to take in the intensely interesting—but rather too deep for oral delivery—remarks of Mr. Wilson. He found himself at the end of the evening

unknown as an English word thirty or forty years ago had passed into common currency. Technical education was a large matter. It was engaging the attention of the London County Council in a very marked manner and the actual results were, so far as his personal knowledge went, very encouraging. They could not hope for a living representation in the near future, of the picture of the Middle Ages, yet he hoped the feeling now abroad would grow.

Mr. H. T. Hare said that whilst agreeing with many things Mr. Wilson had said, he thought that an architect's life was too short to enable him to make himself a master of all the various arts and crafts which constituted Architecture. All that an architect could hope to do was to get a general knowledge, and, in some cases, a very superficial knowledge; and the architect who attempted to design all the various small pieces of craftsmanship which went to make up a building was guilty, he thought, of a good deal of presumption. He could not agree with the idea of abolishing the architect, as we now knew him, and putting the craftsman in his place. The craftsman

and, perhaps, hold. But when he drifted into the question of Architecture, which was entirely another thing, he began to differ from him. He had heard this kind of thing for nearer fifty than forty years in London lecture rooms, beginning with the old original Architectural Museum at the Coal Banks at Westminster, and one got a little hardened to it. The tone of dissatisfaction with everything going on was not, perhaps, very healthy; yet there was good in these addresses, and he hoped they would benefit by what Mr. Wilson had said—by receiving what was helpful in it, and rejecting what was not. He would not like to take the responsibility of suggesting to them that the road they were pursuing—pursuing under very general sanction—was wrong, that they should throw their present training to the wind and take up some particular craft. When they had sacrificed their careers they would be just as much dissatisfied with everybody all round. That, of course, was the view of the pessimist—and whether it was the national food or the national temperament that was the cause, pessimism was very often to the fore. Architecture, at any rate, was a



CHURCH OF SAN PETRONIO, BOLOGNA. DOORWAY BY JACOPO DELLA QUERCIA.

thing they were all in for; he did not think they were likely to give it up on any seductions or persuasions, and therefore he thought they ought to make the best of it. He did not see why a man should not succeed as well as an architect as his fellow as a sculptor. He recognised that our elders were wrong in drifting into copyism to the extent they had, but surely sooner or later we must come to something in the shape of a remedy. Hadn't we better try a little longer? His impression was that they were discouraged by such views as these. They should take up Architecture with the view, not of bricklayers, sculptors, or painters, but as architects, and call in the painter, the sculptor, and other craftsman when required. He had seen some buildings where the sculptor must have been called in first, he having afterward called in the architect and told him where to put the building. A Swiss chalet—the work very often of a village workman, afforded the latest specimen of original Architecture. The speaker agreed that steel and concrete had their uses, and we ought to pay a little more attention to them. We ought also to call in the sculptor and painter a great deal oftener than at present, but only when they were really required.

Mr. D. T. Fyfe summed up the situation by asking: Was Architecture to be the work of one man, or was a building to be erected by various craftsmen? It was for architects, more particularly young architects, to decide whether Arts and Crafts was the right road to Architecture. Personally he did not think the best results could be obtained, in erecting a large modern building, by the co-operation of a number of craftsmen, each concerned with his own particular craft, if the architect did not supply the dominating mind.

Mr. H. B. Creswell said he was thoroughly surprised that the meeting had not strongly endorsed Mr. Wilson's views. The members

of the A.A. were all grains of mustard seed, and that was why Mr. Wilson had read his paper to them. They had all seen the work of the early part of the present century and they knew there was nothing there worth anything whatever. The whole Gothic revival was a fraud and a farce. False in impulse, it had produced nothing of real value. They saw a fine church of the Gothic revival, and on first acquaintance it seemed to be pleasing; the next time they saw it they were annoyed, and on the next occasion they wanted to throw something at it. They felt they would like to assist in its demolition. Why? Because it was false; the impulse was entirely foreign to what its impulse should be. Mr. Thomas Blashill had put too literal an interpretation upon Mr. Wilson's remarks. Mr. Wilson sought to show what the right art impulse of the present day should be, and to point out that the direction in which we were going was not the direction of that art impulse which had given the world its great arts. Posterity would look back upon the present epoch to discover what was the characteristic note of the Architecture of to-day. And this characteristic note would be truly vile, if it were not conscientious and honest. That was an extraordinary thing about all art impulses; however rude and archaic, they had real value so long as they had the enthusiasm of the nation behind them. There were innumerable examples of the Elizabethan style which, although vile in composition, were acceptable because they carried the flavour of reality with them. As an individual instance, the work of William Blake, poet, painter, and decorative draughtsman, had no real value, because he shut himself up in a cell and painted his own feelings. His productions were pretty in themselves, but they had no position in Art. Posterity would gauge our work when we had completed it, and it was interesting to con-

sider what was the characteristic note of the present day. He had tried to follow this out, and had concluded that it was typified in public-house Architecture and underground lavatories. If he had done these things he would be proud of them, for they had been excellently well done, and the best scientific thought had been expended on them. During the last ten years in London, more marble had been used in this class of work than had been used in all the churches of England in a century. And of public-house Architecture, they could at least say that it was characteristic; it belonged to no other time. It was, of course, utterly vulgar, because a public-house was a vulgar place, and it expressed the public-house—a place for a drunken, muzzy man. Public-house Architecture was honest, and unless we saw to it that our Architecture was more honest, more sincere in its impulse, what he had indicated would go down to posterity as the individual note of the present century. Mr. Wilson's paper was most thoughtful and most true in its basis and in its essential meaning, and it ought to assist the growth of those various mustard seeds, of which he considered himself one.

Mr. G. M. Nicholson said one point had been overlooked in the discussion—the difficulties encountered by the modern architect, and which were not known a good many years ago. If they took London, for instance, where a good many buildings were put up, the architect here had, first of all, to consider how to use up every inch of space; he had to be extremely careful about light and air, and time and cost were very important factors. In the olden times cathedrals were put up without very great regard to time, and, further, labour was not quite so independent as it was to-day. If a workman wished to be artistic, it necessitated his working slowly, and, therefore, unless they had time and money to spend in decorating

their buildings, the artistic workman was not required. Even in building private houses, cost entered very largely into one's calculations. A man's first idea about his house was the required accommodation, and the second the limited cost. The architect had to put these two factors together, and, confronted with an absolutely rigid scale of wages, to work out the sum to the best advantage. The Trades' Union principle was that they must, even with the very worst workman, observe a minimum rate, and the consequence was that the best workmen were very high-priced now. The way in which architects met these modern conditions showed that, if anything, their skill was rather superior to the olden time people. The architect to-day had to deal with a commercially-minded people; he had to build speedily and with economy, even in Government buildings, and had to produce what the client asked for; he was really no more independent than a theatre. If the client wanted an economic building produced in a short time, the architect had to do it, and if he refused or failed, then he would soon be left with his ideals and nothing else.

The President (Mr. G. H. Fellowes Pryne) thought they owed abundant thanks to Mr. Wilson for his thoroughly enthusiastic paper. Mr. Wilson was so closely connected with their late friend Mr. J. D. Sedding, that they felt he really carried on, to a great extent, the enthusiasm of his master. Mr. Wilson had suggested an interesting line of thought, and although some of his views might appear extravagant, yet it was only by such extravagance that they could make men think there was something behind them. He thought there was a great deal behind what Mr. Wilson had said in that we were not as a body in touch with craftsmen as we should be. He could not go so far as to say that each of them should take up a craft. That seemed to him to be lowering the view of Architecture; as they looked upon it. He did not think it was reasonable; he did not think it was even practicable in any sense. He knew one or two persons who had given up Architecture for ironmongery, and they worked at it from a sincere art point of view, and made a bare living in the effort. He thought they could so regulate their education in all the crafts that they could be useful heads of the whole on one building. Take a man like William of Wykeham; he had a splendid capacity for planning and seeing what was right in other men's work, but they could not believe he was a workman himself. Mr. Wilson's picture of the craftsmen going to commercial cities in their caravans was beautifully idyllic, but a little too fanciful, he thought. In saying so, he did not wish it to be understood that he was not in sympathy with a great deal of what Mr. Wilson had said, and he greatly wished they had a school of crafts, where they might learn how to construct masonry and carpentry and how to model, so that they would at least be able to tell the craftsman whether he was doing right or wrong. Mr. Ricardo had opened up a new line of thought in his remarks on the question of materials. In building in the present day we had to meet a new state of things and had to deal with new materials, and surely if there was scope for anything it was in good design of wrought and cast iron and steel. We wanted good design, and not mere copies of good work, of which we saw so much. He felt that Mr. Lethaby and those who were with him in the arts and crafts movement were entering into the work with an honest endeavour to do the best they could for Architecture, and he believed that their work tended for good. However much they might believe the theory that Architecture was a growth of the crafts, they must not think they could suddenly create a style of their own—that they could build solely on a miserable foundation made by themselves. They must build with a knowledge of the past, and their education should be to understand the best in the past. To reject Classic and Gothic Architecture and to say it was all a mistake was utterly wrong; they must get from those styles and others the foundation of what to do in the future, though they should not copy them. He was amused at

Mr. Creswell's clever speech, but he entirely disagreed that the Gothic movement throughout was a dismal failure. There were men working in the Gothic movement with just the same sincerity as men were working to-day. Did they believe that Street worked with anything but an honest end; his work had the charm of individuality; it was not a copy of the past. It was the same with Pearson; go to any of his churches, and they had the mark of Pearson upon them. They might take Sedding himself. Surely he was a Gothicism, and certainly he was a magnificent example of a man who tried to feel for himself and stamp his work with his own individuality. Here they might take a lesson to heart.

The vote of thanks was carried, and, in acknowledging it, Mr. Wilson said his intention in going before the A.A. was to tell them, so far as he could, what were his own ideals in his own particular work. It was of no use his giving advice as to what he considered they ought to do; it was his part to tell them merely what difficulties he encountered in work similar to their own and what was his own particular solution—or rather what he considered was his solution. If he had showed them what somebody else had tried to do, he had fulfilled his purpose. And in what he had said against architecture, they must remember that he was himself an architect, and he had therefore been speaking against himself, because he happened to know where Architecture was weak at the present day. In saying this, however, he did not wish it to be understood that he did not feel there was a good deal in modern Architecture, that he did not realise its sincerity. The chief of the few objections made to the points in his paper was that he wanted a building erected by a large number of workmen and built in a heterogeneous fashion, the architect being a special craftsman, whose mind was the centre round which the work was going on. If they looked at history they would find that the men who did the most for Architecture had a special knowledge of the various crafts, and were deputed to make a plan, round which the various craftsmen crystallised their thoughts and ideals. The work of the future could be as the work of the past, only there should be a much wider aim. They should take advantage of new materials, and what they could not do themselves they should get others to do. In his opinion, the Architecture of the future must be co-operative Architecture, or it could not exist.

MEMORIAL stones were laid on Saturday week at the fire stations in course of erection in Mary Ann Street, North Woolwich, and High Street, Lewisham, respectively.

MR. HERBERT FINN has had the honour of submitting, for Her Majesty's inspection, the picture which he has painted, entitled, "The South-West View of Canterbury Cathedral.

GERMAN archaeologists are about to explore Mesopotamia. The expedition will start next month under the conduct of Dr. Robert Koldewey, who was exploring in the same field last winter. It is understood that the expedition's plan of operations will require a series of years for its execution.

MR. E. C. WHEATER, of Newcastle-upon-Tyne, has sold one of the most valuable blocks of property in the centre of Newcastle-upon-Tyne, known as the Central Exchange Buildings, for a sum between £250,000 and £500,000. This block of buildings embraces a theatre, an hotel, a café, a large restaurant, art gallery and club, and numerous shops and offices, the whole standing on an area of 3370 square yards.

UNDER the supervision of the architect's department of the London County Council, the destruction has been completed of St. Mary the Virgin's Church, in Charing Cross Road. Twelve months ago the effects of decay became so dangerously obtrusive that the County Council, failing to discover any responsible trustees, were compelled to shore up the edifice. Now all that remains of St. Mary's is represented by the modern front of red brick and tumbled walls in the rear surrounded by a hoarding.

MODERN ARCHITECTURAL TENDENCIES.

By A. R. JEMMETT.

WE published Mr. H. V. Lanchester's essay on Modern Architectural Tendencies, read before the Discussion Section of the A.A. on Nov. 4th, in our last issue. Mr. A. R. Jemmett and Mr. Elgood also contributed essays. Mr. Jemmett's remarks are summarised below.

Mr. Jemmett thought that there were plenty of tendencies, but that few of them were architectural. Few of those advanced by Mr. Elgood, such as the habit of running a cornice up a gable, were of more importance than the tendency to draw with vulcanite set squares in place of wooden ones, or than the latest tendency in neckties. He looked upon these things as passing fashions, like the fashion for green furniture, that would soon pass and leave us no further advanced than before. The principal tendency, he noticed, was one towards eccentricity for its own sake—everyone trying to go one better than his neighbour, without any reason or meaning; a tendency to think more of individual reputations than the advancement of Architecture; to exalt the artist above his Art, to the detriment of both. He was of opinion that to be of any value, and to be worth serious discussion, a tendency must be one of mind and intellect, and not merely one of feeling or sentiment. If we want progress, we must have it on certain definite lines, following certain principles for which reasons could be given. Mr. Elgood spoke of a tendency towards simplicity. Well, was this merely a passing fancy, a matter of sentiment, or an appeal to the reason, that it was best to express oneself in the simplest possible terms?

With what Mr. Lanchester said about our lack of technical training he entirely agreed, and thought that this was what made us so amenable to every passing craze. We had plenty of ideas, but we lacked the training necessary to express them; we were like painters who could not paint, or musicians ignorant of harmony, or pianists whose fingers were not supple. This rendered us incapable of completely realising to ourselves beforehand the effect we wished to produce. He could not quite follow Mr. Lanchester in all he said as to the continuance of the classic tradition, as he was one of those who still cherished some hope of a new style founded on, or suggested by, the logical use of materials. On this point he thought that Viollet-le-Duc had not been quoted quite accurately; he had qualified elsewhere any statement that a new style can be evolved simply by this means. With regard to the names mentioned of those who had broken away from the classic tradition, and had carried many weaker minds with them, he did not care to discuss individuals; but, while having the greatest respect and admiration for the personalities of these men, he could not follow them or advise others to do so. Perhaps they had been influenced to some extent by the modern craving for notoriety.

With regard to what went on abroad, he thought we did not know enough; we were too provincial altogether, and content with the little local reputations of our corner of the world. A greater knowledge of foreign work would help to bring our tendencies more in line with the general advance of human thought. Our present state was chaotic, and it was difficult to discover any real tendency worth discussing, other than a sentiment which might not last; though he had hopes that there might be a tendency towards the rational use of material, and towards a general truthfulness of expression. If so, progress on these lines would be possible.

THE Liverpool Architectural Society paid a visit of inspection to the Thompson-Yates new laboratories of pathology and physiology (Mr. Alfred Waterhouse, R.A., architect), at University College and the School of Hygiene, Ashton Street, on Saturday, the 19th instant.

PROBLEMS OF LONDON STREETS.

By SIR JOHN WOLFE BARRY.

AT the first meeting of the 145th session of the Society of Arts, held at John Street, Adelphi, W.C., on Wednesday last, Sir J. Wolfe Barry, F.R.S., the new chairman of the Council, delivered an opening address on the "Internal Traffic of London."—Sir J. Wolfe Barry said the particular question he proposed to consider was that of the means of communication of London's inhabitants with each other by means of its streets and thoroughfares. This he took to be one of the pressing matters of the present time, not only in respect of the existing state of things, but still more in view of the future requirements of our ever-growing population, and if he could bring forward sufficient information and such a view of the questions involved as to induce some systematic consideration of that great subject, he should feel his labour had not been thrown away. No one who had lived in London could, he said, doubt that the pressure on the streets was getting yearly heavier and heavier, and becoming more and more unmanageable. Considering the

NEW STREETS AND WIDENINGS OF STREETS

effected in the last fifty years or so with the view of facilitating the constantly growing streams of traffic, he remarked on the smallness of the mileage and capital expended as compared with the outlays of railway and tramway companies. In the matter of street improvements in London, one could not but notice an almost entire absence of grasp of a large subject, and in the history of the past forty years, we looked in vain for any new arterial thoroughfares traversing inner London from end to end, and proportioned in width to the demands upon them at different parts of their route. On the contrary, we found in the new streets, as in the old, that the nearer they were to the heaviest of the traffic the narrower they were in absolute dimensions. Cheapside, Fleet Street, Piccadilly, the Strand, Marylebone, and Euston Roads remained very much as they were fifty years ago, when the traffic was a mere fraction of what it is now. He desired to speak with all respect of those who executed the idea of Regent Street, for Nash's wide Waterloo Place and Regent Street, with its circuses at Piccadilly and Oxford Street, was a work conceived in a large-minded way. But most at least of modern street improvements seemed

PIECEMEAL AND PATCHWORK ENTERPRISES

narrowed to the smallest dimensions that would pass muster, and without any but the most meagre provision for the future, or, except in the case of Regent Street, the slightest attempt at systematic artistic treatment. In fact, there had been and was now a hitherto incurable *petitesse* in dealing with such matters in London which was in great contrast to what we saw in foreign cities of far less importance and wealth. His plea was that to meet the traffic of London it was not so much additional railways, underground or overground, traversing the town and connected with the suburbs, that were wanted as wide arterial improvements of the streets themselves. Strictly urban railways, or rather trains that only traversed the town itself, though carrying immense numbers of passengers, had not dealt with the question, and would not produce the desired result of relieving the streets; on the contrary, they tended to add to the congestion from the point of view of both urban movements and suburban influx. In his judgment street improvements in London should be considered as a whole and in a large-minded way, unless we were to be doomed to perpetual disappointment. A scheme of new main thoroughfares of adequate width for present and future traffic should be laid down, and realised as time and finance permitted. There should be continuity of effort towards radical amelioration by the construction of great main lines of through communication as distinguished from merely local

improvements, and all local improvements, as was the case in Paris and other foreign cities, should be devised so as to form parts of a harmonious whole. Apart from wide streets, a matter which had been too much lost sight of, was the provision of means for allowing the north-and-south traffic to cross the east-and-west traffic with the least possible confusion. If some means could be devised for the crossing of north-and-south traffic over or under that going east and west at places like Hyde Park Corner, Piccadilly Circus, Ludgate Hill, and Wellington Street, the relief to the main thoroughfares at those points would be enormous. The results would be well worth the expenditure, heavy though it might be, and, having given some consideration to the subject at the points above mentioned, he could say there was nothing impracticable in the suggestion. After a few words on the thoroughfares of the south side of the Thames, the speaker referred to what he recognised as of more importance and urgency—viz., the north bank and the three main lines of east and west communication. The Euston Road (with Praed Street and Chapel Street at the west and the Pentonville and City Roads at the east), Oxford Street (including Uxbridge Road, Holborn, and Cheapside), and the Strand (including Fleet Street, Ludgate Hill, and Cannon Street), were all most ludicrously inadequate. In the case of the Euston Road route, where shortcomings were the least glaring, the necessary widenings and improvements would involve less serious consequences than in the other thoroughfares. The Oxford Street route, with the exception of some narrow places near Notting Hill Gate Station and the confused crossing at the Marble Arch, was fairly adequate as far east as Edgware Road; but from that point a radical improvement, either by means of important widenings or by a new street, was wanted, and should be carried through the City so as to connect at its eastern end with the Mile End Road. In the case of the Strand, Fleet Street, and Piccadilly it seemed to him that the only course was a systematic widening of all three thoroughfares, with

A BROAD DIAGONAL STREET FROM PICCADILLY CIRCUS,

via Coventry Street, to join the widened Strand near Wellington Street. He thought they wanted one new and spacious thoroughfare east and west, about 120ft. wide—as wide, that was, as Whitehall opposite the Horse Guards. It might leave the Bayswater Road near Westbourne Terrace, follow the line of Wigmore Street to Russell Square behind the British Museum, and thence run to near Broad Street Station. In addition, there should be two or three thoroughfares north and south, slightly less in width, which should be carried over the east and west route by bridges at the points of intersection, and all these new routes should have a raised or sunken road for bicycles, so that they should not mix either with vehicular or pedestrian traffic. The cost of such a work doubtless presented rather an alarming prospect, for a street 120ft. wide and four or five miles long must mean many millions of money, though the recoupment from the new frontages would be very important. Such, however, was the kind of undertaking required for London of the future. In conclusion he said he could not but think that the relief of the present congestion of our streets by a well-considered enlargement of the arteries of London was a subject which must commend itself as of primary importance to the whole city—nay, more, to the whole nation. It was worthy of the fullest consideration by those who would devote themselves to no peddling treatment, but to such a large-minded plan of a remodelled town as was made by Wren in respect of the City of London after the great fire, and as had been so successfully carried out in Paris, where he supposed the cost of land and construction differed but little from similar values in London.

TEMPSFORD HALL, a fine modern English mansion in Bedfordshire, has been destroyed by fire.

WHO IS TO SHOW THE WAY?

THE ADVANCEMENT OF ARCHITECTURE.

To the Editor of THE BUILDERS' JOURNAL.

DEAR SIR,—Prof. Aitchison in his paper on the Advancement of Architecture says: "The thing we want most is the advancement of Architecture, but who is to show us the way?"

The same question may be asked by every member of each art, profession or craft who sighs for progress. By advancement I understand "originality." First define the word so often misused; then let each and every architect, artist, professor, or craftsman realise that his dearest dreams and most cherished ideals are most lacking in the one thing he continually strives after, namely, originality. Then from the debasement of his pride and conceit (which are the besetting sins of all artists) let him aim and create.

Does each architect really understand that almost every trick of his pencil and every part of his work is simply what he has learnt from his preceptor; or is a copy (perhaps unconscious) of something that his senses have impressed upon his memory? If not, let him analyse his thoughts when designing, and in most cases I think he will find that this is the case.

Now for the remedy. Originality is for a new generation. My scheme is something ideal, and I am afraid very impracticable in these days of bicycles, motor cars, and all kinds of speed. But here it is, and I believe it deserves the consideration of all thinking men, however impossible it may seem.

Each art, profession, and craft should form itself into a guild, after the style of the old guilds of London. Each guild should build itself a college, to be called after it, as "The Architectural College." Lastly, and most important, each college should educate its pupils from childhood, primarily in the art or craft that it professed. Everything—history, geography, and mathematics—should be the history, geography, and mathematics of the proposed profession of the learner. Then where would be the duffer? At the age of twenty-five, a man would be perfect in his profession, and would have acquired the general information necessary to his state in life as part and parcel of his professional knowledge. There we have a man with all the knowledge that his contemporaries can impart to him at twenty-five years of age, or younger, ready to start in the battle of life, with his best and most vigorous years to devote to the greatest and most difficult study of all, originality.—I am, dear Sir, yours faithfully,

London, S.W.

ROBERT CURLING.

A CHURCH to cost about £8000 is to be built at Kensal Rise to the memory of the late Dean Vaughan. Messrs. J. E. K. and J. P. Cutts have prepared the drawings for the building, which is to be erected as soon as possible. It will seat 750 persons.

The new national schools connected with the Parish of St. Stephen, Paddington, were opened last Thursday. The cost of the entire work, including the site, has been £10,878. The schools form a splendid group of buildings, and comprise departments for boys, girls, and infants, and a large hall for parochial purposes.

At last, after many weary vicissitudes, a substantial step has been taken by the Congregationalists of London to rebuild upon the old site in Tottenham Court Road a chapel worthy of succession to George Whitefield's historic tabernacle. The ceremony of relaying the original foundation stone has just been performed by Dr. Joseph Parker. The designs for the new church have been prepared by Mr. Rowland Plumbe, and show a spacious and handsome building in red brick and white stone dressings. It will seat 1150 persons, while the hall beneath will accommodate 800. The new chapel will be the third on this site, the second having been built in 1831, and it was then the largest Nonconformist chapel in the kingdom.

RECORDS OF ENGLISH CATHEDRALS.*

By FRANCIS BOND, M.A., F.G.S.

MR. BOND opened his subject by a reference to his own researches at Waltham Abbey Church, which had led him to the conclusion that no portion of the work was of the early date assigned to it by Professor Freeman and other authorities—viz. the eleventh century; it had nothing in common with either English or Norman work of that period. Wells Cathedral was another example of what the lecturer termed archaeological aberration. Some authorities dated the nave after the west front, though the nave was far more archaic in character; Professor Willis dated the west front after the nave, but put both a whole generation too late. Many instances of similar error might be cited, pointing to some

FLAW IN THE METHODS OF RESEARCH.

The cause was to be traced to the wrong estimate of the comparative value of documentary and architectural evidence. Documentary evidence consisted of the references, direct or indirect, to the history of the building, in annals, monastic chroniclers, fabric rolls, registers, wills, &c.; architectural evidence was to be sought in the stones and mortar. Discussing Professor Willis's opinion in favour of documentary evidence, the lecturer observed that few of the statements as to building operations in the cathedrals were made by contemporaries; frequently the authors lived generations or even centuries later. The ascription of the choir, transepts, and nave of Wells, as well as the west front, to Bishop Jocelin was based on a statement of Bishop Godwin, who lived in the sixteenth century, which was itself based on an anonymous MS. written in the fifteenth century. Contemporary evidence could not always be trusted.

MONASTIC AND MEDIEVAL CHRONICLERS

had likes and dislikes, and sometimes deliberately misrepresented and falsified their history—Matthew Paris's own admission was a case in point. Any good work, any fine building, erected by the unpopular may have been attributed to the popular abbot or bishop. In this connection the lecturer referred to Bishop Aquablanca's work at Hereford Cathedral, which had been ascribed to Bishop Swinfield, and disproved the statement of Swapham and Abbot John, monastic chroniclers of Peterborough, that Abbot Benedict built the whole nave from the central tower to the west front. The chroniclers were not architects—their language lacked precision and definiteness; and it was dangerous to build theories on their curt and nebulous statements. They were often unintentionally misleading. The lecturer referred to a possible instance in the record in Simeon's "Continuator" of Flambard's work at Durham. Again the chronicler's statements had been applied to the wrong building—an instance at Ripon Minster was cited. There were

HUGE GAPS IN THE CHRONICLES;

some of the biggest works were not mentioned at all. It did not follow because there was no record of work by a particular bishop or abbot that therefore he did nothing. New evidence may be forthcoming, and the prelate who had been credited with no work might turn out to have been building busily all the time. As examples of the danger of building theories on negative evidence, the lecturer showed how such theories had been upset in the cases of Wells and Worcester Cathedrals. Dates of consecration were not always of value; there were dozens of examples which had no reference to the completion of a cathedral or of any important part of it. Neither was it safe to infer that, because services commenced in a certain year, the building or any particular portion of it was completed; inferences of this kind were proved incorrect at Durham and Peterborough. The evidence, however, of contemporary fabric rolls, charter registers, etc.,

was of the utmost value if it could be properly read and understood. But the Latin of those documents were not easy to read; the abbreviations had proved a fertile source of error. MSS. had been carelessly copied or carelessly printed; in some cases terms had been altogether misunderstood. Striking instances of error from one or other of these causes were referred to in connection with Lincoln, Exeter, and Hereford. Examples were further quoted showing that implicit confidence could not always be placed in

MURAL INSCRIPTIONS.

Concerning architectural evidence, the comparative rather than the historical method of investigation, the lecturer considered that nowadays this class of evidence, subject to certain minor reservations, might safely be relied on. Allowance must be made for the progressive tendencies of the monks of the eleventh and twelfth centuries, for the conservatism of those of the thirteenth. The monks of Peterborough and Norwich retained their Romanesque minsters almost unaltered to the last. The canons of Lincoln, York, Lichfield, and Exeter swept away almost every trace of Norman work. The abbey church of St. Germer, near Beauvais, Oxford Cathedral, and Wimborne Minster, furnished further examples of conservatism. Builders of the first half of the fourteenth century showed reverence for old work, and refused to impair the effect of good old design; but they put their own trade-mark on the detail. Various instances were given, and some examples of "architectural forgery" referred to, as at Rochester, Durham, Galilee, and notably the gateway of College Green, Bristol, and the church of Ottery St. Mary—buildings deliberately designed

IN THE SPIRIT OF A BYGONE STYLE.

The detail, however, prevents the student misinterpreting the evidence of the Architecture. It was possible to be misled by the precocity and cleverness of a mediæval designer. Here and there a great original genius sprang forth, such as Suger's architect at St. Denis, who gave the world fully developed and harmonised Gothic construction in 1140, two generations before the choir of Lincoln Minster was produced. St. Urbain, Troyes, represented the full and final consummation of Gothic Architecture, which was not reached elsewhere for more than a generation. Gloucester Cathedral afforded another instance of precocious genius. In conclusion, the lecturer expressed his conviction as to the general trustworthiness of architectural evidence, and quoted in support the authority of Mr. Barr Ferree and Mr. Edmund Sharpe. The architectural should be studied before the documentary evidence, and, if the former conflict with the latter, then the latter should go to the wall.

Mr. H. L. Florence, the Vice-President, was in the chair, and read, at the conclusion of the paper, a letter from the Bishop of London, apologising for being unable to accept the invitation of the Royal Institute of British Architects to be present at the meeting. Dr. Creighton, proceeding to discuss the subject of the paper, said:—

"I am obliged to you for sending me Mr. Bond's very interesting paper. Its main contention is that documentary evidence needs criticism in every case, and it is obvious that internal evidence supplied by Architecture is one element in this criticism. The strength of this internal evidence grows by the continued application of the comparative method. It is much stronger now than it was thirty years ago. But I do not think that its results destroy the credibility of documentary evidence, but only teach us to interpret more accurately the exact meaning of the words and discriminate between an exact and an approximate statement."

The Chairman remarked that the Bishop did not throw much light on the subject; his letter, he thought, might be fittingly described as "judicious hedging." The discussion was opened with a lengthy address by Mr. St. John Hope, who was followed by Mr. William White, Mr. H. H. Statham, and Mr. Hudson.

NEW POST OFFICE AT DUNDEE.

THE new building in Meadowside, Dundee, which will soon be the home of the Dundee Post Office and its cognate departments, is now practically out of the builders' hands. The piece of ground on which the new building stands is almost a square. It is bounded on three sides by streets, and on the fourth by other buildings. Two of the sides are available for "frontages"—Meadowside and Constitution Road—have been built upon, and the space at Euclid Street is kept vacant for future necessities. The outer building consists of three stories and attics, and in the square behind there has been erected the sorting room of one story, with high ceiling and roof lights. On the basement floor of the principal block there is the battery room, so essential a part in the economy of a telegraph office, where the most modern and complete apparatus is being erected. An adjoining room is used for storage purposes. Another room is to be used as a mechanics' shop, and still another apartment is being fitted up as a telegraph boys' retiring room. The principal room on the ground floor is the public office. It is entered from Meadowside by a large and handsome doorway and porch. The doorway is to be protected by

AN ARTISTIC WROUGHT IRON GATE,

not yet placed *in situ*. The doorway is a very striking piece of workmanship, with its arched top, decorated keystone, Corinthian capitals, and life-sized figures. The porch is also an artistic arrangement. It gives into a large public office. The whole length of the Meadowside frontage is occupied by the public office. To the left, through the vestibule in the Constitution Road corner tower, entrance is gained to the telegraph office, where the familiar boxes for the filling in of forms have been fitted up. By means of a tube the telegrams are sent to the instrument room. To the left of the telegraph office is the telephone room, with "silent" boxes, and still further in the same direction the visitor enters the telegram delivery room, where the messages which have been received are sent in order to be delivered throughout the city. These three rooms occupy the space fronting Constitution Road. At the Euclid Street and Constitution Road corner is

A TOWER CONTAINING THE STAIRCASE,

which winds its way to the top of the building, and connects the various stories. The first floor is occupied mainly by private rooms. *Inter alia* it contains women's cloak-rooms, postmaster's rooms, telegraph schools, telegraph engineer's rooms, and male clerks' retiring room. On this floor also is a new feature in postal economy—namely, a dining-hall and kitchen for the staff. On the second floor are situated the telegraph and telephone instrument rooms. On the attic story the caretaker's house and other miscellaneous rooms are situated. The lighting throughout is to be by electricity.

LONDON has got another clock. It is to be seen in the Strand, outside the offices of the Morning Post, and where it differs from other public time-tellers is in its hands. At night they are illuminated by electricity in some mysterious way; so are the letters that indicate the hours. The rest of the clock is black iron. The ironwork that frames the clock is a well-executed piece of work; and altogether the structure is a prominent and a not unornamental feature of the Strand. What London really wants is more silent-tongued clocks and fewer bells. When watches and timepieces were comparative rarities the public clock struck the hours to inform the populace what time it was. In these days, when every schoolboy has a watch, the necessity for the proclaiming of the hours and quarters from numberless clock towers has disappeared, and it would be a good thing to dispense with much of this superfluous noise in this, the noisiest city in the world. The people who find the superabundance of bells the greatest nuisance are the residents in the various inns of court about Fleet Street and Holborn.

* Summary of a paper "On the Comparative Value of Documentary and Architectural Evidence in Establishing the Chronology of the English Cathedrals," read before the Royal Institute of British Architects on Monday, 21st November, 1898.

Bricks and Mortar.

EFFINGHAM HOUSE, ARUNDEL STREET,

November 23rd, 1898.

"I know what it is to live in a cottage with a deal floor and roof, and a hearth of mica slats; and I know it to be in many respects healthier and happier than living between a Turkey carpet and a gilded ceiling, beside a steel grate and a polished fender. I do not say that such things have not their place and propriety; but I say this, emphatically, that the tenth part of the expense which is sacrificed in domestic vanities, if not absolutely and meaninglessly lost in domestic discomforts and incumbrances, would, if collectively offered and wisely employed, build a marble church for every town in England; such a church as it should be a joy and a blessing ever to pass near in our daily ways and walks, as it would bring the light into the eyes to see from afar, lifting its fair height above the purple crowd of humble roofs."—JOHN RUSKIN.

It has been decided to restore the Palace of Versailles and the not less celebrated Trianon for the Paris Exhibition of 1900. The Minister of Fine Arts has asked Parliament for a vote of 300,000*fr.* for the purpose. The famous crystal gallery, where the Kaiser's illustrious grandfather was proclaimed Emperor, will be renovated, the Orangerie will be repaired, the façades of the palace towards the park restored, and the Grand and Petit Trianon, which now look neglected and are becoming dilapidated, will also be put into a state of thorough repair.

The Colonial Office being now provided with a complete installation of electric light, advantage is to be taken of the presence of workmen on the premises to redecorate the building, which is at present chiefly remarkable for dust and dowdiness. A committee of taste is now elaborating a scheme of decoration worthy of the importance of the department. While distinguished foreign visitors are invariably impressed by the ornate decorations and excellent tapestries at the Foreign Office, they can hardly be expected to be favourably struck by the dingy ceilings and woodwork and the sombre-coloured portraits which are so noticeable in the building where Mr. Chamberlain works. An attempt will now be made to bring the interior of the Colonial Office more in harmony with its imposing external appearance.

RECENT excavations at Jerusalem by the Palestine Exploration Fund have resulted in some very curious discoveries. In the Tyropæon Valley Dr. Bliss found the main sewer of an ancient city, and traced it to a gateway in the old wall below Siloam. The sewer, apparently a continuation of that discovered by Sir Charles Warren beneath Robinson's Arch, is said to explain the curious statement of Antoninus that if anything that would swim were thrown into the running water beside the Altar of Abraham at Golgotha, it would be found again at Siloam. It may be suggested that the sewer was originally connected with the remarkable underground channel and tanks explored by Sir Charles Warren in the Kedron Valley, and that probably these works constituted the drainage system of ancient Jerusalem. Above the drain a broad paved street was discovered, and followed for some distance up and down the valley. Possibly it is the work of Agrippa, who is said to have paved the city with white stone.

THE old quarry on the borders of Dartmoor from which the granite was obtained to build

London Bridge, has recently claimed some attention. This now deserted quarry is situated on the side of Hey Tor, one of the rocky hills that fringe the southern side of the moorland, near Bovey Tracey. London Bridge was opened some seventy years ago, and since then the curious granite tramway that led from the quarry to the highway near Bovey Tracey has been disused. Now almost the last traces of it are being carted away, for the local farmers find the great slabs of granite exceedingly useful for gate posts. The stone was quarried here, and run down in trucks along the grooved slabs; then carted to the town of Newton Abbot, eight miles away, and thence barged down the estuary of the river Teign to Teignmouth, six miles distant, whence it was transhipped, and taken by sailing vessels to the Port of London.

ONE of the most famous historic landmarks in the New World is doomed to destruction. Bradlee House, Boston, is on the eve of demolition to make way for a modern business structure. Bradlee House was built in 1771, and it was in the kitchen that the leaders of the Boston Tea Party disguised themselves as Indians on the evening of December 16th, before they went to the wharf, when the cargo of tea was thrown into Boston Harbour. The land on which Bradlee House is built was originally purchased for a few hundred dollars; it is now worth £20,000.

A STRANGE discovery has just been made under the paving stones in the old cloisters-court at St. Stephen's and close to the spot where M.P.'s hang up their hats and coats on their way to the chamber. The walls of this part of the House of Commons were recently found to be in a somewhat unstable condition, and a staff of workmen were accordingly employed to shore up the weak portions and to strengthen and generally improve the very faulty foundations. While so engaged the men came upon portions of two skeletons, and by and by upon two skulls not far beneath the surface of the ground. This part of St. Stephen's is very aged, and was not touched by the fire in the Forties, which destroyed the chamber itself and led to the building of the existing house.

AN announcement recently appeared in a contemporary to the effect that in the course of a few days Drapers' Hall will be as non-existent as it was before the days of its builder, and that a City restaurant will take the place of a building with so many historical associations. Happily the statement has no foundation whatever in fact. Drapers' Hall is not threatened, and no City restaurant is about to take its place. Possibly the writer was led into error by the fact that, consequent on the sale to a firm of restaurateurs of the valuable frontage, Drapers' Hall will for the future take a somewhat more retired position than has been the case up to the present.

THE address delivered a few days ago by Sir W. B. Richmond at the Birmingham and Midland Institute was very well worthy of attention as an expression of the opinion of a great decorator concerning the prospects of decorative Art in this country. He commented very appreciatively upon the manner in which the limits of Art practice have widened during recent years, and upon the remarkable extension in the scope of Applied Art and sculpture which we are witnessing at the present time; and from the signs easily observable by everyone who studies modern developments he deduced many happy auguries for future progress. He argued that, important as picture painting unquestionably is as a branch of Art, it is steadily becoming recognised as by no means the only way open to the artist for the application of his powers. Other forms of practice, designing, decoration, and crafts of various kinds, are competing more and more strongly with purely pictorial work, and are fast gaining the complete acceptance of the public.

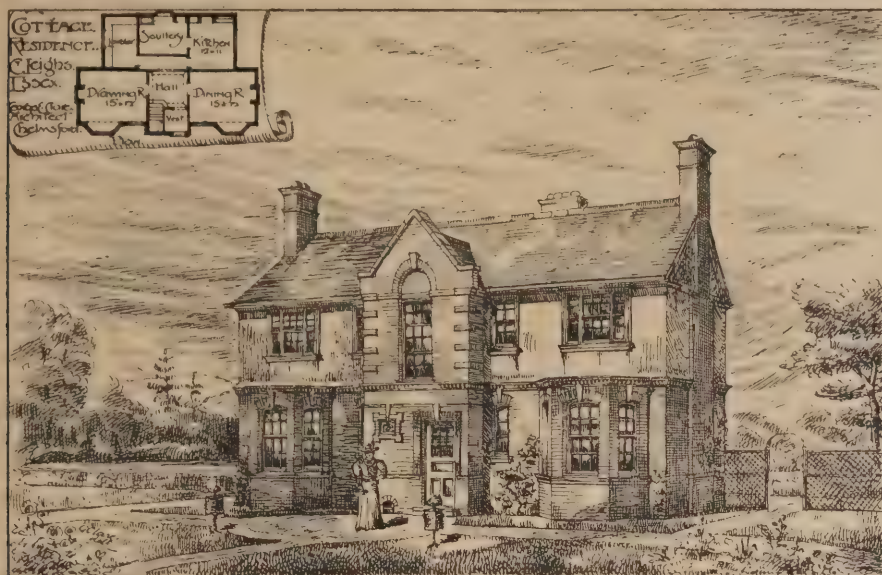
THAT he is correct in his statement of the position is beyond dispute. No one (says the

Globe) knows better than the painters themselves how much the interest which art lovers used to lavish upon pictures is now spread over all sorts of artistic details; and nowhere is the change of public conviction felt so strongly as in the studios of the men who have devoted themselves to pictorial work. Applied Art has become to them a very serious competitor, and the new direction of the public taste has very perceptibly affected their market. They must do as the sculptors have already done, meet the new movement half-way, and find methods of expression more in keeping with the new popular conviction. They could not do better than follow the example of Sir W. B. Richmond himself. Capable painter as he has proved himself to be, he has found in decorative work a field for his energies far wider than the producing of pictures could ever have given him; and it certainly cannot be said that his reputation as an artist has suffered in consequence.

NEVER was a public enterprise more completely justified by results than in the case of the Tower Bridge. The traffic over it is this year greater than ever. When one comes to watch the stream of vehicles and foot passengers crossing it, it cannot but be felt to be amazing that London Bridge should ever have been able to take it, or anything approaching it, in addition to the heavy traffic which at times really seems to be little diminished by the new outlet. It is somewhat surprising that the hydraulic lifts that were provided at the Tower Bridge for carrying up passengers to the high level footway when the bascules were open have never been found necessary. There they are if they were wanted, and they are, we believe, used by members of the staff employed at the bridge when they have occasion to go up aloft, but they have never been brought into use for the public. The fact is, the mechanism of the lifting roadway is so perfect in its action, and the way can be opened and shut so easily and rapidly, that there is little or no real saving of time by crossing above, and most people prefer to wait below and watch the always interesting process of opening and shutting. Most of those who go up do so from curiosity.

EVERYBODY knows that competition tends in almost every direction to become keener and keener. But one would hardly have supposed the Monument of London to be among the sufferers from it. Yet we have it on the authority of the Daily News that, ever since the Tower Bridge started up in rivalry, patronage has fallen off from the Monument. Official returns are said to show, however, that nearly 10,000 people climbed the merry height last August. At threepence apiece, that would bring in about £125 for the month. But that is said to be a considerable falling off from the receipts before that Gothic interloper straddled across the river and offered a free view of the Thames and London around. It is not so good a view of course. It is not so high, and the fabric was not designed for sightseers. The lofty passage-way across is merely a thoroughfare, and it is only with some difficulty that a good view may be got up and down the river. But then it is free to all comers, and it is supposed that a good many people go to see the famous bridge when they come to London, and find that the treadmill toil up its stony steps satisfies their ambition for climbing.

THE City of Birmingham has received a most munificent offer. Mr. Middlemore, the happy possessor of several of Burne-Jones's master-pieces, has promised to present them on certain conditions to the Council. He includes in his offer "Aspiration," by Mr. Watts, and Mr. Holman Hunt's beautiful "Triumph of the Innocents." If the offer be accepted, Lady Burne-Jones has also promised to present Mr. Watts's portrait of her husband—the work which the painter considers his best in this sort. The condition is that the Corporation shall build a new and improved Art Gallery. Birmingham is never deficient in civic pride. Mr. Middlemore's offer will no doubt be accepted, and Birmingham will thus become possessed of some of the greatest art treasures which this generation has produced.



COTTAGE RESIDENCE IN ESSEX. GEORGE E. CLARE, ARCHITECT.

The city is to be congratulated alike on its good fortune and on the public spirit of its citizens. Mr. Middlemore's gift will, at the same time, be a local memorial, of the most appropriate kind, to the great artist who was born and educated at Birmingham.

Was there any connection between Birmingham and the art of Burne-Jones? His biographers are generally so unkind to the Midland capital as to suggest that the repulsiveness of the actual surroundings in which Burne-Jones was born led him to the necessity of creating a beautiful world for himself in the realms of imagination. The inward eye certainly counts for more in these matters than the outward. Rossetti was born in a street off the Euston Road. He was an Italian at heart, but in the body he never set eyes on Italy. Mr. Armstrong, in his recently-published work on Gainsborough, calls attention to the fact that no great landscape painter has been born among grandiose scenery. Turner saw the light in Maiden Lane, a few doors off the Strand.

THE Housing of the Working Classes Committee brought up at a meeting of the London County Council a long report dealing with "the housing problem" in London, and asking the Council to lay down certain definite lines of policy with regard to their action under the Housing of the Working Classes Act, 1890. The committee recommended "(a) that it be the policy of the Council to proceed from time to time as opportunity shall offer with the acquisition under Part III. of the Housing of the Working Classes Act, 1890, of sites available for the erection of working-class dwellings within the county of London; (b) that all clearances which involve rehousing be done at the sole cost of the Council; (c) that housing accommodation should be provided for a number of persons equal to that of the working classes displaced by any scheme under the Housing of the Working Classes Act, 1890, or under the provisions of any Improvement Act; (d) that housing accommodation for persons displaced be provided within the county of London, but not necessarily in the immediate neighbourhood of the displacement, due consideration being given to the needs of those living on any particular area." Mr. Dickinson moved an amendment to refer the first recommendation back to the committee. After considerable discussion the amendment was agreed to. The remaining recommendations of the committee were then withdrawn.

THE art season which has just commenced, ought, from one point of view, to be a prosperous one. Unfortunately, it is not the point of view most interesting to the painter of the

day. It relates rather to the painting of pictures than to the disposal of them. We are all familiar with the wail of the artist when late winter in London is dark and foggy. He leaves so much to the last, and he seems always to believe in his star—or rather in his sun. But up to the beginning of the present month, all England over, we have had weather of exceptional brightness. We have not for years had a season in which the light has been so steadily good. Of course it ought to be a great landscape year. But artists are perverse. Their harvest seems almost independent of weather. We have had an unprecedented summer, and an autumn that seemed a prolongation of it. Just now, grey pictures seem most popular, or, at least, most put on the market.

BRISTOLIANS naturally take more than a passing interest in their Arcades. Dating from the year 1825—at which time, on the opening of the portion from St. James's Barton to the Horsefair, what is known as the Upper Arcade is described by Mr. John Latimer, in his "Annals of Bristol," as having been remarkably ornamental and graceful—they have fulfilled a useful purpose for business transactions, various generations of citizens having from time to time carried on business within their precincts. Structural and other improvements, with the object of being as much up-to-date as possible, have occasionally been made, says the Daily News, and at the present time much activity is manifest in the numerous shops there. The latest alteration, at any rate as far as the Upper Arcade is concerned, is the introduction of the electric light. For many years intending purchasers, as well as the proprietors of businesses, have realised the desirability of having "more light," and the development of the city's electrical plant afforded the desired opportunity. Now, the installation having been completed, the Arcade is very well lighted in the evenings. There are altogether eleven lights of 48 candle-power each, making a total of 528 candle-power.

IN turning over some ground adjacent to Selby Abbey (Yorks), there was found last week a curious silver seal of an oval shape, with what appears to be a red stone in the centre, bearing an engraving of two figures dancing. Round the edge in bold mediæval characters is the following inscription:—"Secutum fero luce." The vicar forwarded an impression of the seal to the British Museum, and the reply from the Keeper of Seals states that the seal is an interesting example of the use which was made of ancient gems in the Middle Ages. The stone in the centre is of late Roman work, and represents a pugilistic encounter before a terminal figure of Mercury, with a palm branch for the victor and the

usual water vase before it. The silver setting is mediæval, and was, no doubt, placed round the stone by some abbot of Selby early in the fourteenth century, when he chose the stone for his private seal. The inscription seems to mean, "I carry this (seal) hidden from the light." That is to say, "This is my secret or private seal," as distinct from the official seal which the abbot used in his private capacity.

THE proposal to erect a Hotel de Ville is once again attracting attention at Spring Gardens. At present the Council is housed in a most uncomfortable manner, and, because of the lack of accommodation, it is necessary to incur an increasing expenditure annually upon the leasing of houses to be fitted up as offices for departments that are crowded out. A building large enough to meet all requirements is an absolute necessity, and the taking of steps to secure permanent headquarters worthy of London's Parliament cannot be delayed much longer. It is, however, possible to embark on a too extravagant scheme, and the Council will be well advised to be modest in their ideas, and to come forward with a proposal of a less magnificent character than that which met with so untoward a fate a few years ago. Niggardliness no one will advocate; but, on the other hand, to show supreme contempt of the amount of the bill is going to quite the other extreme, and even the most public-spirited ratepayer is scarcely likely to be in favour of giving the Council *carte blanche*. The clearance of property for the Strand Improvement scheme will afford a fine opportunity for erecting appropriate offices.

A CORRESPONDENT writes to complain of the closing of the Tate Picture Gallery on the Sunday afternoons of the winter months. Could not the gallery, he suggests, be open till four p.m.? On visiting the building last Sunday, in ignorance of the rule, he found several other disappointed people who had journeyed there in vain, and no doubt a great many visitors had to turn empty away. It does, indeed, seem a pity that, on the day when Mr. Tate's generous gift to the nation could be most appreciated, the gallery should be closed, so long as the light is sufficient for seeing the pictures.

THE Austro-Hungarian Government, through its representative in London, has succeeded in obtaining the loan of a representative selection of the works exhibited from schools of art at the National Competition at South Kensington last August. This selection is now on view in Buda-pesth, and it is gratifying to feel that the usual order of things is inverted by the art students of that kingdom being invited to emulate the work of art students in our own country.

THE result of the Wrexham County Schools Competition has just been announced. The first premium is awarded to Mr. J. Henry Phillips, of St. John's Chambers, Cardiff; and the second to Mr. H. Teather, Shrewsbury. Messrs. Wilson and Moxham, of Swansea, and Mr. F. Bellis, of Bangor, have come in for special mention. The drawings are being exhibited at Wrexham this week—to-morrow is the last day.

COTTAGE RESIDENCE IN ESSEX.

THIS house was recently commenced for Mrs. Wright on about four acres of ground on the main road from Chelmsford to Braintree, near the picturesque village of Great Leighs. Owing to the scarcity of bricks in this locality, the upper part is being built in timber and buff coloured stone dashing, whilst the lower story is in 1½ in. hollow walling with red brick dressings, and the roof is covered with dark red Broseley tiles. The builder is Mr. J. S. Wright, of Little Leighs, and the architect Mr. George E. Clare, Chelmsford, who is erecting other cottages in the same village for Mr. S. Joslin.

The Law on Public Contracts.

By J. E. R. STEPHENS,
Barrister-at-Law.

THE law concerning contracts with public bodies must, in its operation, often touch those who are engaged in the building trades. To state briefly the law on the subject may, on occasion, be helpful.

The Crown, by its agents acting within the scope of their authority, can enter into contracts, and the Attorney-General, suing on behalf of the Crown, can enforce such contracts against the subject, and the subject can sue the Crown by petition of right. The procedure on petitions is regulated by 23 and 24 Vict. c. 34. The fiat of the sovereign endorsing the petition is essential, and in default of it no step can be taken. The procedure as to the Crown contracts in the Colonies is regulated by various local statutes, some of which provide for suits against a Secretary of State. The agent-general of a colony cannot be sued in England as the representative of the colony, or otherwise, for contracts entered into by him as such agent. The only remedy in such cases is by petition of right, or the remedy substituted by the Colonial Legislation. The various agents of the Crown can only enter into contracts within the scope of their authority, and therefore it is the duty for the subject who is the contractor to enquire whether the person proposing to contract on behalf of Government is the agent with authority, and is acting within the scope of his authority. An agent of the Crown as such cannot be sued on such a contract, either personally or in his official capacity, but if a Government agent contracts without authority, or expressly so as to render himself liable, he may be sued thereon. By 22 Geo. III., c. 45, and 41 Geo. III., c. 52, members of Parliament are prohibited from being interested in contracts for the public service on pain of being disqualified from sitting in Parliament and losing their seats, and being liable to a penalty. A petition of right will not lie against the Crown for tort in respect of the negligence of its servants, nor for a claim based on an alleged fraud imputing to the Crown the fraudulent misconduct of its servants, the remedy (if any) is against the actual wrongdoer.

CORPORATE BODIES.

Prima facie, all corporate bodies are bound by contracts under their common seal, but this *prima facie* power to contract cannot be insisted on as to matters where, from the nature of the corporate body, it is expressly or impliedly, by reasonable inference, prohibited from contracting. A contract as to such matters is *ultra vires*. It is the general rule that a corporation can make a contract only by writing under seal, with certain exceptions, which may generally be referred to three classes, viz.: contracts authorised to be made without seal by the particular purpose and constitution of the corporation; or upon the general ground of convenience and necessity; or, thirdly, contracts made on behalf of companies registered under the Companies' Acts, or incorporated under statutes sanctioning other forms of contracts. Contracts with local authorities for work and labour must be under seal in the following cases:—Contracts with municipal corporations for local improvements must be under seal in cases which do not fall within the Public Health Act, 1875. By Section 174, sub-s. (1), of the Public Health Act, 1875, "every contract made by an urban authority whereof the value or amount exceeds £50 shall be in writing, and sealed with the common seal of such authority." This section is obligatory, and not merely directory. The seal may be affixed at any time if there is a consideration for affixing it—for example, a promise to complete the contract. And it may be affixed by the local authority after an alteration in the original contract assented to. Even if the corporation has formerly sued upon and enforced the contract, it is not thereby debarred or stopped from setting up the want of sealing as a defence. Further, the absence

of a sealed contract, where requisite, may be set up as a defence against the corporation by the other party to the unsealed contract.

PAROL CONTRACT.

A builder covenanted with a corporation to do certain specified work for a sum of money, and that if their architects should require any alterations or additions in the progress of the work, the architect should give to the builder written instructions signed by them, and that he should not be considered as having authority for the same without such written instructions. The corporation covenanted to pay him the agreed sum, and the value of the additional work, if any. The plaintiff executed all the works to be done for the specified sum, and the architects required him to make certain additions, by means of written instructions, signed by them; and he executed all the additional works, and the corporation took possession of all the works. It was held that the plaintiff was not entitled to be paid on a *quantum meruit* in respect of the additional works, as the corporation was incapable of making a new contract by parol (*Lamprell v. Billericay Union*, 3 Ex. 283).—A railway company incorporated by Act of Parliament entered into an agreement, not under seal, with a contractor that he should execute certain works upon the railway for the purpose of changing the system of locomotion which they then employed to the ordinary locomotive principle. The contractor, in pursuance of the agreement, entered upon the works, and performed a portion of them, but before they were completed, he was dismissed by the company. It was held that he could not recover the value of this work (*Diggle v. London and Blackwall Railway Company*, 5 Ex. 442).

WARNING TO BUILDERS AND CONTRACTORS.

To architects, builders, and others dealing with companies and corporations, the following observations of Baron Martin in *Williams v. Chester and Holyhead Railway Company* (15 Jur. 829) are very important, and should be constantly borne in mind when it is intended to enter into building contracts:—"Persons dealing with these companies should always bear in mind that such companies are a corporation—a body essentially different from an ordinary partnership or firm, for all purposes of contracts, and especially in respect of evidence against them on legal trials, and should insist upon these contracts being by deed under the seal of the company or signed by the directors in the manner prescribed by Act of Parliament. There is no safety or security for anyone dealing with such a body upon any other footing. The same observation also applies in respect of any variation or alteration in a contract which has been made." A corporation is not bound to pay money upon any contract, though the contract is upon an executed consideration, even although they should adopt the contract, executory or executed, by resolution in their Common Council or by minutes in their books, if this contract is not made or ratified by the corporate seal. Part performance by a contractor will not validate a contract required by statute to be sealed or signed by the directors, and not so sealed or signed except in cases connected with the possession of land, where specific performances would be given.

THE exhibition, for the benefit of the Artists' General Benevolent Institution, which is to open next week at Messrs. Agnew's gallery in Old Bond Street, will have a very unusual importance. The pictures that will be shown are the decorations executed by Fragonard for Mme. Du Barry, a series of large canvases with an interesting history. The artist was unable to deliver them to his patron, whose power ended while the paintings were in progress, so they have remained until now at the house in the South of France, where he completed them, and have come direct from there to this country. The series, which is entitled "Roman d'Amour de la Jeunesse," consists of five great panels detailing various episodes in the story, and of certain overdoors and other decorative fillings; and it represents the work of Fragonard at his best.

BUILDING BY-LAWS.

A MOVEMENT FOR REFORM.

By A SPECIAL CORRESPONDENT.

A MATTER of considerable interest to the building public has been and is now engaging the attention of the Birmingham and other architectural associations. Difficulties having arisen in connection with the administration of the by-laws in some of the local districts, a sub-committee of the council of the Birmingham Association has been formed to consider complaints and approach the surveyors and district councils responsible for the framing and administration of by-laws with a view to securing more uniform and reasonable action. The existing by-laws for the city and surrounding districts reveal inconsistencies which would create surprise if they were fully known. As an instance, a set of plans may be deposited and passed as in accordance with the by-laws of one district which would be returned as quite

INCOMPATIBLE WITH THE REGULATIONS.

of an adjoining district, where the conditions under which the work would be done are precisely similar. It should be understood that all by-laws are based upon what are known as the "Model" by-laws, issued in 1875 by the Local Government Board, the authorities in the different districts being allowed to make variations in detail from these "Model" laws, and such variations, combined with local regulations under various Public Health and Administration Acts, and probably tinged with the individual opinion of the local surveyor, combine to bring about this confused state of things. In addition, it is held that the by-laws and regulations are not properly and equably administered, and that rules and requirements are attempted to be enforced which are not legally valid or necessary to secure either health or safety to individuals or communities. Moreover, in many cases such requirements add unreasonably to the cost of building. This is an important point in connection with houses for the working classes, because unnecessary outlay forces up the weekly rent, which has to be charged to secure a return on the capital expenditure. There is no desire on the part of those whose complaints have been considered

TO EVADE ANY REASONABLE REGULATIONS.

framed and administered with the intention of securing both health and safety. The difficulty, however, lies in the fact that there is no redress, because should a surveyor, supported by his council, attempt to enforce requirements which are practically unnecessary, and for which no legal by-law or regulation is in force, the Local Government Board, to whom such a question has lately been referred, reply that they cannot interfere on questions of administration. The Birmingham Architectural Association consider the matter to be one of great and increasing importance, and are anxious to ventilate it before the public whom it so closely concerns, and whose interest it is to see that inconsistencies are abolished and a more uniform state of affairs and administration secured. At a meeting held on Friday week the matter was freely discussed, and an intimation was read from the City Surveyor to the effect that when the proposed revision of the city by-laws was proceeded with, the draft would be referred to the Architectural Association for their suggestions. Several letters were also read from the surveyors of local districts which evinced a desire to act in conjunction with the Architectural Association. The committee would welcome any information and suggestions from building proprietors and the public generally.

NEWGATE GAOL.

A FAMOUS PRISON DOOMED.

SEEING that the career of Newgate Gaol as a prison is now virtually doomed, owing to the decision of the City Fathers to very nearly rebuild the grim establishment, a few particulars relating to the interior of the prison may be interesting. Many who have passed the black, grim, and stony walls, forbidding of aspect and heavy to a degree, of this City place of execution, which lowers in all its smoky and depressing grimness upon the busy life which surges in and around the busy street which gives the prison its name, possibly seldom or ever give a thought to the interior of the heavy building whose walls have witnessed the expiration of many a direful crime, but a ramble over its interior is vastly interesting. Armed with a letter of introduction to the Governor, the writer pulled up at the heavy wicket gate in the Old Bailey, and, pulling the bell, whose very clang was in strict keeping with its surroundings, was promptly waited on by a warder, and admitted with as much alacrity as if he had been a professional and compulsory visitor. The preliminaries settled, I was promptly turned over to the charge of a courteous warder, who had much to impart respecting the gaol. Taking the tour in its order, I first visited the exercise yard, where malefactors have one hour's exercise daily, this place affording the only glimpse of the sky that prisoners ever see, after which I was conducted to a series of wood and glass boxes, where prisoners are permitted to see their legal advisers, and thence to the compartment at the end, where those condemned to death have interviews with their relatives. I was next conducted to a large cupboard, wherein are kept the

PLASTER CASTS OF CRIMINALS

executed prior to 1861, leaving which I passed to another cupboard, wherein are preserved the irons from which Jack Sheppard slipped on his second escape from the gaol, in which he was fastened to the floor of his cell. These irons weighed half a hundredweight, and in the waist and round the ankles were lined with leather, and it was by cutting this with a nail that the desperado slipped his harness, and got free. Here are also preserved a set of leg shackles, lighter, and similar to those worn by the redoubtable Jack when he escaped on the first occasion in 1725, when he took the irons away with him. Handcuffs and leg irons of various descriptions are also kept here, as also an axe sent for the beheading of the Cato Street Conspirators, but which was never used. I was next taken to the kitchen, where in three large coppers the food is prepared, and then to the boiler house, and on to the cells, which are white-washed, with asphalt floors, and well-lighted by means of a ground-glass window at one end, and gas at night time at the other. Warm air is admitted over the doorway, the vitiated air passing away beneath the window, where also is a ventilator for cool air. I then gave a passing glance to the dark cells for refractory convicts, and then went on to the ward—one of the old ones—where the inmates were formerly herded together, and where the noble Mrs. Fry inaugurated her great and good work. Passing the old Press yard, where tortures were formerly inflicted, but which is now devoted to officers' quarters, I made my way to

THE CONDEMNED CELL,

which is double the size of the ordinary ones, and has running down its centre a plank bed and mattress, instead of the hammock, while it is provided with three stools (two for the warders and the other for the condemned), a shelf, which serves for a table, facing which is a picture of the crucified Saviour, while on the walls are two verses from the Scriptures, the rules of the prison, and two texts—one of which is, "God is Love." A similar cell is provided for women, but it is not kept in readiness, being utilised as a waiting room for female prisoners. I next proceeded to the prison chapel, which is the lightest and

cheeriest spot in the whole gaol. In front of the pulpit is a harmonium and a stove: the male prisoners are accommodated on "raked" forms on the ground floor, behind railings, the gallery being devoted to female convicts, who, by an arrangement of slanting partitions, can see the preacher only—nor can they be seen by anyone else from any part of the chapel. Facing, is a gallery for the Lord Mayor, and on the right of the pulpit the Governor's pew, and on the left that of the chief warder. Passing through the triple cage wherein persons under remand have interviews with their friends—a quarter of an hour daily—I went on to the gaol cemetery, wherein murderers sleep the long sleep of infamy and quicklime, which is a corridor connecting the Court-house with the gaol, and along which all prisoners have to pass after conviction. Here are interred a long array of criminals, whose whereabouts are denoted only by an initial scratched in the stone wall above the grave. Having traversed the place wherein murderers are interred, I was taken to their place of execution—not usually shown to visitors—which is really a room erected in a corner of the courtyard of the prison, free from observation, and only a few paces from the condemned cell. It is really a spacious apartment, capable of accommodating six malefactors at one time, the rope being fastened to a chain which is attached permanently to the cross beam, the lever, which releases the bolt supporting the trap, being similar to that employed for switching on railways. From the gallows level, a flight of steps leads to the pit below, which is constructed of brick, white-washed, and having an asphalt bottom. This concluded my wanderings through the prison, and having signed the visitors' book, I passed out through the iron spiked wicket, thankful to be once again in the busy hum of men. Altogether, I think it will be something to be thankful for when Newgate Gaol has a new face.

An Ancient Aberdeen Chapel Restored.

ST. MARY'S Chapel, the "lower church" of St. Nicholas, Aberdeen, has just been reopened after restoration. On account of its architectural merits and historical associations, the chapel is one of the most interesting in Aberdeen, and a long obscured adornment of the city has now been restored to its pristine beauty and impressiveness. The chapel consists of a nave, with north and south aisles, of one bay each, the nave being prolonged eastward by a semi-octagonal apse, from which it is separated by a strong, low, round arch. The chapel is vaulted throughout in stone, and is the only ancient example of ecclesiastical stone-vaulting in Aberdeenshire. Mr. A. Marshall Mackenzie, A.R.S.A., Mr. G. Gordon Jenkins, and Mr. William Kelly, three leading Aberdeen architects, are responsible for the present restoration. It was reported by the architects that it was fortunate public attention had been directed to the chapel, for dry rot had set in, and had even begun to infect the ancient carved oak, with which the chapel is so rich. In a very short time many of these unique and beautiful panels would have been hopelessly decayed. The earliest mention of the north aisle of the chapel is in 1445, when Andrew Cullen, afterwards Provost of Aberdeen, makes provision for an altar to be erected there—the altar, possibly, of the Holy Blood. The boss in the

ROOF OF THE SOUTH AISLE

points to a date still later, for it bears the arms of Alexander Chalmers, who was Provost in 1478. Prior to the Reformation the chapel was known, from the dedication of its chief altar, as "The Lower Church of our Lady of Piety." Before that altar many important documents of the Gordon family were solemnly signed and attested—among others the resignation of the bailiery of the lordship of Aboyne to the Earl of Huntly by the Adam Gordon of Aboyne who married the Countess of Sutherland, and brought that earldom also into the

possession of his house. After the Reformation the chapel passed through many vicissitudes. In the seventeenth century it was a prison for witches, and was called "The Pity Vault." An iron staple to which the prisoners were chained may yet be seen on one of the granite piers. When Bishop Pococke visited Aberdeen in the middle of the last century it was a plumber's shop; then it had more fitting use as the Gaelic Chapel; in 1818 it was the soup kitchen. When the old East Kirk, the ancient Choir of St. Nicholas, with its chapter-house, was taken down, St. Mary's was

FACED EXTERNALLY WITH GRANITE;

windows of the perpendicular style of the new church were inserted; and it was divided by two partitions into three apartments, to serve respectively as library, session-house, and vestry, for the East Church. At the same time, in 1837, it was fitted up with presses, seats, and wardrobes, made of carved oak from the old church. Among this oak are some fragments of the noble series of Gothic stalls, made in 1506, by John Fendour, wright in Aberdeen, for the Choir of St. Nicholas, and a great number of fine panels, dating from 1613 to 1706, which formed part of the pews and galleries of the old church, and are richly adorned with scroll work, floral carvings, and coats of arms. The heraldic interest of these is considerable, and as monuments of the art of the period are regarded as of great value. The first operation in the work of restoration was to take out the seating which had been made up out of the old gallery fronts and benches belonging to the old Church of St. Nicholas. The lath and plaster was cleaned off the walls and the vaulted ceiling, revealing

THE FINE STONE VAULTING,

with its moulded ribs rising from curiously-carved stone corbels, and marked at the intersection by beautiful bosses. An old wooden boss, of date about 1500, has been recoloured in distemper exactly as it had been originally. The removal of the lath and plaster from the west walls displayed some splendid vaulting, which adds six new spandrels to the roof. Two old staircases were discovered. These formerly led up to the choir of old St. Nicholas Church, and they have now been laid bare, so that a free examination can be had of the moulded doorways, in which are still to be seen the iron pivots on which the hinges swung. In its original state, the floors of the north and south transepts were at a higher level than the floor of the nave, and this arrangement has been reverted to, so that there is now 2ft. of difference, and a broad flight of four steps rises from the floor of the nave, as in ancient days, to the transepts on either side. The floor-level of the apse was also slightly raised. On the vaulted ceiling much labour was expended, and new stones had to be inserted from the bottom upward. One of the most important parts of the work, however, was the restoration of the bases of the four massive piers which are the main supports of the ceiling. The bases of the piers had been entirely hewn off in 1837, but new ones have been inserted. The floor of the transepts, as well as the nave, has been laid with granite, part of which was gifted by certain granite merchants in the city. Old flat tombstones which had been removed from their original sites on the rebuilding of the church in 1837 have been placed in the new floor,

THE ANCIENT CARVED WOODWORK,

dating partly from the beginning of the sixteenth and mostly belonging to the seventeenth century, and which, prior to the restoration, formed the benches, desks, &c., of St. Mary's Chapel, has been carefully preserved. Some of it has been used to form an oaken dado round the chapel, and a portion has been utilised to form a high wall-back to the pulpit at the west end of the nave. The wall-back is surmounted by a carved oak canopy over the long oaken seat. Another part has been used to form the front of the long pulpit-desk, a massive structure facing eastward towards the apse. On the raised floor in the apse stands the Communion table, which will also serve as a memorial of the illustrious Gordons who lie buried in the chapel.

A YEAR'S BUILDING IN GLASGOW.

THERE has been exceptional activity in the building trade at Glasgow during the last twelve months. In a review of the year's work, recently given at the Dean of Guild Court, the Lord Dean of Guild Graham said: Last September, in performing the same duty, I referred to the year that had then passed as one of exceptional activity, but this year has again outstripped it, 649 new linings having been granted at a valuation of £2,106,760, as against 676 linings valued at £1,851,005. Again, as in previous years, the great bulk of the work has been in one, two, and three-room tenements, the figures having been 855, 3367, and 856 respectively, as compared with 811, 2755, and 972 last year. But there has also been a marked increase in five and six rooms and larger houses, the figures having been 202 and 228, as compared with only 56 and 71, the average of the last ten years. In commenting on

WAREHOUSES AND SHOPS

last year I described the year as a record one, but this year has just beaten it with 136 linings, valued at £489,080, against 146 linings of valuation £486,490. One very noticeable feature in comparing the work of recent years has been the gradual increase in the average value of the linings passed. Ten years ago, taking an average of five years ending 1890, the value per lining was £1850. In the year under review it was £3240, as compared with last year £2740, and for the last five years £2400. The increase has been steady and continuous, the tendency having been to build larger ranges of tenements and larger warehouses. Last year, in order to show the progressive movement of Glasgow buildings, I went back for twenty-five years, dividing them, for the purpose of comparison, into quinquennial periods. Adopting the same plan again, and commencing with the period 1873-78, the amount of the linings passed was £7,606,776. This was the period of inflation so often referred to in discussing

GLASGOW'S PROGRESS,

and which, as we all know, was followed by one of depression and reaction. In 1897-98 the figures fell to £2,068,673, the lowest point having been touched in 1881. In the period 1884-88 the improvement continued, the figures reaching £2,255,619, and in the next period, 1889-93, it was still more marked, the figures rising to £3,982,940. But the last period, 1894-98, has been one of leaps and bounds, the total having been no less than £7,990,845, of which, as before mentioned, £2,106,760 belongs to the year just passed, the average of the past twenty-five years having been only £955,000. Perhaps, however, a more distinct idea of Glasgow's extension is conveyed to the mind by the length of new streets. The year just passed has been a record one in this matter, nearly six miles of new streets having been sanctioned by this Court. For the twenty-five years the mileage has been 41½, or an average of only two miles, but this includes the period of depression.

THE London County Council at last week's meeting were asked by the Technical Education Board to authorise an expenditure of £35,750 for the purchase of Oxford Mansions, Oxford Street, to provide permanent accommodation for the Board's Central School of Arts and Crafts. The school is at present housed in Regent Street, but, owing to the great increase of members, the building had become totally inadequate. There are 539 students on the books, and about 150 in daily attendance. Mr. Beachcroft moved an amendment declaring it to be inadvisable to place any permanent charge on the rates for the supply of technical education, such as was involved in this proposal, while it remained undecided what was to be the authority for secondary education, and that accordingly it be suggested to the Board that they should merely negotiate for the hire of any premises. After some discussion the amendment was adopted.

Professional Items.

CARDIFF.—The additions to Nazareth House, Cardiff, which have been in the course of execution for the past few months, are now approaching completion. The additions are situate to the east of the block, with which they are connected by an entrance hall and staircase. They abut upon Colum Road, from which thoroughfare they present a pleasing architectural feature. The additions consist of a block of buildings over 90ft. in length and 62ft. in height. The lower floor is devoted to sitting-rooms, dormitories, etc., while the whole of the upper part consists of a spacious chapel for the use of the inmates of the institution. The building is in the Early English style, in harmony with the older portion. The walling is of blue Pennant stone, with Bath stone dressings. It is connected with the old building by a staircase of patent stone, leading to a corridor. The whole of the upper portion of the new building is taken up with the chapel, which is 33ft. wide and 91ft. long. The capitals of the chancel arches are chastely carved. By the side of the choir is the entrance from the upper corridor from Nazareth House. The windows of the church, which are lancet shaped, are for the most part plainly glazed, but the south window is of stained glass. The roof is of the opened timbered kind, of pitch-pine. The floor of the corridor and halls of the lower part of the building are of tiles, and the other rooms are of pitch-pine. The floor of the nave of the chapel is of pitch-pine wood blocks, while the floor of the sanctuary is of oak. The woodwork of the interior of the chapel is stained in three different shades, and the general effect is excellent, an air of warmth and comfort being imparted. The ventilation is in the most approved style. The architect is Mr. E. W. M. Corbett, and the contractors are Messrs. W. Thomas and Company.

CROWBOROUGH.—The additions which have recently been completed at the Church of All Saints, Crowborough, were recently consecrated by the Lord Bishop of Chichester. The additions consisted of a new north aisle, with an organ chamber and vestry at either end, and the alterations give seating accommodation for another 150 persons. The same style of Architecture has been observed.

DUNDUM (Co. Tipperary).—The new Church of St. Brigid, Dunaskeagh, near Dundrum, is now approaching completion. The church is built of the local stone, with dressings of chiselled limestone. The exterior is simple, though dignified. The general treatment being a simple form of Romanesque. The church consists of nave, chancel, sacristy, and a south porch to the nave. The west-end of the church is surmounted by a tower which serves as a porch as well as a belfry. The nave is lighted by a pair of round arched windows and a circular rose window in the western gable, and by single lights to the side of the nave. The boundary between the nave and chancel is marked by a chancel arch. The roofs of nave and chancel are open-timbered to the ridge; they are of strong, ornamental character, suited to the general design of the church. On the exterior the roofs will be covered with Killaloe slates, the quiet gray-green tone of which will harmonise with the general colour of the walling. The architect is Mr. W. G. Doolin, M.A., of Dublin, and the contractor, Mr. John Bunyan, of Maryborough.

HUDDERSFIELD.—The old school of the Society of Friends, Paddock, Huddersfield, which was the original meeting-house, built in 1760, has been pulled down, and new premises have been erected on the site and land extending beyond. The total cost amounts to £1200. The work has been carried out from plans prepared by and under the superintendence of Mr. J. Berry, architect, 9, Queen Street, Huddersfield. The various works have been done by the following con-

tractors:—Masons, Messrs. A. and T. Haigh, Golcar; joiners, Messrs. H. Hollingworth and Son, Moldgreen; plumbers, Messrs. Sanderson Bros., Paddock; plasterers, Messrs. J. Robinson and Son, Marsh; painter, Mr. R. Heaton, Paddock; slater, Mr. Alfred Bower, Crosland Moor; concretor, Mr. John Cooke, Little Royd; heating engineer, Mr. J. W. Thornton, Fitzwilliam Street; electrician, Mr. T. W. Broad-bent, East Parade.

LEICESTER.—St. Hilda's new Chapel-of-Ease, Hunt's Cross, Leicester, of which Messrs. Grayson and Ould are the architects, is in the early English style, the material being terracotta brick, which, with the dark-green colour of the internal furnishing, gives all the elements of a complete chromatic harmony.

LEEDS.—A new infants' school in connection with Hunslet Carr Board School, the fifty-sixth school built by the Leeds Board, has been formally opened. Situated in Woodhouse Hill Road, on a site containing 3649 square yards, the new premises will accommodate 530 children. Mr. W. S. Braithwaite was the architect. On three sides of a central hall are class-rooms and on the fourth cloak-rooms. The total cost, including site, has been £6200.

A new bank has been erected in Park Row, Leeds, for Messrs. Wm. Williams Brown and Co. The block covers an area of nearly 100ft. by 80ft. The frontage to Park Row is 80ft., to Greek Street and Russell Street about 100ft. From the street level to a height of 26ft., the exterior is of polished grey Dalbeattie granite, relieved with courses and pillars of red granite. Above the granite, the structure is faced with glazed buff terra cotta. The pavilions rise to a height of 90ft. above the street. It will be observed that the entrance to the bank from Park Row is a handsome feature. Double sets of swing doors give admission to the bank, a large, lofty apartment, lined throughout with faience from the Burmantofts branch of the Leeds Fire Clay Company. The colour scheme of this embellishment is light buff, relieved with brown and blue, whilst the capitals of the pillars supporting the ceiling are picked out in gold. The managers' rooms are at the rear, and they also display some beautiful faience work. In the basement, covering an area of about 75ft. by 50ft., are the strong rooms, where the bullion, bank-books, etc., are stored. These have arches of firebrick, upon which rests solid concrete 4ft. in thickness. The floor is likewise of concrete. The bullion-room is lined throughout with hardened steel plates. One of these six chambers contains the bank ledgers for the past fifty years. A self-locking lift conveys the bullion, books, etc., from the bank to the strong rooms beneath when business for the day is over, and back to the bank in the morning. A large, well-lighted luncheon-room and other accommodation are provided for the staff in the basement. On the upper floors of the building are commodious suites of offices, some fifty rooms in all. The various contracts have been executed by the following:—Excavations and concrete foundations, Mr. S. Macfarlane; builders and joiners, Messrs. Armitage and Hodgson; smith's work, Messrs. John Butler and Co.; plumbing, Messrs. H. Braithwaite and Co.; plastering, Messrs. J. P. Mountain and Son; slating, Messrs. Watson and Warsnop; stairs, etc., Mr. Alfred Walker; painting, Messrs. Frederick Jackson and Co.; granite work, Messrs. Newall, Dalbeattie, N.B.; terra cotta, the Burmantofts Company; ivory-glazed bricks, the Farnley Iron Company, Limited; salt-glazed bricks for strong rooms, Messrs. Wm. Ingham and Sons; desks and fittings, Messrs. Marsh, Jones, and Cribb; ornamental ironwork, Messrs. Hart, Son, and Peard, London and Birmingham; wood-block flooring, Messrs. Illingworth and Co.; strong rooms, the Ratner Safe Company, London; passenger lift, Messrs. R. Waygood and Co., London; electric lighting, Messrs. Belshaw and Co., London; ventilators, Mr. W. Towler; heating apparatus, Messrs. Jefferies, London; and ironmongery, Mr. James Gibbons, Wolverhampton. Mr. Wm. Bruce was the clerk of works. Mr. A. Waterhouse, R.A., was architect

Under Discussion.

WHAT IS ARCHITECTURE?

The Edinburgh Architectural Society, on the 16th inst., heard a lecture by Mr. J. A. Morris, F.R.I.B.A., of Ayr. The lecture was an answer to the question "Architecture: What is it?" Mr. W. Nicholson Cumming, A.R.I.B.A., the President, was in the chair. Mr. Morris began with a strong plea for regarding Architecture as an Art and not as a Profession, and in this connection many modern influences were discussed. In spite of the evils of commercialism, he saw good reason for hope in the various art movements of the day. To show what Architecture should be, Mr. Morris then read those delightful passages from Vasari's "Lives" in which Brunelleschi's education and rise and the great competitions for the Duomo at Florence are so simply told. Indications were not wanting that the spirit of the Renaissance was once more awake among us, and considering all that had gone before, Mr. Morris ventured to think the future should be bright.

RECORD OF A SKETCHING TOUR.

A paper, by Mr. Austin Woodeson, Association Travelling Student, was read at the usual monthly meeting of the Glasgow Architectural Association, Mr. Geo. S. Hill, president, in the chair.—Mr. Andrew Rolls, in Mr. Woodeson's absence, read the paper, which was a description of a sketching tour of a fortnight's duration made by him last summer in Berkshire and the surrounding counties. The paper was illustrated fully, with about thirty-five drawings executed by Mr. Woodeson during his stay. The drawings, which showed buildings in Reading, Bray, Mapledurham, Abington, &c., comprised illustrations of churches, almshouses, &c. Many of the buildings were further illustrated by large scale details and measured drawings. Mr. Woodeson referred to the southern counties of England as offering to the architectural student an excellent sketching ground. All types of building, in styles ranging from Norman to Elizabethan, were to be constantly met with.

DECORATIVE STONEWORK.

At the third meeting of the Glasgow and West of Scotland Technical College Architectural Craftsman's Society for the season, a paper was given by Mr. Wm. Vickers, sculptor, on "Decorative Stonework as applied to Architecture." After dealing with the relationship of architect and craftsman, Mr. Vickers went on to speak of the education and ambition of the mason and carver. They must have a good education, so as to be able to intelligently interpret architect's drawings. The stone-carver should be possessed of some artistic taste. In his apprenticeship of five years, he should devote his spare time to studying at the Art schools, freehand, ornament, architectural drawing, modelling, etc. He should also know something of heraldry and Christian symbolism. A carver's study is never ended, even with forty years of practice. All carving should be appropriate to the architectural surroundings. It also should be second to the Architecture and should not be out of place on the building. In Gothic work, the mason and carver should work together in order to get the spirit of the old work. The lecturer then described the different forms of Classic, Renaissance, and Gothic ornament. He paid particular attention to the Gothic varieties. In Decorative work, he mentioned that the craftsmen of that period made their ornament as natural as it is possible for human hands to form. Perpendicular he described as truly wonderful, and pointed to the grand examples at Henry VII. Chapel at Westminster and the cloisters at Gloucester. In conclusion, he said that it is not every mason or student who could afford to travel, and he advocated that there should be in every large town a museum of casts, with a reference library in the same building, so that the craftsman can study these.

Correspondence.

CONTRACTORS' HORSES AND BEARING REINS.

To the Editor of THE BUILDERS' JOURNAL.

DEAR SIR,—May I, through the medium of your paper, address myself to the contractors, and ask them why they still continue the use of the bearing rein upon their horses? Veterinary surgeons unanimously condemn them as useless and mischievous. They cause much unnecessary suffering. They diminish the horse's power as well as its speed and action, and shorten its life. Many great firms have already abolished them. Mr. Fleming, Army Veterinary Surgeon, says:—"The long-continued pressure on the lower jaw tends to give the animal a hard mouth, it does not prevent stumbling, but, on the contrary, predisposes the horse to fall. In hot weather, or during extreme exertion, it may directly or indirectly produce an attack of giddiness or apoplexy, the last probably terminating in death. In heavy draught, in addition to the torture it occasions, it causes a large portion of the horse's power to be lost, from the animal being unable to get his head and neck down, and thus to throw more of the weight of his body into the collar. It causes pain and distress in breathing. It tends to produce distortion in the upper part of the windpipe, which causes difficulty in respiration, as well as the disagreeable wheezing, snoring, or whistling sound termed 'roaring,' and which constitutes an unsoundness." In the face of such evidence as this, endorsed as it is by the opinion of the whole veterinary world, there will surely be but few owners of valuable horses who will still persist in the use of a rein declared by unimpeachable authorities to be cruel, useless, and injurious.—I remain, dear Sir, yours faithfully,

J. W.

Enquiry Department.

WATER POWER.

To the Editor of THE BUILDERS' JOURNAL.

SIR,—Would you be so kind as to enlighten me, through the Enquiry Department of your valuable paper upon the following?—There is a cistern, fixed in a room, with an opening whose area is 1 square foot, which allows water to pass through with a velocity of 12½ ft. per second, the volume of water being 12½ cubic feet per second. What is the best article to use so as to get most power for driving a machine—should a water wheel, a turbine, or what be used? The cistern cannot be made larger or heightened. If you can tell me the best article to use, and also the horsepower it could be driven at by the supply of water named, I shall be greatly obliged,—Yours, &c.

A well-designed "over-shot" water-wheel is most suitable to this case. Turbines are usually made for heads of thirty or more feet of water, and in any case would be more costly than the wheel for this particular horse-power, which works out at 16 h.p. theoretically or 9½ h.p. actual, allowing an efficiency of 60 per cent. for a good wheel. The wheel should be fixed close up to the tank, have blades so shaped that they hold water for rather over the quarter of one revolution, and after leave the tail water freely. A good open tail-race should be provided.

A.M.INST. CIVIL ENGINEERS.

To the Editor of THE BUILDERS' JOURNAL.

DEAR SIR,—Would you kindly oblige by letting me know where I can obtain all information re the examinations for the above Institute. Thanking you in anticipation,—Yours faithfully,

"ROADS."

The examinations are held in February and October annually. Application to enter for the February examination must be made before January 1st, and for the October examination before September 1st. For

Syllabus of Examinations and forms of application, you should write to the Secretary, The Inst. of Civil Engineers, Great George Street, Westminster, S.W.

LEADED LIGHTS IN WOOD CASEMENTS.

To the Editor of THE BUILDERS' JOURNAL.

DEAR SIR,—Will you kindly give me a little information on the following subjects:—

I am having a small house built in half-timbered style, the lower story being in stone with casement windows in wood (on account of expense). Would it be right to put leaded lights to these wood casements and to the casements of the upper storey (iron casements being too expensive)? Do you know of any old houses having wood casements and leaded lights instead of the usual iron casements? Thanking you in anticipation.—I remain yours truly,

Cardiff.

H. H. T.

You would be following a general custom of modern architects of repute, in putting leaded lights into a wooden casement. The casement and frame look best painted white, with red brickwork, and some darker colour when used in walls of white or stock bricks, or stone. We know of no traditional mansions fitted in this way, but it was a common usage in the less assuming farmhouses, and in cottages and in many half-timbered houses. Be careful not to break up the glass in your wooden casements too much, and you will not be disappointed in the result.

FARM BUILDINGS.

To the Editor of THE BUILDERS' JOURNAL.

SIR,—Could you give me the name and publisher of any book giving the plans, etc., and dealing with the requirements of farmhouses and outbuildings. If not, do you know of any book (not entirely upon the subject) or periodical, from which I may obtain knowledge of farm buildings.—Yours truly,

Burnley, Lancs,

"FARMSTEADS."

The following work has been adopted as the text book by the Surveyors' Institution:—"Farm Buildings: their Construction and Arrangement." By A. Dudley Clarke, F.S.I. Second edition, 6s. B. T. Batsford, 94, High Holborn, London.

GOTHIC ARCHITECTURE.

To the Editor of THE BUILDERS' JOURNAL.

SIR,—Will you kindly inform me the best book to study for the continuation of my studies in Gothic Architecture? Could you also tell me the price of Fergusson's "Handbook of Architecture"?—Yours, &c.

"PUPIL."

You do not tell us how far you have pursued your studies; but the following progressive list of standard books upon the subject of Gothic Architecture will include what you want:—"Glossary of Terms," Parker; "Principles of Gothic Ecclesiastical Architecture," Bloxham; "Styles of Architecture in England," Rickman; "Churches of the Middle Ages," Bowman and Crowther; "Architectural Parallels," Sharp; "Gothic Ornament," Collings; and Pugin's "Examples." Sir G. Scott's "Lectures," and G. E. Street's book on "Brickwork," are also valuable. The price of Fergusson's "Handbook," 2 vols., is three guineas. Batsford supplies it at £2 8s. net, or if you are lucky, you may get a good second-hand copy from him for a smaller sum.

With the object of preventing fires at places of entertainment where the cinematograph is being exhibited, a series of regulations have been drawn up by the Theatres and Music Halls Committee of the London County Council. These provide that no cinematograph or other similar apparatus shall be exhibited on premises licensed by the Council until the Council has been satisfied that all reasonable precautions have been taken against accident and danger to the public. The cinematograph shall stand in a suitable fireproof room which shall be entirely enclosed, the floors also being fireproof.

Views and Reviews.

GREENWOOD'S TIMBER CALCULATOR.

This is a useful little work which everyone connected with building should possess. Abolishing the older and more tedious method of cubing, &c., it provides tables from which the cost of the timber can easily be ascertained. There are also some useful rules for checking a timber merchant's invoice. Its simplicity and conciseness are its great merits.

"Greenwood's Timber Calculator."—1s. 3d., post free, of the author, J. Harry Greenwood, West Drive, Mansfield, Notts.

NOTES ON WATER SUPPLY.

Mr. J. T. Rodda has written and collected some very useful notes and memoranda connected with the questions of water supply. The book is designed to point out the specialists from whom valuable information may be obtained, and to indicate the best water works appliances now in the market and their usefulness in the modern distribution of water. The author has done a bold thing in including the advertisements of the various specialities he draws attention to, and one, we think, that will hardly prove beneficial to the work. The book should be very useful.

"Notes on Water Supply," by J. T. Rodda, Assoc. M. Inst. C.E., A.M.I. Mech. E., &c. 5s. King, Sell, and Ralston, Ltd.

HOUSE DRAINAGE.

So many books have been published dealing with house drainage—two, at least, under the identical title of the one under review, to the confusion of readers and publishers—that another seemed scarcely necessary. Mr. Jenkins, however, has succeeded in compressing information upon all essential points into so small a compass that his little work should meet with a ready sale. We should have preferred to have seen the illustrations better drawn, and it is a pity that compound drainage of terraces is advocated when separate drainage is compulsory in most parts of England, but, with these reservations, we welcome his attempt to bring a knowledge of the principles of his subject within the reach of all.

"House Drainage: Its Inspection and Testing," by Richard J. Jenkins. The St. Bride's Press Ltd., 24, Bride Lane, Fleet Street, E.C. 1s.

EMPLOYERS' LIABILITY.

In the preparation of the second edition of his exhaustive work on the Employers' Liability Act and the Workmen's Compensation Act, Mr. A. Robinson has had the valuable assistance of Mr. J. D. Stuart Sim, Assistant Registrar of Friendly Societies. As a result the book has been somewhat increased in bulk and usefulness by the addition of various Schemes of Compensation which have been certified by the Registrar of Friendly Societies, and of Rules that have been made under the Act of 1890. These have been added in the

form of appendices, and so do not affect the general scheme. Possibly the one of greatest interest to our readers will be Scheme X, relating to Portland cement manufacturing.

Employers' Liability Acts, Rules, and Certified Schemes, Second Edition. By Arthur Robinson, B.A., barrister-at-law, and J. D. Stuart Sim, B.A., barrister-at-law. Stevens & Sons, Ltd., 119 and 120, Chancery Lane, W.C. 7s. 6d.

HOW TO DRAW FROM MODELS.

It is difficult to know quite what one ought to say of this "practical manual" on "How to Draw from Models." The author in his preface states that "the object throughout this little book has mainly been to show how model drawing, as generally understood, may be an intelligent means of driving home those principles of foreshortening and grouping that must be grasped before a satisfactory sketch of any object can be made." It does this by appealing to the eye and to the test of practical experience, rather than by an appeal to the reasoning powers; indeed it might be said that it drives home facts rather than principles. It is a question whether such books ever justify their existence, although it is possible that this one will be found of service by beginners, as a help in analysing and understanding what the objects really are, which they propose to represent, and so, to some extent, teaching them to think. But yet one cannot but feel that the book savours too much of that unthinking routine and dependence on method, which is a weak spot in the Art teaching of this country.

"How to Draw from Models and Common Objects," by W. E. Sparkes. Cassell and Co. Limited, 1397.

PUMPS, THEIR PRINCIPLES AND CONSTRUCTION.

The author treats of the class of pump used by plumbers and other branches of the building trade. The ordinary jack pump is described in detail, the best methods of construction and erection are given, together with rules for calculating the power required to work the pump. Single, double, and treble barrel pumps are discussed, also wheel and chain pumps. The theory of the action of a pump in creating a partial vacuum into which the weight of the atmosphere forces the water, is very clearly explained, and the advantages attending the use of air vessels are also pointed out. The barometer and the syphon are both dealt with in a simple manner.

The various types of gearing used to operate pumps is described and illustrated, for the most part very well, but some passages in this

section, will, we think, be likely to lead the student astray.

Thus Fig. 39 illustrates a hand gear with fly wheel and handle and a rocking bar movement, and the author states that by its use there is a gain of power, but it is obvious that by shortening the throw of the crank, one would get the same reduced stroke of the pump rod that the rocking bar gives. The object of the rocking bar is to give an approximately vertical movement to the pump rod, it does not give any mechanical advantage, and there is no gain of power. Under the section "power for working pumps" the capstan is described and formulae given for working out the power required and obtained under given conditions. Various types of engines are spoken of that may be used to work pumps, and there is an excellent section on the water wheel, but windmill pumping apparatus is not mentioned. There are some useful tables relating to pumps and the duty they will perform, and the book contains a great deal of very useful information not only to the student, but to the practical man. Some of the illustrations, however, are not very good; we think that the drawings, in a book of this kind, should always indicate the actual practical method of construction. Hydraulic pressure, and other pumps used in the engineering trades, are not dealt with in this book.

"Pumps, their Principles and Construction." A series of Lectures delivered at the Regent Street Polytechnic. By J. Wright Clarke. B. F. Batsford, 91, High Holborn, W.C.

The funeral of Mr. Edmund Taylor, builder, of 46, Castlemore Street, Rochdale, took place, at Rochdale Cemetery on Thursday of last week. A native of Bridlington, Mr. Taylor removed to Manchester early in life, and eighteen years ago went to Rochdale, where he has resided ever since. As a builder he was the head of an extensive business. Many of the houses in the Freehold district were built by him, and he has also successfully carried out many important private contracts.

At a meeting of the Surrey County Council a discussion took place respecting the proposed rebuilding of Kew Bridge by the Surrey and Middlesex Councils. General regret was expressed that the amount of the lowest tender for the work and contingent expenses should be about £40,000 above the amount the two councils were authorised to borrow. It was decided, as far as Surrey was concerned, to accept the tender of Mr. Easton Gibb, of Skipton, Yorkshire, at a sum not exceeding £150,000, and that Parliament be asked to sanction a further loan.

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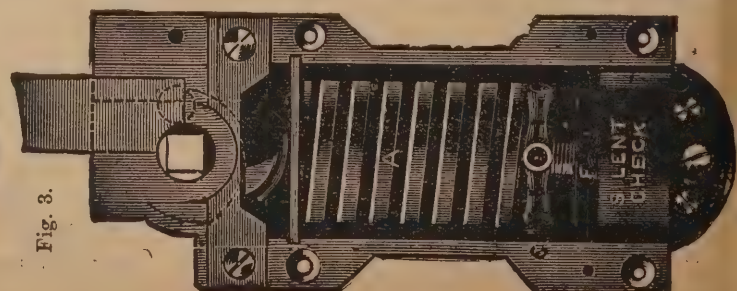
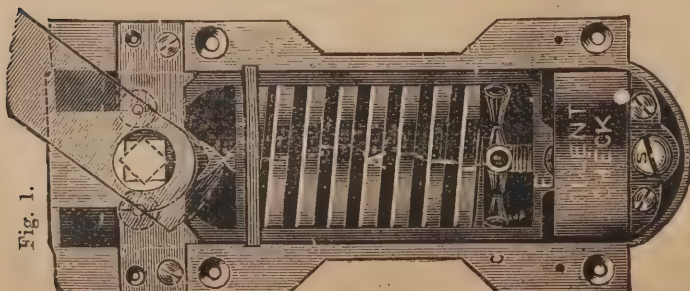
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which opens to and
closes from the angle
of 185°.

Fig. 3 is the new
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from the angle of 180°,
i.e., "wide back."

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TENDERS.

Information from accredited sources should be sent to "The Editor." No results of tenders can be accepted unless they contain the name of the architect or Surveyor for the Work.

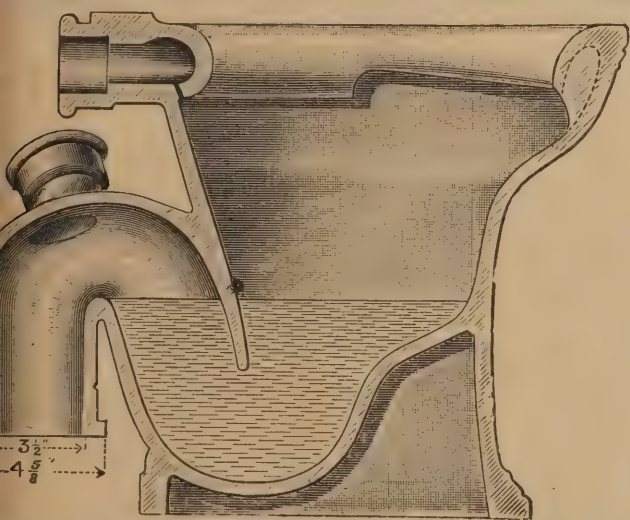
CAMBRIDGE.—For the erection of a house at Great Bedford, for Mr. C. L. Edwards. Mr. Frank Waters, architect, 7a, Alexandra-street, Cambridge. Quantities by Mr. W. Culling Gaze, 2, Walbrook, E.C.:—
Erridge and Shaw £1,381
Scales and Robins £1,245
Poulson and Lofts 1,349
Prime and Sons* 1,230
Hoddy and Co., Ltd. 1,303
* Accepted.

CARISBROOKE, Isle of Wight.—For the construction of sewerage works, for the Rural District Council. Messrs. Stratton and Mullgate, engineers, 21, Quay-street, Newport, I.W. Quantities by engineers:—
David Hayden £2,017
Sisera Dredge, Gurnard, I.W. (accepted) 1,850
CROYDON.—For additions, &c. to hospital, London-road, for the Committee. Mr. C. Henman, architect, 64, Cannon-street, London, E.C.:—
T. Pearce £10,567 10 0
J. Smith & Sons £8,900 0 0
W. Potter 10,344 2 6
Wm. Smith & Son 8,750 0 0
S. Page 9,635 0 0
D. W. Barker 8,744 0 0
E. P. Bulleid and Co. 9,349 0 0
Huntley Bros. 8,575 0 0
Balsam Bros. 9,286 0 0
E. J. Saunders, Croydon* 8,448 0 0
W. Akers & Co. 247 0 0
* Accepted.

DURHAM.—For the execution of sewerage works, Belmont, for the Rural District Council. Mr. G. Gresson, surveyor, Eastwood, Western Hill, Durham. Quantities by the surveyor:—
John Manners £232
Robert Oliver £190
John Carrick 230
F. C. Dixon, Durham* 160
* Accepted.
EAST HARTREE.—Accepted for the erection of a small chapel and school at East Hartree, Somerset, for the United Methodist Free Churches. Mr. W. F. Bird, M.S.A., architect, Midsomer Norton:—
John Flower, West Hartree £1,288
LONDON.—Accepted for the erection of ten villas in Lordship-lane, Tottenham, for Mr. E. Chick. Mr. H. Mitchell, surveyor, 25, Moorgate-street, E.C.:—
W. Hawley, Tottenham £3,600

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FOUNTAINS, STATUES,
ELECTRIC AND GAS PILLARS,
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HUDDESFIELD.—For the erection of a dwelling house, Lowerhouses. Mr. J. Berry, architect, 9, Queen-street, Huddersfield.

Masonry.—J. W. Boothroyd, Almondsbury ...
Joinery.—W. L. Haigh, Paddock
Plumbing.—John Marsden, Market-place, Huddersfield
Plastering.—J. C. Winterbottom & Son, Damside ... £300
Painting.—J. H. Sykes, Lowerhouses
Slating.—Pickles Bros., Fountain-street, Huddersfield
Concreting.—John Cooke, Little Boyd
 [Engineer's estimate, No. 1, £7,556; No. 2, £273.]

LONDON.—Accepted for the erection of a block of flats at Franklin's-row, to be known as "Burton Court," for Mr. A. J. Sanderson. Mr. Paul Hoffman, architect, 152, Palmerston-buildings, Old Broad-street, E.C. Quantities by Mr. H. Williams Mellor, 17, Buckingham-street, Adelphi, W.C.

T. Britton ... £26,100
LONDON.—For new internal fittings to the "Old Shades" Tavern, Charing Cross, for Messrs. Anstiss and Buckler. Messrs. Treadwell and Martin, architects, 2, Waterloo-place, S.W. Quantities by Mr. H. Williams Mellor, 17, Buckingham-street, Adelphi, W.C.

Antill and Co. ... £3,392
Ashby Bros. ... 3,285
Atkinson and Co. ... 3,136
LONDON.—For the rebuilding of Nos. 61 and 62, Houndsditch, E.C., for Mr. J. Farquharson. Mr. G. Sparks, architect. Quantities by Mr. H. Williams Mellor, 17, Buckingham-street, Adelphi, W.C.

Patman & Fotheringham ... £2,913
Ashby and Horner ... 2,841
Lole and Lightfoot ... 2,798
LONDON.—For the erection of an underground convenience, at Old-street, City-road, for the St. Luke's Vestry, Middlesex. Mr. Harley Heckford, C.E., Vestry Surveyor. Quantities by Mr. H. Williams Mellor, 17, Buckingham-street, Adelphi, W.C.

Finch and Co. ... £2,895
Shurmer ... 2,772
LONDON.—For the erection of "Glenthorne," The Bishop's-avenue, Finchley, N., for Mr. J. Sainsbury. Mr. Ernest Carrivick, architect, 57, Lincoln's Inn-fields. Quantities by Mr. H. Williams Mellor, 17, Buckingham-street, Adelphi, W.C.

Ashby Bros. ... £4,963
Brown and Co. ... 4,784
Johnson and Co. ... 4,588
LONDON.—For the construction of new road and sewer through land adjoining the "Pigeons" public-house, Romford-road, Stratford, E., for Messrs. Savill Bros., Ltd. Mr. Henry Foston, surveyor, 39, Lombard-street.

John Mowlem & Co. ... £1,378
Thomas Adams ... 1,098
C. E. Todd and Co. ... 1,069

LONDON.—For alterations and additions to the "King's Head" public-house, Broadway, Stratford, E., for Mr. Percy Briggs. Mr. Henry Poston, architect, 39, Lombard-street.

Trent Bros. ... £1,437
Brown and Kruse ... 1,423
LONDON.—For the erection of a laundry at Gertrude-street, Fulham, for the Guardians of the Poor of the St. George's (Hanover-square) Union. Mr. Edwin T. Hall, architect, 57, Moorgate-street, E.C.

John Allen and Son ... £11,250
Bulled and Co. ... 11,221
George Wade ... 10,986
Barrett and Power ... 10,986
Foster and Dicksee ... 10,888
F. T. Chinchin ... 10,800
H. Wall and Co. ... 10,733

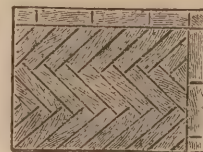
LONDON.—For the erection of new premises, for Messrs. Mellin's Food Company for India, Limited, Upton Park, East Ham, E. Mr. G. P. Smedley, architect, 110, St. Martin's-lane, Charing Cross, W.C. Quantities by Mr. W. Lockwood, 110, St. Martin's-lane, W.C.

T. J. Messom ... £6,193
J. Outhwaite & Son ... 5,937
F. & F. H. Higgs ... 5,843
LONDON.—For the erection of the Terris Theatre, Lower-road, Rotherhithe, for Messrs. Marler and Saunders. Mr. W. G. B. Sprague, architect, Fitzalan House, Arundel-street, Strand, W.C. Quantities by Mr. A. R. Henderson, surveyor, 47, Pall Mall, S.W.

Harris and Wardrop ... £25,800
Patman & Fotheringham ... 25,551
W. H. Lorden & Sons ... 25,420
F. & H. F. Higgs ... 23,375
Kirk & Randall ... 22,340
H. L. Holloway ... 22,132

W. Downs ... £21,550
C. F. Kearley ... 21,510
Stimpson & Co. ... 21,500
C. Gray Hill ... 21,500
W. Wallis ... 21,022
Wilkinson Bros. ... 20,133
W. Wallis ... 17,000

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J. Mowlem and Co. ... 4,154
William Griffiths, Bishopsgate-street Without, E.C. ... 3,871
Ame Wood Flooring Co., Hackney, N.E. ... 3,727

LONDON.—For new system of drains and sanitary appliances at 47, Pall Mall, S.W., for Messrs. Bell, Rennie, and Co. Mr. A. R. Henderson, surveyor, 47, Pall Mall, S.W.

Houghton and Co. ... £230
B. Finch and Co. ... 190
LONDON.—For alterations to Nos. 6 and 7, Adde-street, E.C. Mr. Charles Watkins, architect.

Heeps ... £1,672
Abrahams ... 1,597
LONDON.—For alterations, decorations, &c., at 6, Clerkenwell-road, E.C.

Heeps ... £333
Hawtreay ... 310
LONDON.—For new billiard-room, &c., to "The Grosvenor Arms," Sidney-road, Stockwell, for Mr. G. R. Park. Mr. A. J. Perriam, architect, 43, Cannon-street, E.C.

Antill and Co. ... £1,885
Rhodes ... 1,800
Maxwell Bros. ... 1,800
Rhodes ... 1,800

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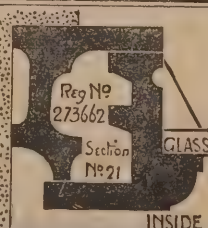


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F. and H. F. Higgs ...
Dove Bros. ...
Holloway Bros. ...
Colls and Sons (accepted) ...

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Artio Bros. ... £1,084 0
Silver and Sons ... 1,032 0
Freewing ... 873 16

[All of Maidenhead.]

MAIDENHEAD.—For making alterations and additions to No. 9, Park Villas, King-street, for Mr. Owen Price. Mr. John L. Kirk, architect, Queen-street, Maidenhead:

Chas. W. Cox & Son £344 0
W. Creed ... 823 0
G. Elms & Sons, Newbury £1,510

[All of Maidenhead.]

NEWBURY (Berks).—For the erection of farm buildings Veston Farm, for Sir Francis Burdett. Mr. J. H. Money, architect, the Broadway, Newbury:

Hoskings ... £1,790 0

[Accepted.]

NEWHAVEN (Sussex).—For the drainage and sewerage of fifteen houses, Lewes-road, Newhaven. Mr. F. J. Rayner, E. surveyor and engineer, Newhaven, Sussex:

Woolger ... £135 0

[Accepted.]

NEWHAVEN (Sussex).—For the erection of a brick and iron building, Mr. F. J. Rayner, C.E., surveyor and engineer, Newhaven, Sussex:

Redman Bros., Newhaven ... £100

NEWHAVEN (Sussex).—For kerbing, paving, &c., Lawes-venue, for the Urban District Council. Mr. F. J. Rayner, E. Town Surveyor and Engineer, Newhaven. Quantities by Town Surveyor and Engineer:

A. Chambers ... £925 0 0

[Accepted.]

NEWHAVEN (Sussex).—For drainage and sewers of fifteen houses, Chapel-street, Newhaven. Mr. F. J. Rayner, C.E., surveyor and engineer, Newhaven, Sussex:

M. Woolger, of Newhaven ... £135

NEWQUAY.—For the erection of Council's buildings, c., for the Urban District Council. Mr. John Ennor, jon., surveyor, Commercial-square, Newquay:

om J. Smith ... £1,197 0

[Accepted.]

NOTTINGHAM.—For alteration of premises, offices, and stabling at Poplar-square, for the Nottingham Hide, kin, and Fat Market Company, Ltd. Mr. Robt. Clarke, architect, Prudential-buildings, Nottingham:

Wallis ... £3,161 0

[Accepted.]

OXON.—For the erection of a factory in the Britannia-road, Banbury, Oxon, for Messrs. W. F. Lucas and Co. Mr. Herbert Quinton, architect and surveyor, 15, Magdalen-street, Oxford. Quantities by the architect:

S. Hutchins, Oxford ... £3,150

[Accepted.]

OXFORD.—For the erection of a factory in the Britannia-road, Banbury, Oxon, for Messrs. W. F. Lucas and Co. Mr. Herbert Quinton, architect and surveyor, 15, Magdalen-street, Oxford. Quantities by the architect:

T. H. King, Oxford ... £2,923

[Accepted.]

OXFORD.—For the erection of a factory in the Britannia-road, Banbury, Oxon, for Messrs. W. F. Lucas and Co. Mr. Herbert Quinton, architect and surveyor, 15, Magdalen-street, Oxford. Quantities by the architect:

J. Bloxham, Banbury ... £3,200

[Accepted.]

TUNSTALL.—For the erection of bank premises, for the Manchester and Liverpool District Banking Company Limited. Messrs. Wood and Hutchings, architects, Town Hall, Tunstall:

Massey & Son ... £5,246
Jno. Stringer ... 5,154
York & Goodwin ... 4,977
T. Godwin ... 4,850

W. Grant ... £4,800
C. Cope ... 4,781
W. Cooke, Burslem* ... 4,722

WANSTEAD (Essex).—Accepted for the erection of a school (one story) and a caretaker's cottage on the Cobbold-road site, for the Wanstead School Board. Mr. John T. Brassey, architect, 70 and 71, Bishopsgate-street Within, E.C.:

Alfred Reed and Son ... £9,418
WANSTEAD (Essex).—For the erection of a school (one story) and a caretaker's cottage on the Cobbold-road site, for the Wanstead School Board. Mr. John T. Brassey, architect, 70 and 71, Bishopsgate-street Within, E.C.:

H. R. Rons ... £10,885
Walter Lawrence ... 10,805
James Smith and Sons ... 10,637
Harris and Wardrop ... 10,597
S. J. Scott ... 10,570

J. V. Kiddle and Son ... 10,633
F. J. Coxhead ... 9,924
James Catley ... 9,498
Alfred Reed and Son ... 9,418

WHITBY.—For additions to premises, Skinner-street, to convert them into five shops with a boarding house over them, for Mr. James Gray, J.P. Mr. E. H. Smales, architect, 5, Flowergate, Whitby:

Robinson Harland ... £4,733

Chas. Winterburn ... £3,445

John Braien, Silver-street, Whitby* ... 3,480
UXBRIDGE.—For erecting four cottages in Cowley-road:

Gregory Bros., Woking ... £385

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The person whose Tender is accepted will be required to pay the workmen employed by him the local standard or Union rate of wages.

Sealed Tenders, endorsed "Tender for Lister-street School," must be delivered to me on or before FRIDAY, the 2nd day of DECEMBER, 1898, at FIVE p.m.

The lowest or any Tender will not necessarily be accepted.

J. ROBSON SMITH,
School Board Offices, Clerk of the Board.
Park-road, West Hartlepool,
November 6th, 1898.

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TO BUILDERS, &c.
The Shoreditch Vestry invite TENDERS for CONSTRUCTING TEMPORARY FLOORINGS to the FIRST and SECOND-CLASS SWIMMING PONDS at the Baths Buildings, Pitfield-street, N. All particulars and bills of quantities may be obtained, and a plan inspected, at the Clerk's Office, Town Hall, Old-street, E.C., on payment of £1, which will be returned on receipt of a bona fide Tender.

Trade union rates of wages and hours must be observed. Tenders to be sent to the undersigned on or before FRIDAY, NOVEMBER 25th, 1898, endorsed "Tender for Temporary Floorings."

The Vestry do not bind themselves to accept the lowest or any Tender.

H. MANSFIELD ROBINSON,
Town Hall,
Old-street, E.C.,
November 10th, 1898.
Vestry Clerk.

THE Building Committee of the Carnarvon Cottage Hospital are prepared to receive PLANS, SPECIFICATIONS, and ESTIMATES for the erection of a new Hospital at a cost of from £2000 to £2500.

Accommodation will be required for a Male and Female Ward, also two small extra Wards (providing altogether twelve beds), Committee Room, Matron's Rooms, and an Operating Room, as well as the usual Domestic Offices. The plan should be so drawn as to provide for extension should occasion hereafter require. A premium of Ten Guineas will be paid to the Architect whose plans are accepted, and whose services the Committee reserve to themselves the right to retain or not. —For further particulars apply to MR. CHARLES A. JONES, Carnarvon.

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LUNATIC ASYLUM, WARLINGHAM, SURREY.

ERECTOR OF BAILIFF'S HOUSE.
Notice is hereby given that the Council are prepared to receive TENDERS for the ERECTION of a BAILIFF'S HOUSE at Warlingham, Surrey.

Plans and specifications of what is required may be seen at the Borough Engineer's Office, Town Hall, Croydon, on and after the 23rd November, 1898, where also bills of quantities and particulars can be obtained on payment of a fee of Two Guineas, which sum will be returned on receipt of a bona fide Tender.

TENDERS to be sent to me by ELEVEN o'clock in the forenoon, on WEDNESDAY, the 30th NOVEMBER, 1898, endorsed "Tender for Bailiff's House, Lunatic Asylum."

The Council will not be bound to accept the lowest or any Tender.

By order,
E. MAWDESLEY,
Town Hall, Croydon,
November 14th, 1898.
Town Clerk.

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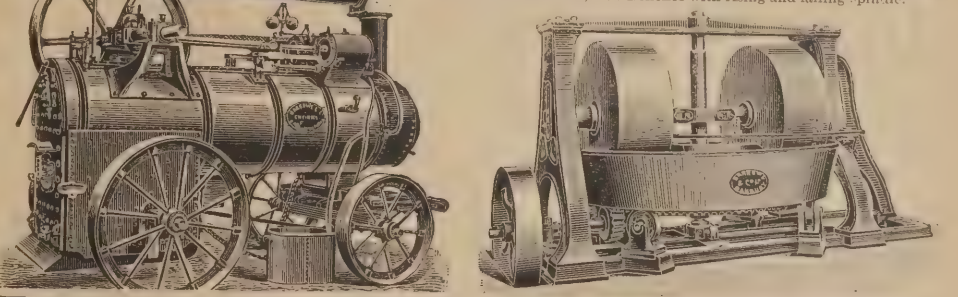
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THE GREAT NORTHERN RAILWAY COMPANY. STORES CONTRACTS.

The Directors are prepared to receive TENDERS for the SUPPLY of NEW and the PURCHASE of OLD STORES for Twelve Months from January 1st next.

A list of the contracts, and separate forms of Tender for each contract, may be obtained upon application to Mr. WEEKS, the Stores Superintendent, Doncaster, by whom every information will be furnished.

The stores must be in every case equal in quality to the Company's sealed samples and patterns, which will be exhibited in the Stores Department, Doncaster, where they may be inspected on application to the Stores Superintendent, from MONDAY, NOVEMBER 21st, to MONDAY DECEMBER 5th, inclusive, between TEN a.m. and FOUR p.m., and the contractors are requested to call and examine them before Tendering.

The Company's samples and patterns cannot be sent to contractors for inspection.

Tenders, addressed to the Stores Committee, marked on the outside with a description of the stores Tendered for, must be sent to the Company's Offices at King's Cross, in the envelopes specially provided, so as to be received not later than TEN o'clock a.m., on TUESDAY, DECEMBER 6th, 1898.

The Directors do not bind themselves to accept the lowest or any Tender.

WILLIAM LATTA, Secretary.
Secretary's Office,
King's Cross Station,
London, N.,
November 19th, 1898.

COUNTY BOROUGH OF CROYDON.

ERECTION OF NEW BUILDINGS AND ADDITIONS TO THE BOROUGH HOSPITAL AT WADDON.

Notice is hereby given that the Council are prepared to receive TENDERS for NEW BUILDINGS and ADDITIONS to this Hospital, consisting of a New Ward Pavilion and Additions to Administrative Block and Corridor.

Plans and specifications of what is required may be

seen at the Borough Engineer's Office, Town Hall, Croydon, where also bills of quantities and particulars can be obtained on payment of a fee of Five Pounds, which sum will be returned on receipt of a bona-fide Tender.

Tenders to be sent to me by ELEVEN o'clock in the forenoon on WEDNESDAY, DECEMBER 7th next, endorsed "Tender for Borough Hospital."

The Council will not be bound to accept the lowest or any Tender.

By order,
Town Hall, Croydon, E. MAWDESLEY,
November 14th, 1898. Town Clerk.

TO STEEL MERCHANTS and CONTRACTORS.

Contractors desirous of TENDERING for the STEEL FRAME CONSTRUCTION, about 650 tons, retaining Walls and Caisson Work of the New Buildings for the Dundee Courier, are requested to communicate at once, by letter, with Messrs NIVEN and WIGGLESWORTH, Architects, 34, Mecklenburgh-square, London, W.C., or 32, Bell-street, Dundee.

DORKING UNION.

TO BUILDERS AND CONTRACTORS.
The Board of Guardians for Dorking are proposing to ERECT a New WORKHOUSE INFIRMARY, adjoining the present Workhouse at Dorking.

The plans and specifications have been prepared by Mr. H. PERCY ADAMS, 28, Woburn-place, Russell-square, London, W.C., and, by giving him written notice, may be seen at his office.

All persons desiring to Tender for these works are requested to send in their names and addresses (from which several will be selected) to the undersigned on or before DECEMBER 1st, 1898, with the sum of Two Pounds in cash, which will be returned on receipt of a bona-fide Tender, or at once if the contractor is not one of those selected to Tender.

The Board will require the contractor to give security for the due performance of his contract.

By order,
GEORGE SCALES,
Clerk.

TO CONTRACTORS, SURVEYORS ENGINEERS, ETC.

STANLEY BROS., LTD., NUNEATON,

Having opened up New Blue Brick Works at Nuneaton, are in a position to execute contract orders for
BLUE PRESSED BRICKS,
BRINDLED AND BLUE WIRE CUT BRICKS,
KERBING, CHANNEL BRICKS, ETC.

Quotations and Samples on Application.

FOR THE
BEST DESTRUCTOR
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BEST BOILER FURNACE
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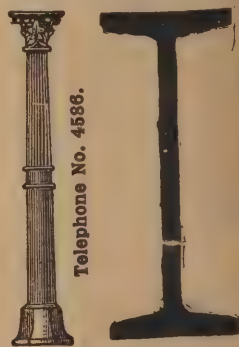
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FOR

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NOVEMBER 23RD, 1898.

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See Large Advertisement, Back Page, Monthly.

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INTO EUROPE.**

The British Non-Flammable Wood Co. Ltd.

Beg to announce that their Works in London, the first erected in Europe, are now completed, and they are prepared to
Take Orders for the supply of "NON-FLAMMABLE WOOD" in large quantities.

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Quotations will be furnished on receipt of Specifications.

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BRITISH NON-FLAMMABLE WOOD CO. Limited,
2, Army and Navy Mansions, Victoria Street, London, S.W.

Surveying and Sanitary Notes.

SOME startling disclosures were made at the October meeting of the Town Council at Yarmouth. The Local Government Board has recently written a letter of complaint as to the presence of fever cases in the town, and the medical officer of health has thereupon reported upon two "sample" districts in the town where fever outbreaks are constantly occurring, due, in his opinion, to the subsoil being saturated with sewage. He presented a report condemning twenty houses in these localities as unfit for human habitation, and was directed to report upon the other districts. —The borough surveyor told the Council there were 12,000 persons housed in the town, 30 per cent. of whom never saw the sun shine into their dwelling-rooms, while the majority of the remainder hardly get more than an hour's sun per day. The old thick walls of these houses were soaked with filth. The Corporation had permitted perfect warrens to be erected in which two people were housed where there was not room for one, the streets and yard spaces were insufficient, the houses were neither wind-tight or water-tight, and but for elaborate pumping measures they would be flooded with sewage three or four times a year. People were living under dirty, unwholesome conditions, which rendered the healthy support of human life impossible. To enforce all their powers stringently might be considered confiscation, but he said these properties had paid a large percentage for years, so that the owners would have nothing to complain of. —The medical officer of health supplemented this with the remark that it was impossible to proceed with the condemnation and demolition of houses until some healthy and wholesome places were prepared for the poor folk to go to. —The Council unanimously agreed to provide dwellings under the Housing of the Working Classes Act.

EARLY this year Dr. Sykes, Medical Officer of Health in St. Pancras, reported to his Vestry that in respect of the number of sanitary inspectors employed the parish compared unfavourably with other large districts in London. The Health Committee of the Vestry recommended the appointment of two additional inspectors, but their proposal was negatived. Thereupon the County Council directed Dr. Hamer to investigate the matter, and this gentleman reports that St. Pancras contains a larger number of persons living in tenements of one and two rooms than any other London sanitary district. He compares the results of this inspection with the results of similar inspections in Mile End Old Town, Whitechapel, and Lambeth, and points to the unfavourable position of St. Pancras with respect to the number of dirty, dilapidated, and overcrowded houses. Dr. Hamer lays stress on the need of maintaining a proper standard of house accommodation, and, as a means towards that end, of the regulation of the poorer houses let in lodgings. He found in St. Pancras, as he found elsewhere, that houses in which dirty and dilapidated conditions and overcrowding especially existed, occurred in groups, and were evidently associated with particular ownerships. For the purpose of maintaining the district in proper sanitary condition, he recommends the appointment of seven additional sanitary inspectors. Dr. Hamer's report has been forwarded by the Council to the Vestry, whose observations upon it are invited.

THE question of enlarging the refuse destructor at Aston, Birmingham, and of building a new destructor, has been discussed by the Health Committee of Aston District Council, and side by side with this the committee have considered the possibility of utilising the heat generated by the destructor either for the production of an electric supply for the whole district or for the works at Chester Street. At the present moment the minimum quantity of house and other refuse

to be dealt with by the destructor is about sixty tons per day of twenty-four hours, and which at times is increased to 120 tons per day. To meet this the committee contemplated laying down two additional pairs of cells as being the minimum means of dealing with the demands of the department, allowance being made for the growth of the district within the next few years. Thus, when the present destructor is repaired, and the new plant is laid down, the Council will have faced the difficulty of dust destruction for some years to come. In the ordinary use of the destructor considerable heat is developed, and it was a question whether this should be utilised in the production of electricity in sufficient quantity to light the district. On this point Mr. J. C. Vaudrey and Mr. George Garner, of Manchester, have been consulted. Mr. Vaudrey points out that the saving effected by using the destructor heat would be apparent only in the early stages of the supply, as on the demand becoming greater the dependence on coal will increase, and a point will be reached when the saving by the use of the destructors will be more or less lost sight of. Mr. Vaudrey does not, however, condemn the proposal to utilise the destructor heat for a smaller plant to be used in connection with the yard. Mr. Garner favours the whole scheme, but puts alternatives. The committee have decided to recommend the Council to provide a plant for lighting the buildings, yard, and fire station at Chester Street. The whole work of improving the present destructor, building new ones, and providing the electric plant is estimated to cost £11,500.

THE session of the Auctioneers' Institute was opened last week in the Lecture Hall, Chancery Lane. Mr. E. Dobson, the president, was in the chair. Mr. Alexander Macmorran, Q.C., read a paper on "The Effect of Recent Decisions on the Liabilities and Rights of Owners in Respect of the Drainage of Buildings." Under the Public Health Act, 1875, a drain might be said to consist of a channel for the conveyance of drainage or sewage from buildings within the same curtilage or enclosure in which a house stood. If a drain from neighbouring premises were let into it this channel would become a sewer. The duty of repairing a drain was upon the owner or occupier of the premises drained; a sewer, on the other hand, was vested in the local authority. It was a curious fact that, while a local authority had ample authority over private persons with reference to the making of drains from private houses, they had little or none in respect of the making of sewers except under private streets. To the general rule that a sewer became vested in a District Council there were three statutory exceptions—sewers made by a person or company for profit, sewers for land drainage or irrigation under a local Act, and sewers under the authority of Commissioners of Sewers. Where persons were damaged by floods caused by insufficiency of sewers and no negligence could be shown on the part of the local authority, they had no remedy, and could only complain to the Local Government Board. A unanimous vote of thanks was passed for the lecture, and in the discussion which followed a general opinion was expressed in favour of amendment and codification of the law in relation to drainage.

AT Sir Joseph Causton and Sons' New Printing Works in the Clapham Road, a 15in. internal diameter tube well has been sunk to the depth of 425ft. This tube well is all the more remarkable as the yield obtainable is 840,000 gallons per day, more than has as yet been obtained by any single well in any part of London. A novel and unique feature in this instance is the raising of the water, which is done by means of compressed air, entirely dispensing with all pumping and complicated machinery. Messrs. C. Isler and Co., London, were the engineers. As illustrating the dimensions of this remarkable well, it may be mentioned that if its circumference was sufficiently enlarged there would be ample accommodation, as far as depth is concerned, to afford comfortable burial to so lofty a building as St. Paul's Cathedral.

HOUSE DRAINS.

IS A FOUR-INCH PIPE LARGE ENOUGH?

To the Editor of THE BUILDERS' JOURNAL.

SIR,—I have read with some interest your notes of Prof. Bostock Hill's paper in this week's journal, and I venture to call attention to some points therein raised in the hope of provoking further records of experiences from brother surveyors.

First, Prof. Hill expresses surprise that some surveyors should still insist on 6in. drains; I have been insisting on them myself, and the professor's arguments are not sufficiently crushing to convince me of my folly. He takes it for granted that the liquid passing through a 4in. pipe comes down in gushes, filling the pipe full bore—but does it?

I have frequently watched the discharges from domestic wastes when testing and examining drains, and have come to the conclusion that this is very seldom the case. The chief contributories in most houses will be the scullery sink, the bath, the roof, and the paved yard, and the flushing cisterns in the water-closets. None of these outlets are likely to exceed an 1½in. or 2in. diameter. How are these to fill even a 4in. pipe, full bore, unless three or four of them happen to be discharging at once? However violent any of them may be, they have first to encounter (the closet flush excepted) the check offered by a trapped gully; and even where there is no such check, I have noticed, as might be expected, that the discharge seldom fills the drain, even at its commencement, unless it "heads up" owing to a stoppage or a flat gradient, whilst the flushing and scouring power is dissipated long before the end of any ordinary length of drain is reached.

I have verified this by noting the flow through the manhole at the lowest point in the house drain, and I find here that the wetted perimeter represents a fraction only of the whole surface of the pipe, so that even where a scouring motion is produced at the top end, its effect is lost long before the bottom is reached, and so a great deal of suspended matter may be left to foul the surface of even a 4in. pipe.

I see that Professor Hill does not dispute the greater likelihood of a 4in. drain to get blocked. The housemaid's slop-pail contains articles at times which will readily jam themselves across a pipe of this diameter, forming the nucleus for an accretion of solid matter, and leading to a stoppage. If this real disadvantage is admitted, and if, as I have attempted to show, the advantages claimed for a 4in. pipe are somewhat mythical, then I hope Professor Hill will have a better opinion of those who still advocate 6in. pipes.

No doubt a great deal depends on gradient and direction as well as on the diameter of the pipe.

I regret he should take it for granted that an intercepting trap always contains a large amount of solid matter—undoubtedly many of them do, but defective shaping has something to do with this, and I believe it is possible to so vary the levels of inlet and outlet, as to make a self-cleansing syphon.

He also objects to the use of upcast shafts against buildings for the ventilation of the sewers, but I know of many such, which have taken the place of open road grids that have proved offensive, and which have never, in their turn, been complained of. They are all 6in. bore.

I cannot help thinking, however, that from a sanitary point of view this question of ventilation should be treated far more broadly than has yet been done. No distinction should be made between the public sewer in the street and the private drains branching from it; every intercepting trap, and the inlet vent-pipe just above it, should be abolished, and the whole should be designed, ventilated, and flushed as one system. There should be special access for flushing at the head of each sewer and of each drain, and the whole should be flushed by the local authority at regular intervals.—Yours faithfully,

WILLIAM L. T. BROWN, P.A.S.I.

Trade and Craft.

THE BLACKMAN VENTILATING CO. LTD.

The Blackman Ventilating Co. Ltd. have opened new showrooms and offices at 1, Colonnade Passage, Birmingham. This extension of business premises is the result of increasing business in the Midlands and the West. The firm's head office is at 63, Fore Street, London, E.C.

A BIG WARMING AND VENTILATING SCHEME.

The warming, ventilation, and hot water supply of Portrane Asylum, the largest building of its kind in Ireland, has received the most careful and lengthy consideration, so as to secure the best and most improved appliances. Leading engineers submitted schemes, and the plans and estimates of Messrs. John King, Limited, engineers, Liverpool, have been accepted for their Improved Mechanical System, employing their Rajah ventilating radiators, Rex air propellers, and patent tubular exhaust ventilators, involving a cost of nearly £20,000.

WEST HAM TECHNICAL INSTITUTE.

The Technical Institute and Public Library at West Ham, to which we referred a few weeks ago, has just been opened. This handsome new building has been designed by Messrs. Gibson and Russell, and has been erected and equipped at a total cost of £60,000. The chief librarian has introduced a number of special fittings and arrangements, several of which he has patented. The designs of all fittings and furniture were prepared by the architects of the building, and so as to obtain the best results in having the appliances of the most suitable kind, the Principal of the Institute was engaged and the heads of departments retained a considerable time ago to have the benefit of their advice and experience in this important matter. The fittings and furniture have been made by Messrs. James Garvie and Sons, Rose Street, Aberdeen; and of London. The contract amounted to about £6000. The fittings, benches, tables, &c., for the laboratories and workshops are made in deal, with teak-wood tops, but a large portion of the work is in polished hardwood, oak, walnut, and mahogany being the woods mostly used. The library fittings and furniture are all in these woods, and are richly moulded and carved. The glazing for the fittings, including the leaded glass panels in screens, as well as the staining and varnishing, has also been carried out by Messrs. Garvie and Sons, who do an extensive business with West End houses in London, and other parts of England, besides shipping to South Africa a large quantity of interior woodwork and furniture, a good part of which finds its way to Johannesburg and Pretoria.

THE INTERNATIONAL BUILDING TRADES EXHIBITION.

The International Building Trades Exhibition to be held in London in April and May of next year is already being anticipated with considerable interest. Exhibitors have, six months in front of the event, taken up practically the whole of the ground floor space and a sensible part of the galleries besides. This, and other tokens, promise that the exhibition of 1899 will be very big not only in size but in success. This exhibition, beyond doubt, holds up the mirror to building. Here we have passed in review all the latest devices and developments in all that pertains to the art in which the ancient Egyptians excelled; from the latest thing in mural decorations to the newest interceptor trap, the whole wide field of building enterprise is covered by the many exhibits which fill the spacious Agricultural Hall at Islington, and it must be readily ceded that the building trades owe gratitude to Mr. H. Greville Montgomery, the manager of the exhibition. Mr. Montgomery, in undertaking this enterprise, helps to keep those engaged in the many-sided building industry in touch

with their work, and it is satisfactory to note that the usefulness of the next venture is to be increased by the holding of conferences, on topics of professional interest, in connection with the various architectural associations, municipal engineers, and surveyors' institutes of the Kingdom. Another point of importance is that the exhibition will remain open for ten days—from Wednesday April 26th to Saturday, May 6th. The management has been wise in deciding on this extension in view of the popularity of the previous show. Exhibitors will appreciate the innovation—and it may be added here that the majority of those exhibiting last year are again down to appear, whilst many new representative firms have added their respective names to the list. Among these newcomers in the Clayworking Section are Messrs. Doulton and Co.; the Farnley Iron Co., Leeds; Gibbs and Canning, Tamworth; Howson and Sons, Staffs.; Hall and Boardman, Swadlincote; Oates and Green, Halifax; Stiff and Sons, Lambeth; Sankey and Sons, Bilston; Woodward and Co., Swadlincote; and Wedgwood and Co., Staffs. Intending exhibitors are advised by the management to apply early for the remaining space.

THE "CLIMAX" VENTILATING AND HEATING CO.

The "Climax" Ventilating and Heating Co., of 93, Hope Street, Glasgow, have just issued a supplementary price list, which illustrates many of the "Cousland" patents in ventilation. First of all, we are shown the "Cousland Improved Climax" Direct-Acting Louvre Ventilators. Experience and practical tests have shown these ventilators to be very reliable for free outlet of air in all currents, and in every state of the atmosphere, although liable to down-blow when the Louvres have not been properly arranged. The latest improvement, however, very effectively gets rid of this down-blow, thus removing the objection to a very useful ventilator. Next, we have the Direct-Acting Turret Ventilator, which it would seem has many advantages over the generality of automatic extract ventilators. The arrangement of the interior Louvres create a higher velocity than has hitherto been obtained, and, it is claimed, gives a larger area of outlet than any other ventilator of this class. An adaptation of this ventilator is the Direct-Acting Invisible Chimney Terminal Ventilator, which is intended for fixing into ventilating flues carried up adjacent to smoke flues. It is largely used in board schools throughout the country, it is inexpensively fixed, and being below the top of the chimney stack is not a disfigurement. This patent is also specially suited for the ventilation of mansion houses. The Direct-Acting Invisible Roof Ventilator is claimed to be the most perfect ventilator of its class. It is said that it gives a more powerful extracting force and larger area of outlet than has hitherto been obtained by any other invisible roof ventilator, and that its extracting powers have been proved equal to those of any turret ventilator from whatever direction the wind currents may be blowing. In a dead calm the exit area is double the area of the pipe; it can thus be depended on for a continuous outlet, while being fitted with automatic valves is free from down-draught. Altogether, this ventilator seems to be simple and effective; it is inexpensive and does not interfere with the architectural feature of a building. Ridge Ventilators, Continuous Exhaust Ventilators and Soil Pipe Ventilators, the Mica Flap Ventilator, Silk Flap Ventilator, Venetian ventilators, are all illustrated in this supplementary price list, which is a useful hand-sheet for the architect when dealing with ventilation.

The latest news regarding the Uganda railway is, on the whole, satisfactory. The gap or fault in the country on the line of railway has been explored, and turns out to be a broad valley stretching north and south for nearly three hundred miles. There is nothing for it but to take the railway down one side and up the other. Even on the way inland from the coast the gradients are perhaps steeper than any in Europe.

Builders' Notes.

MR. JUSTICE LAWRENCE and a special jury, sitting in the Queen's Bench Division, heard the case of Winfield v. Matthews, in which the plaintiff claimed compensation for very serious injuries suffered by him whilst walking along a public footpath.—The plaintiff, nineteen years of age, had for some five years worked as a plumber; and the defendant was a contractor who, in January last, was employed by the St. Pancras Vestry to put up certain columns or standards in connection with the electric lighting of the parish. On the 31st of the month, in the morning, the defendant's men were engaged in putting up one of these standards near the Canal Bridge, in the Chalk Farm Road. The standard was carried from the canal side upon a trolley, and kept in a perpendicular position by means of shears. The plaintiff was upon the pavement, and he and other people were watching what was being done, when the standard toppled over, and it struck the plaintiff's right foot, and so badly hurt it that most of the foot had to be cut away; and this injury, it was said, would to a great extent disqualify the plaintiff from pursuing his calling of a plumber. The case for the plaintiff was that if proper care had been taken by the defendant's men the accident would not have happened.

For the defence it was said that defendant had a policy of insurance against accidents, but the insurance company would not admit their liability in this case. When the column was brought to the hole into which it was to be placed it was found that the hole was not quite big enough, and so there was some delay. A tramcar came up, and the trolley was moved a short distance to be out of the way. In the course of this the standard "lopped," and it and the trolley went over together, and so the accident happened. It was part of the case for the defence that all due care was taken by the defendant's men, and that the people who were standing about to watch the operation were warned to keep out of the way, so as to avoid any danger that there might be. In the course of the case it was said that there was a question between the insurance company and the defendant, and that the latter took up a neutral position, and neither denied nor admitted his liability in this action.—The jury having heard the case through gave a verdict for the plaintiff, damages £300.

THE construction of the additional 180 miles of the Soudan Railway to Khartoum has been definitely decided upon, and the orders for the necessary bridges are being placed with British firms. Most of these bridges will be on the lattice girder principle, and all will be substantially constructed of wrought iron. The principal one will be that spanning the Atbara near its confluence with the Nile, and this will be over 1200ft. in length. There will be, in addition, between fifty and sixty smaller bridges, some of them spanning channels which are merely dry gullies at certain seasons of the year, but which have to be reckoned with in view of the periodical flooding of all water-courses connected with the Nile.

THE great Boundary Street scheme is still working its way out to its full development, and the end should soon be within measurable distance. It comprises twenty-two blocks of dwellings altogether, and of these fifteen are now finished and occupied. Three blocks are now approaching completion, two others are being just commenced and only two remain unstarted. Some of these later blocks, however, are among the largest of the whole undertaking, and until they are up the real magnitude of this County Council housing scheme will not be apparent. Altogether it will constitute quite a new neighbourhood, and will be far more extensive than some provincial towns. The Council never have any unlet, except a few four-roomed tenements for which there is less demand than for those with only two or three rooms. These smaller ones let as fast as they can be built.

THE CONSTRUCTION OF HOSPITALS

For Consumption and other Infectious Diseases.*

By Dr. JOHN W. HAYWARD.

HOSPITALS for consumption, being intended for invalids with an infectious lung and laryngeal (throat) disease, should be constructed with especial reference to atmospheric conditions; to sunshine; and to infection:—equability of warmth; abundance of sunshine; abundance of fresh air, and facility for supplying, warming, drying, and disinfecting the air, should be considered indispensable qualifications of hospitals for consumptives. These hospitals are not intended for the prevention of consumption, but for the treatment of consumptive patients.

Consumption hospitals should be built with all the precautions against infection that are deemed necessary in hospitals for other infectious diseases. It is of very great importance that the whole interior be made non-absorbent, and easily to be washed. All the floors, landings, stairs, and such-like portions should be of granolithic, and all the ceilings should be made as hard and as smooth as possible, and be well coated with good oil paint. All the walls should be lined with glazed bricks and tiles, as is the Liverpool Royal Infirmary, or enamelled slate slabs; and all breaking of their surface for the hanging of pictures, &c., should be absolutely forbidden, even in the nurses' rooms. All square corners

* "A paper read before the Liverpool Architectural Society on Nov. 7th, 1898.

AUTHORITIES:—

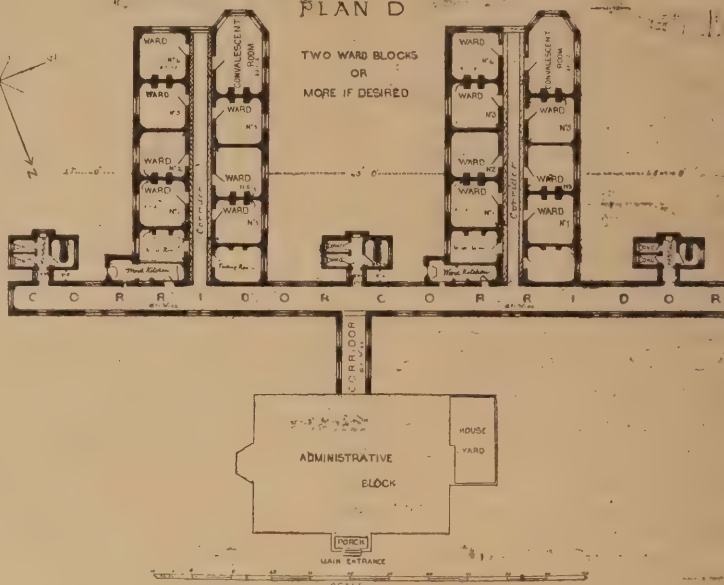
NOTE.—ENCYCLOPEDIA BRITANNICA, 9th Edition, 1891. Article: "Hospitals."

B. U. B. BOOK: "Report of the Commissioners appointed by Government to inquire into the best means of warming and ventilating apartments of dwelling-houses and barracks." Printed by order of the House of Commons, 1857.

HEALTH AND COMFORT IN HOUSE BUILDING, 3rd Edition, 1890.—E. and F. N. Spon, 125, Strand, London.

CONSUMPTION HOSPITAL

PLAN D



towards the south. This prospect should be reserved for the wards, for the sake of the sunshine.*

The best of all disinfectants and germicides, as well as of tonics and restoratives, being fresh air and sunshine, provision should be made for the admission into the wards and the whole hospital of as much of these as possible—abundance of fresh air without draughts, and of sunshine without scorching. To provide for this the hospital should be of the pavilion form—that is, in wings or blocks; and the free ends of these should be square to the south-south-west, so that both sides may be exposed to the sunshine every day. The pavilion form is advisable also for convenience and economy in the nursing; for ventilation, and for warming in cold weather.†

In order that the patients may not disturb one another by their coughing, each should have a separate ward. Several patients in the last stage of consumption in the same ward must have a very distressing and sleep-preventing effect on each other. Hospitals for consumption should therefore be composed of single, or (as a concession to companionship) some double, or treble, or at most quadruple, bed wards; and these should be placed along the two sides of corridors; in other words, each story of each pavilion of a consumption hospital should consist of a central corridor with wards along each side, as shown on the plans A.B.C.D. Wards along only one—the south—side of corridors ensures into them the midday's sunshine, and allows the corridors to be better lighted; but this arrangement requires more ground space than can generally be allowed, and is otherwise unadvisable.‡

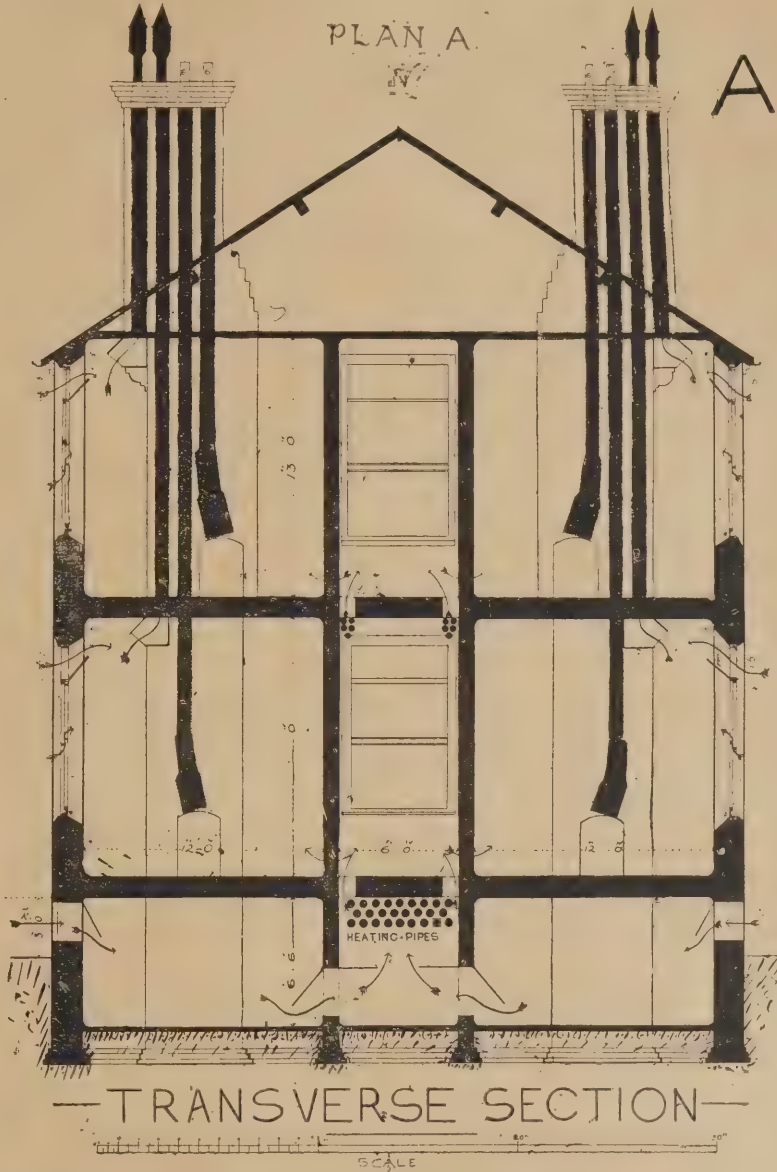
In ordinary pavilion hospitals there is no central corridor; each wing has only one ward on each story, with beds and windows along each side. This plan certainly allows more sunshine to the patients, and may, perhaps, be best for large general, and for fever hospitals, but it renders warming very difficult; indeed, windows on both sides of large wards render efficient warming in winter almost

* Sunshine is very cheering and comforting to invalids; it is also a very effective promoter of their recovery, whilst its absence has a correspondingly depressing and deleterious effect. Abundance of sunlight is as necessary for the health and vigour of human beings as for those of flowers and fruit. Florists are so well aware of this fact that they are careful to always have their green-houses towards the midday sun. Physicians should be equally careful to have hospital wards similarly placed. Hospital wards, nurseries, and morning rooms placed to the north-east are a melancholy sight, and a reflection on the intelligence of architects and principals. Surely cheerfulness and healthfulness of living rooms are of much greater importance than the preservation of the colour of carpets and wall-papers! Besides, sunshine can easily be excluded from rooms that face the south by darkening blinds when necessary; but it cannot be allured into rooms to the north-east by any means whatever, however necessary or desired.

† There is a very exhaustive article on Hospital Construction in the last edition of the "Encyclopædia Britannica." It is based upon the best and latest information, experience, and arguments on the subject published up to the date of issue. After reviewing all the various forms of hospitals, the writer insists that the pavilion form should always be adopted; and he gives very sound reasons why it should. This form is also insisted on by all the best writers on the subject since, and was by many before that date. The quadrangular and cubical form interfere with efficient ventilation; and the crucial form makes it impossible to expose more than half the wards to the sunshine, the other half cannot have any direct sunshine from one year's end to the other. Circular wards involve so much outside wall as to render efficient warming difficult and costly. The writer in the "Encyclopædia" also insists that each patient shall have not less than 9 ft. by 12 ft. of ward floor space, with 12 ft. in height, so as to give him at the very least 1000 cubic feet of air-space; and that the air of this space shall be changed three times every hour; in other words, that there shall be supplied for each patient at least 1000 cubic feet of fresh air every twenty minutes, that is, 50 cubic feet every minute. Very similar provisions are insisted on by most other writers on hospital construction; by the Government Commissioners, with reference to military hospitals and barracks (see "Blue Book," pp. 92, 130); and by the authors of "Health and Comfort in House Building" (see p. 7, note).

‡ The space devoted to the central corridors is not wasted, for, besides serving as reservoirs of fresh air, they are convenient for many useful purposes, such as to place small tables on which to rest temporarily such articles as crockery, glasses, bottles, poultices; medicines, fruit, disks, and even foods, outside the wards. Here also may be placed couches for the very effective chest and lung expansion exercises of Dr. Percy Wilde, of Bath, explained and illustrated in the Monthly Homœopathic Review for October, 1897, p. 634.

impossible.* This plan serves very well in climates where the air is always sufficiently warm to be admitted directly into the wards through open windows, but it is very ill suited for climates like that of Great Britain, where during at least eight months in the year, the air has to be warmed before it can be admitted, at least in sufficient quantity to meet all the necessities of the ward, that is, for efficient ventilation.† Nor is cross ventilation necessary in our climate, for in summer open windows on one side of the ward will admit all the air required for ample ventilation, when there is perceptible movement of the outer air; and in



winter open windows cannot be borne, at any rate, in hospitals for consumptives.‡
(To be continued.)

* "From these experiments," say the Government Commissioners, "it is to be inferred that rooms where the cooling surface of glass is very large compared with their area can scarcely be habitable in cold weather."—Blue Book, p. 64.
† "Efficient ventilation" is supplying each patient with at least 20 cubic feet of fresh air every minute, and the same quantity for the nurse and for the gas light, besides 600 cubic feet for the fire; in other words, changing the whole of the air of the ward every twenty minutes. (See "Health and Comfort," pp. 7, 47, notes.)
‡ In the case of fever hospitals and large general hospitals it is perhaps well to do away with the central corridors and have windows to open on both sides of the ward for summer ventilation, and to make special provision for winter ventilation by having warming chambers of about 3 ft. wide and 6 ft. in height along inside the walls of the basement, with the primary inlets near the floor and the warming pipes near the ceiling, and conduct the warm air into the wards by somewhat flattened glazed earthenware flues, having for each patient an area equal to 15 in. square, up against the wall (not within it and terminating then either underneath the beds, not straight up the wall but bent along the floor about 18 in., or carrying them about 6 ft. up the wall of the ward, on the

The Housing Question Abroad.

THE housing problem is pretty much the same in every large city in every country. The Health Department of the Amsterdam municipality has just made an investigation into the condition of a thousand houses in a slum district in that city. It has found that 34 per cent. of the population live in tenements of one room with 3·4 inhabitants to the room. Just as in London, the smaller the accommodation the greater the number of people to a room. The report recommends the municipi-

pality to make a clearance of the whole area and to build healthy municipal dwellings, to be let at reasonable rents.

Tobin plan, with a valve or lid to regulate the supply, the terminal ends being covered with wire gratings to prevent the patients blocking them up. This plan of warming chambers along the wall is indeed being adopted in hospitals for consumptives, e.g., with central corridors, in addition to or substitution for the gratings in the corridor floors and the inlets through the corridor walls, providing the air is always kept warm enough before passing up the flues, and the corridors are otherwise sufficiently supplied with fresh warm air. Or a similar distribution of the air-warming pipes may be made on the inner side of the fresh air chambers, and the flues be run up against the corridor wall and terminated in the wards inside coils of the ward-warming pipes, in each instance the tubes being tapering and the terminal end and mouth easily closable. On some of the hot days in summer the atmosphere is so still that even with windows open on both sides of the ward little or no ventilation is effected. Open windows cannot cause the air to move either into or out of the ward: for these times only such provision as that advocated in the present essay, or some special mechanical power, can so move the air as to effect real ventilation.

COMPLETE LIST OF CONTRACTS OPEN.

DATE OF DELIVERY.	WORK TO BE EXECUTED.	FOR WHOM.	FROM WHOM FORMS OF TENDER MAY BE OBTAINED.
BUILDINGS—			
Nov. 25	London, E.C.—Flooring	Shoreditch Vestry	Town Clerk, Town Hall, Old-street, E.C.
" 25	Londonderry—Villa		E. J. Toye, Derry.
" 25	Portskewett—Alterations to Cottages	Guardians	F. Evans, Union Offices, Chepstow.
" 25	Hertford—Vagrant Wards	Guardians	R. Austin, 13, Villiers-street, Hertford.
" 26	Weston—Fencing to Culvert, &c.	Romsey Rural District Council	J. Jenvey, District Surveyor, Romsey.
" 26	Leeds—Ten Houses		F. Mitchell, 71, Albion-street, Leeds.
" 28	Castlecomer—Cottages	Guardians	T. Mahony, Castlecomer.
" 28	Clifden—Extension of Infirmary	Guardians	County Surveyor, Galway.
" 29	Newquay—Alterations to Station Buildings	Great Western Rly.	Engineer, Plymouth Station.
" 30	Blackpool—Town Hall Extension		Potts, Son, and Pickup, 29, St. George's-road, Bolton.
" 30	Halifax—Two Villas		M. Hall, 29, Northgate, Halifax.
" 30	Baildon—House		Isitt, Adkin, and Hill, Prudential Buildings, Bradford.
" 30	Rhiwfafr—School	School Board	W. W. Williams, 63, Wind-street, Swansea.
Dec. 1	21—Dec. 1, London, S.E.—School Additions	Governors	A. J. Gale, 4, Sergeants'-inn, Fleet-street, E.C.
" 1	Felling—Alterations and Repairs to Houses		Oliver & Leeson, Bank-chams, Mosley-st., Newcastle-on-Tyne
" 2	Hastings—Coastguard Station	Admiralty	Coastguard Station, Hastings.
" 2	Coverack—Hotel		S. Hill, Green-lane, Redruth.
" 2	West Hartlepool—School	School Board	School Board Offices, Park-road, West Hartlepool.
" 3	Sheffield—Urinal and Wall	Health Committee	C. F. Wike, Town Hall, Sheffield.
" 3	Blackburn—Wing to Infirmary		Simpson and Duckworth, Richmond-chambers, Blackburn.
" 5	London, W.—Conveniences	St. James' Vestry	Surveyor, Vestry Hall, Piccadilly.
" 5	Sutton—Buildings	Great Northern Railway Company	Company's Engineer-in-Chief, Amiens-street, Dublin.
" 5	West Yale—Twenty-five Houses	Sowerby Bridge Industrial Society Ltd.	S. Wilkinson, Sowerby Bridge.
Jan. 24	London—Tunneling Works	London County Council	Engineer's Department, County Hall, Spring-gardens, S.W.
No date.	Audenshaw—Inn		G. H. Burton, 2, Guide-lane, Hooley Hill.
"	Birmingham—Pulling down Church	Midland Central Estates Limited	Essex, Nicol, and Goodman, 8, Newhall-st., Birmingham.
"	Bedford—Shelters		J. Lurd, Town Hall, Bedford.
"	Bridlington Quay—Café, &c.	R. Field and Son Limited	Brodrick, Lowther, and Walker, York-chambers, Hull.
"	Consett—Excavators' Work	Consett Iron Company Limited	Engineer, Consett Iron Co., Consett.
"	Dundee—Offices		Niven and Wigglesworth, 33, Mecklenburgh-square, W.C.
"	Harrogate—Premises	T. Stubbs	Bland and Bown, North Park-road, Harrogate.
"	Hull—Alterations to Victoria Vaults	Hole and Co.	J. M. Dossor, 2, Manor-street, Hull.
"	Leeds—Offices	Provincial Building Society	26, Albion-street, Leeds.
"	Leeds—Plastering		C. Farrar, Leeds.
"	Millbrook—Tun		J. Eaton, Sons, and Chantrell, Ashton-under-Lyne.
"	Mossley—Public-house		J. Eaton, Sons, and Chantrell, Ashton-under-Lyne.
"	Salford—School	School Board	H. E. Stelfox, 100, Mosley-street, Manchester.
"	Selsey—Hotel, &c.		Rake and Cogswell, Prudential-buildings, Portsmouth.
"	Carlisle—Five Houses		Mrs. Roper, 5, Alton-street, Currock-road, Carlisle.
"	Kirkstall—Chimney		Kirkstall Brick Co., Canal-side, Kirkstall.
"	Lenton—Business Premises	Co-operative Society Limited	Ball and Lamb, 23, King-street, Nottingham.
"	Morecambe—Hotel		Harrison, Hall, and Moore, 36, Albert-road, Morecambs.
"	Pool—Villa	J. W. Foster	W. A. Hobson, 82, Albion-street, Leeds.
"	Rotherham—Seven Houses and Stables, &c.		E. Hutchison, Howard-street, Rotherham.
"	Sale—Ten Shops		S. Smith, Sale.
"	Arnsdale—Shops, &c.		J. Stalker, Kendal.
ENGINEERING—			
Nov. 25	Walthamstow—Steam Roller	Urban District Council	G. W. Holmes, Town Hall, Walthamstow.
" 26	Eastry—Water Supply Works	Rural District Council	F. S. Cloke, Council Offices, Sandwich.
" 23	Fleetwood—Steam Road Roller	Urban District Council	J. Tildsley, Town Hall, Fleetwood.
" 28	Manchester—Bath Pipes and Fittings	Baths Committee	City Surveyor, Town Hall, Manchester.
Dec. 2	Sleaford—Waterworks	Rural District Council	J. Clara, Sleaford.
" 3	Chorley—Watermains, &c.	Rural District Council	A. Jolly, 9, High-street, Chorley.
" 5	Bishop Auckland—Sewer Ventilating Shafts	Rural District Council	C. Johnston, 1, Cradock-street, Bishop Auckland.
Jan. 2	Quebec, Canada—Bridge		Quebec Bridge Company, CaraJa.
" 6	Johannesburg—Carburetted Water Gas Plant	Town Council	R. Whyte and Co., 22, Bury-street, St. Mary Axe, E.C.
" 24	London—Tunnel	London County Council	Engineer's Department, County Hall, Spring-gardens, S.W.
March 15	Be'em, Para, Brazil—Water Supply Transfer	Government	Brazilian Consulate, England.
" 15	Rio de Janeiro—Waterworks		Commercial Department, Foreign Office.
No date.	Dundee—Steel Frame Construction		Niven and Wigglesworth, 34, Mecklenburgh-square, W.C.
"	Naas—Tank, &c.	Guardians	Clerk of Union, Naas, Co. Kildare.
IRON AND STEEL—			
Nov. 25	Hull—Railing	Corporation	A. E. White, Town Hall, Hull.
" 23	Waterloo—Lamp Columns, &c.	Urban District Council	F. S. Yates, Town Hall, Hull.
" 29	London, E.C.—Rails, &c.	Bengal Dooars Railway Co.	Bengal Dooars Railway Co., Winchester House, E.C.
Dec. 2	Lancaster—Pipes	Rural District Council	Surveyor, 5, Dalton-square, Lancaster.
" 2	Middlesbrough—Pipes, &c.	Corporation	F. Baker, Municipal Buildings, Middlesbrough.
" 19	London, S.W.—Rails, &c.		Agent-General for Victoria, 15, Victoria-street, S.W.
ROADS—			
Nov. 25	Salcombe—Road Works	Urban District Council	Clerk to the Council, Ringmore House, Salcombe.
" 25	Earlsheaton—Causeway	District Council	T. Collins, Council Offices, Town-street, Earlsheaton.
" 28	London, N.—Road and Sewer		Tuckett and Son, 2, Basinghall-street, E.C.
" 29	Erdington—Kerb, &c.	Urban District Council	H. H. Humphries, Public Hall, Erdington, Birmingham.
" 30	Winchester—Road, &c.	Governing Body of Winchester College.	T. Stopher, 57, High-street, Winchester.
Dec. 6	Luton—Paving	Town Council	Borough Surveyor, Town Hall, Luton.
No date.	Walton-on-the-Naze—Road Works		T. H. Nixon, 5, Lesser Avenue, Clapham Common, S.W.
SANITARY—			
Nov. 25	East Retford—Sewers	Urban District Council	J. C. Melliss, 264, Gresham House, E.C.
" 26	Chorley—Disinfecting Liquid	Corporation	J. Mills, Town Hall, Chorley.
" 28	Harrogate—Drains, &c.	Corporation	S. Stead, Municipal Offices, Harrogate.
" 28	Stourbridge—Sewers	Drainage Board	W. Fiddian, Town Hall Offices, Stourbridge.
" 28	Thame—Sewers	Urban District Council	J. Taylor and Sons, 27, Great George-street, Westminster.
" 28	Bromsgrove—Sewers	Rural District Council	E. B. Marten, Church-street Chambers, Stourbridge.
" 29	Hale—Sewers	Urban District Council	J. M. D. McKenzie, 7, Market-street, Altrincham.
" 29	Leeds—Sewers	Rural District Council	E. J. Silcock, 10, Park-row, Leeds.
" 29	London, S.E.—Sewer	Lewisham Board of Works	Surveyor, Town Hall, Catford, S.E.
" 30	London, S.E.—Sanitary Reconstruction at Workhouse	Guardians	Offices of the Guardians, Brook-street, Kennington-road.
" 30	Droylsden—Sewer	Urban District Council	W. Curry, Engineer to the Council, Droylsden.
" 30	Stockbridge—Scavenging	Urban District Council	J. Marsden, Council Offices, Stockbridge.
Dec. 2	Middlesbrough—Sewer	Corporation	F. Baker, Municipal-buildings, Middlesbrough.

COMPETITIONS.

DATE DESIGNS TO BE SENT IN.	DESIGNS REQUIRED.	AMOUNT OF PREMIUM.	BY WHOM ADVERTISED.
Nov. 28	Preston—Hospital		Fylde, Preston, and Garstang Joint Hospital Committee.
Dec. 1	Aberavon—Extension of Market	£21	Aberavon Corporation.
" 12	Morley—Schools		Morley School Board, Gildersome-road, Morley.
" 31	Stockholm—New Stations		Secretary, Royal Administration Swedish State Railways.
Jan. 1	Hull—Library	£50, £30, £20	Public Libraries Committee.
" 2	Harrogate—Pump Room	£50, £30, £20	Corporation of Harrogate.
" 2	Harrogate—Alterations to Old Pump Room	£30, £20, £10	Samuel Stead, Boro' Surveyor, Municipal Offices, Harrogate.
" 14	Bradford—Fire Brigade Station	£100, £50, £30	Corporation of Bradford.
No date.	Burnley—School, &c.		Burnley School Board, Ormerod-road, Burnley.
	Carnarvon—Hospital	£10 10s.	Building Committee, Carnarvon Cottage Hospital.

Property and Land Sales.

To Contractors, Builders, Engineers, and Others.

MESSERS. FULLER, HORSEY, SONS, and CASSELL are instructed to SELL by AUCTION, Lots, at Bell-yard, Bell-road, Bromley, E., on **HURSDAY, DECEMBER 1st, 1898**, at Twelve precisely, **CONTRACTOR'S SURPLUS PLANT and MACHINERY**, including 18 h.p. portable engine, 7 ft. mortar mill, with vertical engine and boiler; mortar mill, with 7 ft. pan; 2 Chaplin's portable steam cranes, and power derrick crane, 10 crabs and winches, 15 iron ships, Sissons and White steam pile driver, 7 pile end wringing engines, 12 pile monkeys, double cylinder steam winch and vertical boiler, portable steam hoist, Gwynne's centrifugal pumps, 2 chain pumps, 3 pairs contractor's pumps, Blake's steam pump, Blake's steam crusher, Adie's cement tester, 12 one-yard end-tipped wagons, 10 trolleys and frames, 5 tons contractor's rails, 1 iron tanks, 6 portable offices, 6 large anchors, shear end pipe legs, iron blocks, 2 sand-washing machines, 25 iron wheels, girders, and ironwork, 150 loads useful lumber, 5 loads greenheart ends, 200 struts, 10,000 assorted bricks, large quantity stone, slates, tiles, &c., iron and wood sashes and doors, stone truck, spring cart, and other effects.

May be viewed the day preceding, and catalogues had at the Premises; and of the AUCTIONEERS, 11, Billiter-square, E.C.

AIRMILE PARK, near Cobham, Surrey.—A FREEHOLD BUILDING ESTATE of about 40 acres, with possession.

MESSERS. DRIVER and CO. have received instructions to offer to AUCTION at the MART, Tokenhouse-yard, Lothbury, NEXT SPRING (unless previously sold by private contract), the above property, situate in a favourite residential district, about a quarter of an hour's walk from the Oxshott and Fairlie Station, and about a mile and a half from Cobham Station. The estate comprises Building Land, ripe for development, the higher portion (sloping to the south) offering charming views over the intervening country to Epsom Downs; and a Residence known as "South edge," with stabling and garden; Eight small Villas, some Cottages, and the "Griffin" Beerhouse. On a portion of the estate brickearth is being worked, and all included in the sale as a "going concern." Particulars and plans, when ready, can be obtained of **HARLES JUPP, Esq.**, Solicitor, 48, Lime-street, E.C.; and of **Messrs. DRIVER and Co.**, 23, Pall Mall, S.W.

SURREY.—Choice BUILDING ESTATE.

—In a charming district, two miles from Horley Station (L.B. and S.C. Rly.) under one hour from London and adjoining a village where are church, shops, and post-office; two miles from Roman Catholic Church. FOR SALE, a compact and valuable FREEHOLD PROPERTY of 53 acres, with a frontage to the main Brighton road of 2000 ft., and perfectly ripe for development, with residences of a good class. Prettily timbered. Gas and water mains along the frontage. Would be divided.

Plans and full particulars of the owner's agents, **Messrs. GREEN and SIMES**, Auctioneers and Estate Agents, Blenheim Mansions, Queen Anne's-gate, London, S.W.; or **Mr. W. M. LEACH**, Auctioneer and Estate Agent, Crawley, Sussex.

CANNING TOWN, within five minutes' walk of Custom House Station.—A small Freehold Building Estate, comprising a little over six acres, ripe for immediate development.—With possession.

MESSERS. VENTOM, BULL, and COOPER are instructed to SELL by AUCTION, at the Mart, Tokenhouse-yard, on **TUESDAY, NOVEMBER 9th, 1898**, at TWO o'clock precisely, about SIX ACRES of valuable FREEHOLD BUILDING LAND, comprising the only uncovered land lying between Canning Town Station and the Recreation Ground, and possessing important frontages to the Freemasons and Prince Regent roads; title and land tax free.

Particulars may be had of **Messrs. HERBERT SAXELEY and Co.**, Solicitors, 7 and 8, Ironmonger-lane; at the Mart; and of the AUCTIONEERS, 35, Old Jewry, E.C.

Land Companies, Investors, Builders, Brickmakers, and Others.—ENFIELD TOWN.—Exceedingly choice FREEHOLD BUILDING ESTATE of upwards of 165 acres of exceptionally well-placed land, six minutes from Enfield Town Station (G.E.R.), ten miles from town, workmen's tickets being issued to the City at the low return fare of 2d., these facilities creating a very great demand for small property in the locality; its important situation, general contour, and extensive frontage of nearly 4000 ft. to Southbury-road (a principal main parish thoroughfare, lighted and sewered) adapt the property to an easy scheme of development, for which it is thoroughly ripe, and which could not fail to be highly remunerative; beds of gravel and sand, suitable for roads and building purposes, exist upon the property.

In addition to their building value, about 100 acres contain superior Brick Earth to considerable depths, which, with the special advantages which exist for rail and water carriage, afford exceptional opportunities for opening up brickfields. The Estate at present produces a rental of upwards of £600 per annum from two tenants, but early possession of the whole can be obtained.

Also 26½ acres rich FRUIT and MARKET GARDEN LAND, situate in Brick-lane, just off Enfield-highway with an entrance therefrom, and producing £115 10s. 6d. per annum.

his Land also contains Brick Earth.

MR. ALFRED RICHARDS is instructed to SELL the above by AUCTION at the Mart, E.C., on **WEDNESDAY, NOVEMBER 30th**, at TWO, Three Lots. Particulars, with plans, of **Messrs. TROWER, FREEING, and PARKIN**, Solicitors, 5, New-square, Lincoln's-in, W.C.; and of the AUCTIONEERS, 18, Finsbury-circus E.C., and at Tottenham.

ASSOCIATION OF DESIGNERS.

DESIGNS, WORKING DRAWINGS, PERSPECTIVES, ARCHITECTS, DECORATORS, & BUILDERS ASSISTED. INTERNAL DECORATIONS EXECUTED IN ALL STYLES.

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Shorthand, and Translations Office,
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Black line Photo copies and Blue prints. Drawings inked in. Quantities, Specifications, &c., Lithographed and Typewritten. Standard charges. Tuition.

BERMONDSEY (near the Tower Bridge).—FREEHOLD BUILDING SITES.

MESSERS. FIELD and SONS will SELL by AUCTION, at the Mart, on **FRIDAY, NOVEMBER 25th**, at TWO o'clock, in Lots, FREEHOLD BUILDING LAND, containing an area of about 14,000 ft., with frontages to Dockhead, London-street, and Mill-street, and suitable as a site for warehouses, manufactories, or artisans' dwellings.

Particulars of **Messrs. JOHNSONS, LONG, and Co.**, Solicitors, 9, New-square, Lincoln's Inn, W.C.; and at the Mart; and of the AUCTIONEERS, 54, Borough High-street, S.E., and 52, Chancery-lane.

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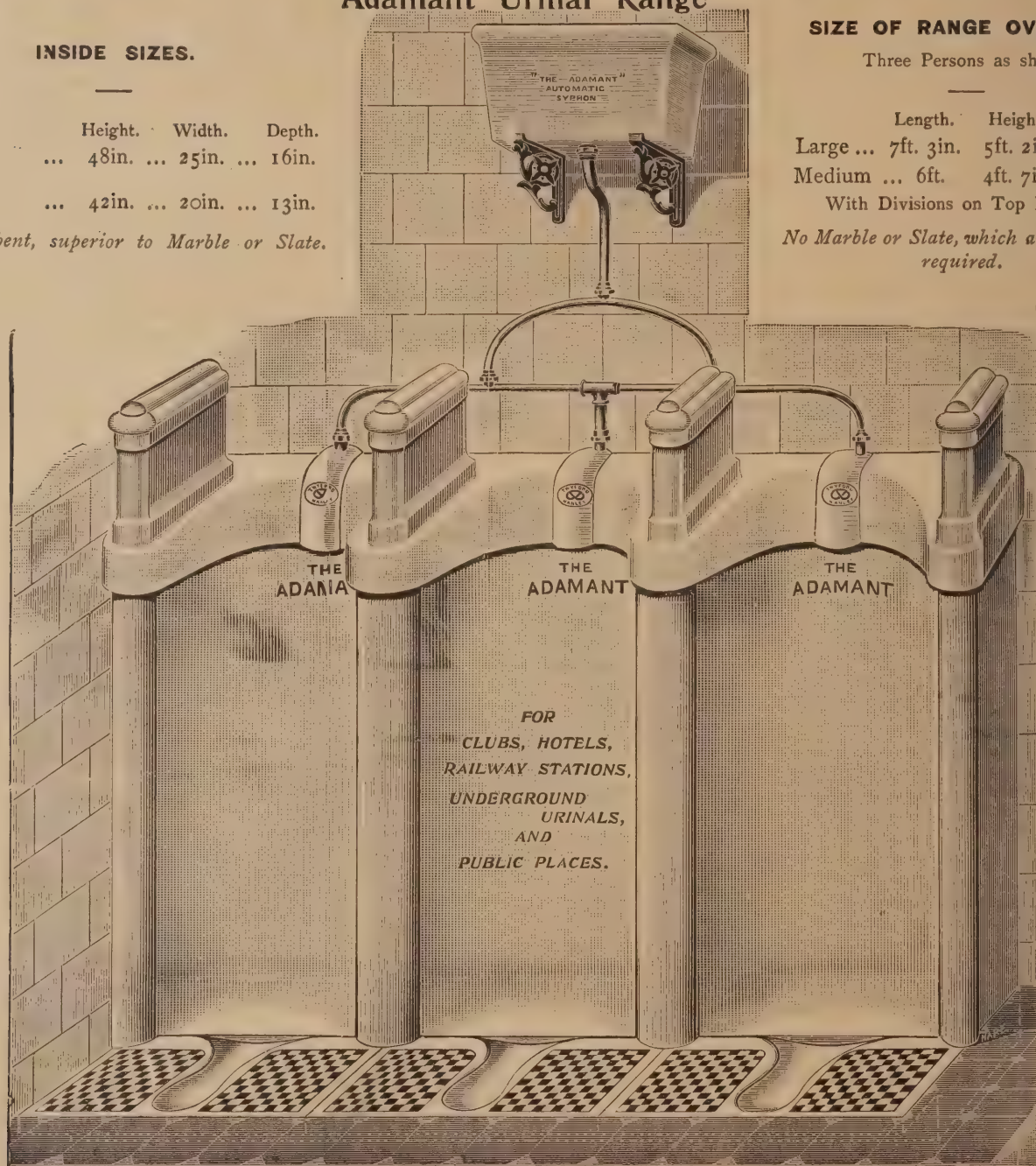
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An Architectural Causerie.

YEARS ago—many

The Art Amateur. years ago—the phrase “An Amateur of Art”

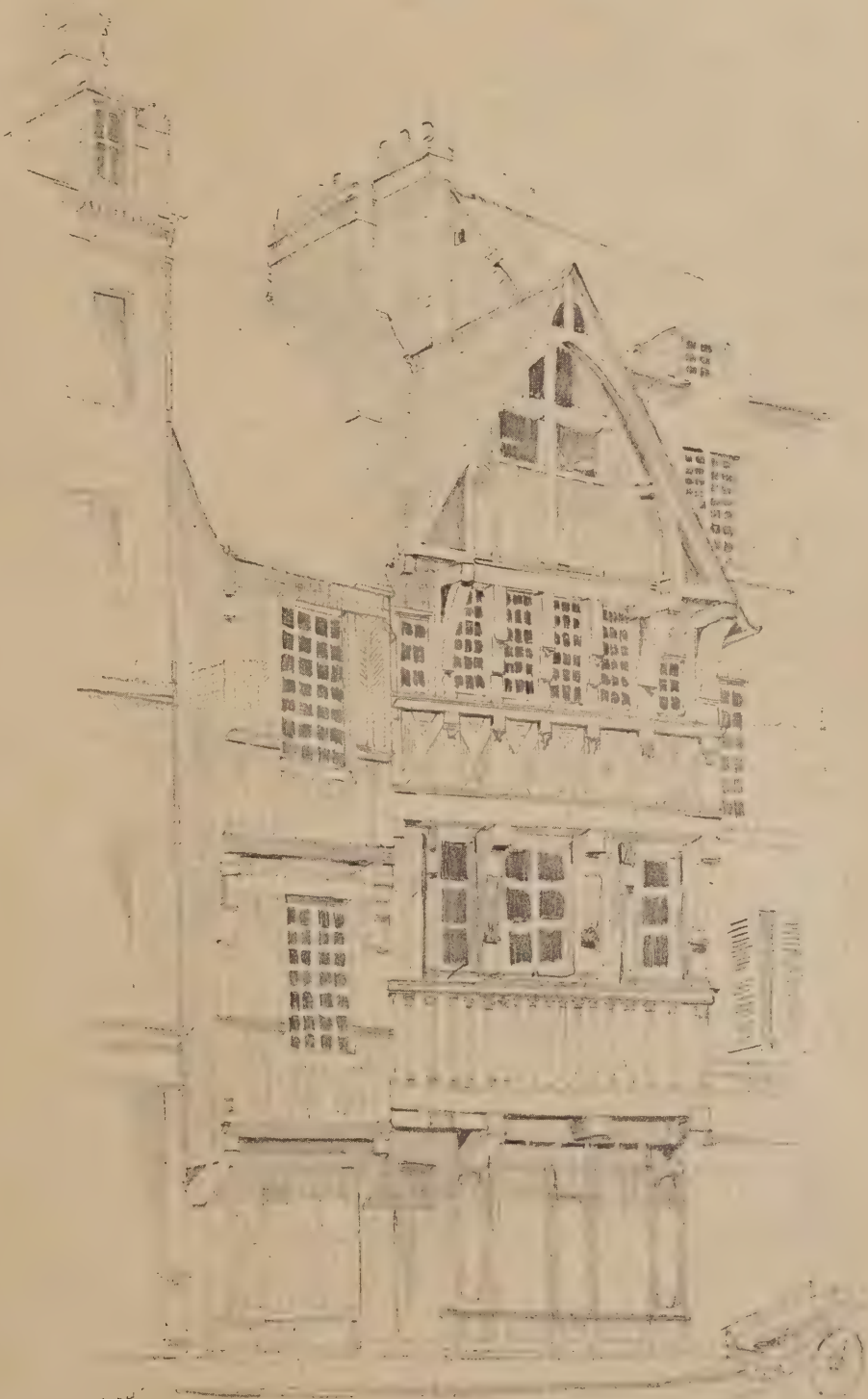
indicated a person, generally male, whose enthusiasm for Art and things connected with or dependent upon it led him to find pleasure in collecting beautiful objects, in subscribing for beautiful and expensive books, and so making their publication possible, in searching out young painters of promise, and assisting them with introductions, with advice, often with subsidies from his own pocket, in planning additions to his house to be carried out with the assistance of some architect, in a word, in furthering what he thought to be the interests of Art in every way. The meaning of the phrase is now so different that it is almost with a gasp that one realises how immensely circumstances have changed. The “Amateur” now publishes his own books with the intention of making money by them, he deals in pictures with the same intention, he (or she) is recognised by the Art worker as his bitterest competitor, and to this competition is largely due the great fall in the ordinary prices paid for good commercial work. Ladies and gentlemen who are not at all dependent upon the Profession for a livelihood are not ashamed to expose their productions at low prices side by side with those of the struggling artist whose living depends upon his sales, and triumph when their works happens to find purchasers, as they sometimes do—for the British public has no intuitions in Art matters. Young ladies who live in comfortable homes, where everything is provided for them, will offer black-and-white drawings to editors for nothing but the honour of having them published with their names attached. It is needless to point out what sort of welcome the next artist who brings work which has a price is likely to meet! Sometimes the halo of charity surrounds the amateur and her work (for she is generally of the fair sex), and then all her rich friends rush to give her commissions, and the unfortunate artist who only has to get his or her living loses another chance of doing so. The effect on the practice of Art is also disastrous. The amateur takes lessons, and learns such things as may be easily taught. That is to say, that he or she goes far enough to make a splash, and to assume that because it is easily learnt the practice of Art is an easy thing. The true difficulties do but begin beyond the point which he has reached, and he knows nothing of the exhausting toil and the sickening disappointments undergone by those who endeavour to produce great works of Art. But public opinion is largely formed from the dicta of the numerous amateurs who are supposed by their friends to know a great deal about it, and the result is a great over-appreciation of clever, tricky work; of the kind, that is, which the average amateur is

able to understand. Meanwhile, there is insufficient patronage for serious, carefully thought out designs, which demand for their full appreciation some time given to their consideration, some knowledge in the spectator, and some poetic feeling. There is another class of amateur to whom this article does not refer—those who have attained mastery over their materials by long and patient study, but who do not call themselves professional artists. They are artists, however, whatever they may call themselves, or be called. A. W.

“Four Walls and a Drain Pipe.”

IT was Mr. Ruskin who many years ago made use of this saying in contemptuous reference to the habit of according the title and dignity of “Architecture” to mere ful-

filments of the needs of shelter, light, and convenience in a dwelling; but if “four walls and a drain pipe” typified the popular and general conception of domestic Architecture with the Profession thirty years ago, the case is now much changed. To be applicable for the present day, the terms of the saying must be inverted. The concern of the ordinary working architect is now not so much exercised in the matter of four walls and a drain pipe, as in the need for some four drain pipes to every wall he builds. The sanitary engineer and sanitary manufacturer and fitter are becoming autocratic in their demands, and the architect, if he is to get up his building at all, must keep a watchful eye to his pipes. Already they have to be kept clearly in mind



OLD HOUSE AT LISIEUX. SKETCHED BY J. EDWIN FORBES.
Vide “ARCHITECTURAL IMPRESSIONS IN FRANCE.”

by him who would undertake to design in the domestic styles, and no practised judge who reviewed a set of working drawings would get very far in estimating the plans and elevation before the eternal subject of the pipes came to the fore, and pressed their claims to be regarded as a vital quantity in the design. Indeed, if things continue and develop upon their present lines, the elementary text books of Architecture which will be placed in the hands of our great grandchildren will open with the poignant enquiry, "What is Architecture?" and the answer written there will be, in effect, "Pipes." Styles may come and styles may go, but pipes, and the sanitary engineer, and his twin-self the sanitary manufacturer, threaten now to be always with us. They call at one's office, and conscientiously see to it that one uses none but the newest and most expensive materials and contrivances, for the chief attainment of the sanitary engineer, so far as one has been able to judge, is not that of the doctor who is concerned to cure our ills, but rather that of the bacteriologist who is chiefly exercised to discover new terrors and diseases. The sanitary engineer who can discover, and has the ingenuity to prove, that the lack of his new puff-pipe regulator, or patent musical warning valve, endangers the proper efficacy of a house drainage system, may be considered to have made his fortune. And woe betide the unfortunate architect who dares to overlook one small essential pipe. He may accidentally leave out the cornice on his main elevation, and no one will care; but let him leave out a single little tube that plays a part in the great scheme of the sanitary engineer, and he may have to disintegrate his Architecture in the cause of his pipes. One has seen just such a pipe on a rich and expensive elevation burst out through the brickwork under the corner of an abacus, crawl across the front, burrowing under obstructive pilasters and string-courses, and go bustling round the corner on its horrid errand; and everyone who has to carry out modern houses can call in mind the fearful ravages which a neglected pipe may commit upon a plan, and how often it must happen that the despotic demands of the drains has made a happy and adventitious scheme of planning untenable. It is hardly an exaggeration to say that the architect who has to avail himself of the latest science of pipes in a building, and who desires to attain a beautiful design, would do well to plan his pipes first as far as may be, and then clothe their skeleton framework with the flesh and substance—the bricks and woodwork—of the house. It will at least save him a quantity of vexations that will hamper the conviction and flexibility of his work, and relieve him from all chance of his design being in the end—and in spite of all his endeavour—disfigured by an unnamable pipe, as has often happened. One knows of a small church, or chapel-of-ease near London. It is a simple, restrained, uncostly design of a young architect of taste and skill, and relies for effect upon a fine tiled roof, and gables east and west. The climax of the design lies in the apices of these gables; and here, upon the eastern one, symbolically pointing to the heavens, is set a 3in. vent pipe, with bulged and split sides, rising so many feet above ridge as per the bye-laws, and leading away down under the moulded nib of the gable coping, to benefit the sanitary system of a very small vestry attached to this little church. The sanitary inspector would have it so. One considers Architecture to be an art, and always regard it consistently in that light, for it has consistently failed one as a Profession; and one would therefore here propose that we return again to the sanitary system of the last century as having less degenerative results than our own, taboo all pipes, and scrupulously throw everything out of windows.

B. C.

ON REFLECTION.

Pictures for Birmingham.

AN intelligent understanding of the significance of Architecture is such a rare accomplishment with the public, and an intelligent appreciation of its motives and aims is so rarely met with in general or ephemeral literature, that we heartily welcome and applaud an article lately published in the *Spectator*, which acknowledges the claims of Architecture as a Fine Art, and grants to it some adequate recognition of its indubitable worth as a prime factor in national education. Referring to Mr. Middlemore's munificent gift of pictures to the City of Birmingham, the *Spectator* says:—"We hope the casket will be worthy of the jewels, or, in other words, we trust the homage paid by Birmingham to the Art of painting will not be at the expense of the sister art of Architecture," and the writer goes on to refer to Architecture as the "Basic Art" or "Art of Arts," an admission we are glad to meet with in the domain of general literature, although the statement is not strictly accurate. We echo the *Spectator's* expression of hope that Birmingham will raise a fitting monument to the Art treasures which the liberality and enthusiasm of her benefactor have entrusted to her. Mr. Middlemore's collection of pictures is particularly rich in examples of Mr. Watt's Art, and includes some of his most famous paintings, and in making his gift to the city he has taken an attitude similar to that adopted by Mr. Tate in stipulating as a condition for the gift that a suitable gallery shall be erected to receive it. The consummation of Mr. Tate's munificence in the inauguration of the "National Gallery of British Art," including the site and the building, must be considered to have been a success, and we hope that Mr. Middlemore's liberality will meet with a no less happy recognition.

A Worcester "Competition."

IN the Worcester-shire Echo we find a naïve account of the process by which the Worcester Hop Market Guardians achieved the assessment of designs submitted in competition for the New Hop Market Hotel. We do not mean to suggest anything abnormal in the conduct of this competition; we rather regard it as a typical sample, the details of which are more precise and more accessible than is usual. The competition was confined to local architects, and on the assurance that the award of the assessor would be upheld, four firms submitted designs under mottoes, as is usual; and, as we believe is also usual, the real names of the authors of each design were generally known, and were even used by speakers, at a late special meeting of the Guardians convened to consider the plans, to indicate each design in preference to the distinctive motto. The assessors' award, approved by the "assistants," by which we understand the Building Committee, was laid before the meeting, and accordingly disapproved of. A leading figure in the debate was the Deputy Governor, who, having previously seconded the adoption of the assessors' award, now changed sides, and was eloquent in showing at once the superior merits of another design, and his own original lack of discernment. The meeting seemed to have unanimously accepted the latter plea, but viewed the former contention with distrust. One Guardian went so far as to suggest that the Deputy Governor had been posted in his arguments by the author of the design he favoured. Finally, without any reference to the assessor, and in direct opposition to the terms of the "conditions," the Guardians appointed themselves to assess the designs by ballot. The result was curious. The design numbered 3 was the assessor's

choice, that numbered 1 the deputy governor's protégé. Results of first ballot:—No. 1, 12 votes; No. 4, 8 votes; No. 3, 7 votes; No. 2, 2 votes. The result of a second ballot to decide the rival claims of Nos. 1 and 4 resulted thus:—No. 4, 17 votes; No. 1, 12 votes. Accordingly, the award has been made to No. 4—Messrs. Rowe and Son, of Worcester.

London Street Improvements.

SIR J. WOLFE BARRY'S suggestive address as chairman of the Council

of the Society of Arts upon the subject of street improvements in London, must have been read with considerable interest. The speaker, while insisting on the need for more and wider streets, and for practical means of facilitating London's traffic, did not lose sight of the need for a more deliberate aesthetic choice in the planning of our thoroughfares and open spaces, than has characterised such ventures hitherto. The question of how best to deal with the congested traffic in our streets becomes more pressing week by week, for it is an evil which fattens on itself; an intermittent freedom of passage for vehicles, reduces the rate at which they may travel, crowds the streets, and in turn occasions more blocks, resulting in further delays. Could the various vehicles travel equally at a fair rate without pause, a smaller equipment of streets than London now owns would serve all her ends, and it was in recognition of this fact that the London County Council lately issued suggestions to drivers of vans and market carts. Omnibuses have much to be held accountable for, and it is said that in Bond Street the four rival omnibus companies who ply there, occasion such confusion in the London season that people will not take their carriages there of an afternoon, and property in the street accordingly is threatened with permanent depreciation. Sir J. Wolfe Barry, we think, looks far into the future when he suggests that some conclusive method will have to be adopted to allow traffic passing north and south, to keep clear of that which is travelling east and west upon the great thoroughfares, and we think that his drastic suggestion of sinking one street below another will never be realised. It might become an object of serious consideration if the value of real property in London continued to increase to a great extent; but modern facilities of communication, and more perfect methods of locomotion, tend rather to equalise than to concentrate the value of London property.

London's Nuisances.

THE dearth of those events which make food for the daily press, has, during the past week, allowed opportunity to those useful members of the public who expend energy and enthusiasm in reminding us of the many imperfections of the conventional life of our great cities. Thus we find *The Times* liberally granting its columns to correspondents who are oppressed with the evils of London smoke nuisance. It would be interesting to know whether these crusaders against the smoke nuisance have ever thought to abate the nuisance of their own fires, by reconstructing their chimneys or burning anthracite, which are the two simplest ways of overcoming the evil. Lord Middleton's letter seems to us to greatly exaggerate the evils of London smoke when he describes it as killing flowers and shrubs at Wimbledon, and inflicting misery on the poorer classes of the community to whom "it often means loss of work" (!). The poorer classes of the community are mainly sufferers by their own smoke, and it seems to us that their lot in life would not be lightened if they were compelled to the expense of using "self-consuming" fireplaces, or allowed to burn nothing but anthracite.

ARCHITECTURAL IMPRESSIONS IN FRANCE.*

NOTES ON A HOLIDAY TOUR.

By J. EDWIN FORBES.

ONE'S first impressions of the Continent, or rather such part of the Continent as Dieppe constitutes, are rather interesting. As the train crawls through the streets of the town one gets an idea of what it is—a regular seaport town, but the striking thing is the amount of colour in everything.

Dieppe passed, we go on through the best scenery in Normandy. Instead of the corn-fields one has been accustomed to, there are orchards everywhere. The farmhouses with their steep red-tile roofs and half-timber work, and the tall poplar trees which surround them, give individuality to this part, and, in fact, to all Normandy.

At last Rouen comes in sight, lying in the great valley of the Seine. The clearness of the air over this city is very noticeable, and, with all its church spires, one gets the general effect of this town to great advantage from the carriage window. As one passes out of the station at Rouen into the town's broad streets of Modern architecture with its electric cars, one is rather disappointed. But proceed into the heart of the town, into its old squares, its courtyards, and its smelling alleys, and you will be satisfied with the colour, the details, and the materials.

There is a very interesting colony of half-timber work houses in the north part of the town. Down the side of the streets here runs an open sewer, once a burn; this necessitates every house on the one side of the street having a bridge to its door; the houses projecting one story beyond another, make very picturesque groups.

The town is full of Gothic work. The

* A paper read before the Edinburgh Architectural Society.

Church of St. Ouen is both externally and internally the finest church I have ever seen. It exhibits in its plan the French peculiarity in its choir and chapels, more perfectly than in most. It is Early Fourteenth Century in style, the best period of French Gothic. The unusually lofty triforium is exceedingly beautiful. All the windows are filled with stained glass, the reds and blues of which are specially fine. The graceful and light effect produced in the interior is largely due to the absence of constructional ornamentation. Where carving and figures occur, they are very spirited and full of feeling. The sculptors of this period were more skilful than their predecessors, and their carving shows more delicacy and finish, while the statues are no longer idealities.

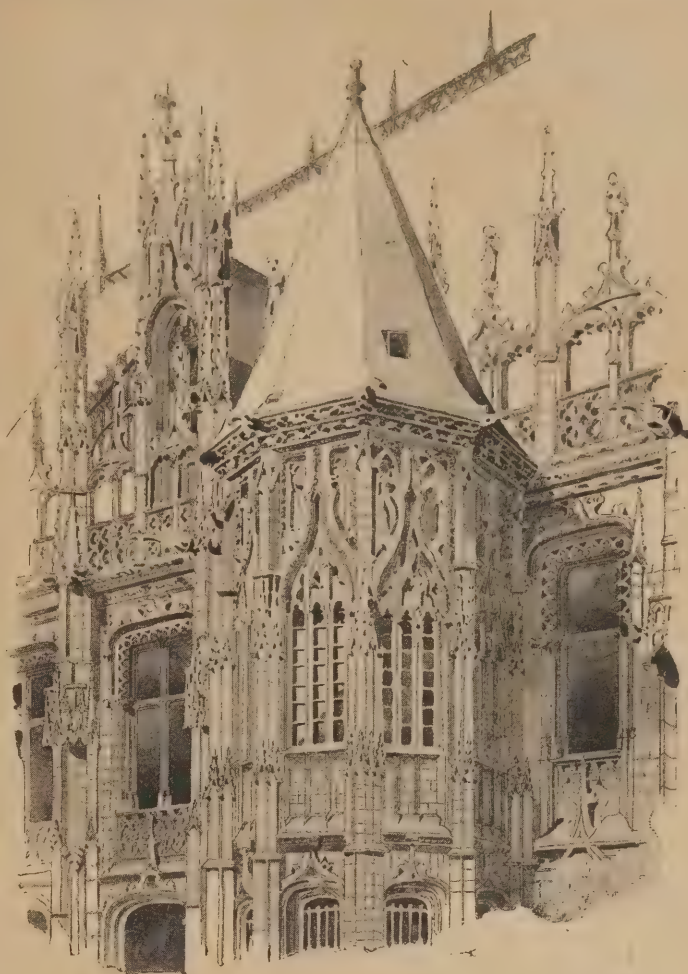
The tower of this church is very interesting. Flanked by graceful turrets, it is surmounted by an octagonal open work lantern, the total height being about 270ft.

The Cathedral of Rouen is uninterest-

ing, especially after St. Ouen. It is very unsymmetrical on plan. The Tour de Beurre, the loftier and more interesting of the two over the west façade, was built from the money paid for indulgences to eat butter in the time of Lent. There is a piece of atrocious work here. The beautiful central tower has been surmounted with a high iron spire, all open work. It is horribly ugly, and it entirely takes away the romance and sentiment of the place to see an iron spire, which will be passed down to future generations as a monument of nineteenth century art. The interior calls for no special comment.

There is church after church which one might comment on, were not Rouen so well known. There are churches which have been turned into factories, coach-building works, and even joiners' shops, but we will leave them.

Before leaving the town, however, let us look at the Palais de Justice, which is a fine adaptation of Gothic Architecture to civil purposes. I cannot do better than quote Dawson Turner. He says, referring to the exterior elevations: "The windows in the body of the building take flattened elliptic heads, and they are divided by one mullion and one transome. The mouldings are highly wrought, and enriched with foliage. The lucarne or dormer windows are of different design, and form the most characteristic feature



PALAIS DE JUSTICE, ROUEN. DRAWN BY ARNOLD MITCHELL.

of the front. They are pointed and enriched with mullion and tracery, and are placed within triple canopies of nearly the same form, flanked by square pillars terminating in tall crocketed pinnacles, some of them fronted with open arches crowned with statues. The roof, as is usual in French and Flemish buildings of this date, is of a very high pitch, and harmonises well with the proportions of the building. An oriel or rather short tower of enriched workmanship projects into the courtyard, and varies the elevation."

The whole is a magnificent pile, such as leaves the pleasantest memories. The richness of the ornament is such that no other example of domestic Gothic can vie with it, except, perhaps, the Hotel de Bourgheroulde, in the Place de la Pucelle of the same city. In some respects this wonderful building is more elaborate in ornamentation and abundance of sculpture than the Palais de Justice.

The entire front is divided up with six slender pilasters and small cornices or string courses, accentuating sill or floor lines, the spaces between being filled up with bassirilievi; every inch of space on which a historic scene can be sculptured has been taken up. This building has in consequence not the same dignity as the Palais de Justice.

There is no city in France better fitted for study and easier got at than Rouen. It strikes one as a large museum, every building having some special interest, and yet quite different in detail from the building next to it. It is a place one should go to and stay at for months, not days. The whole impression points to the artistic life of the fourteenth and fifteenth centuries, when every building, however simple, was in itself a study of good proportion and artistic treatment.

But we must take leave of this city and journey on to Lisieux. It was night when we arrived at the oldest-fashioned town imaginable. As the hotel omnibus rumbled through the narrow winding streets, we got glimpses of the



STAIRS TO ORGAN: S. MACLOU, ROUEN.
DRAWN BY ARNOLD MITCHELL.

timber-framed houses, all of which made us weary for the morning's ramble, when we would be able thoroughly to satisfy our awakened curiosity. At last we got jolted into the old-fashioned courtyard of the hotel, where we were most luxuriously put up.

Here in this quaintest of towns, with its quainter inhabitants, we lived and moved for eleven days. The unconventionality of the place and people were delightful. The only town that in any way approaches it in this country is Chester, but even Chester falls far short of it. I am sure there is no such street anywhere like the Rue aux Fèvres. In this street, as in most others, but this one especially, each story projects so much that the inhabitants on the upper floors might easily shake hands across the intervening space.

The construction of the timber work is

herring bone pattern. The plaster infilling is three-fourths composed of cow manure and short cut straw.

The colour on these buildings is splendid; the timber uprights are often left in their natural condition, and have toned to a dark brown. The plaster work, the general tone of which is a yellowish green, has in some places taken tints of red, even as light as vermilion, while in others on into dark browns and greens.

The Church of St. Pierre has a splendid position in the large square of the town, with the old Renaissance prison on one side, and all around, timber houses whose gables try to outstretch its neighbour. The church is built in the Early French style—one might nearly call it Early English. It is simple and refined, with massive towers on the west end, one of which has a fine crocketed spire. The stone

restoring part of it, and had the whole façade scaffolded, which was too good a chance to lose.

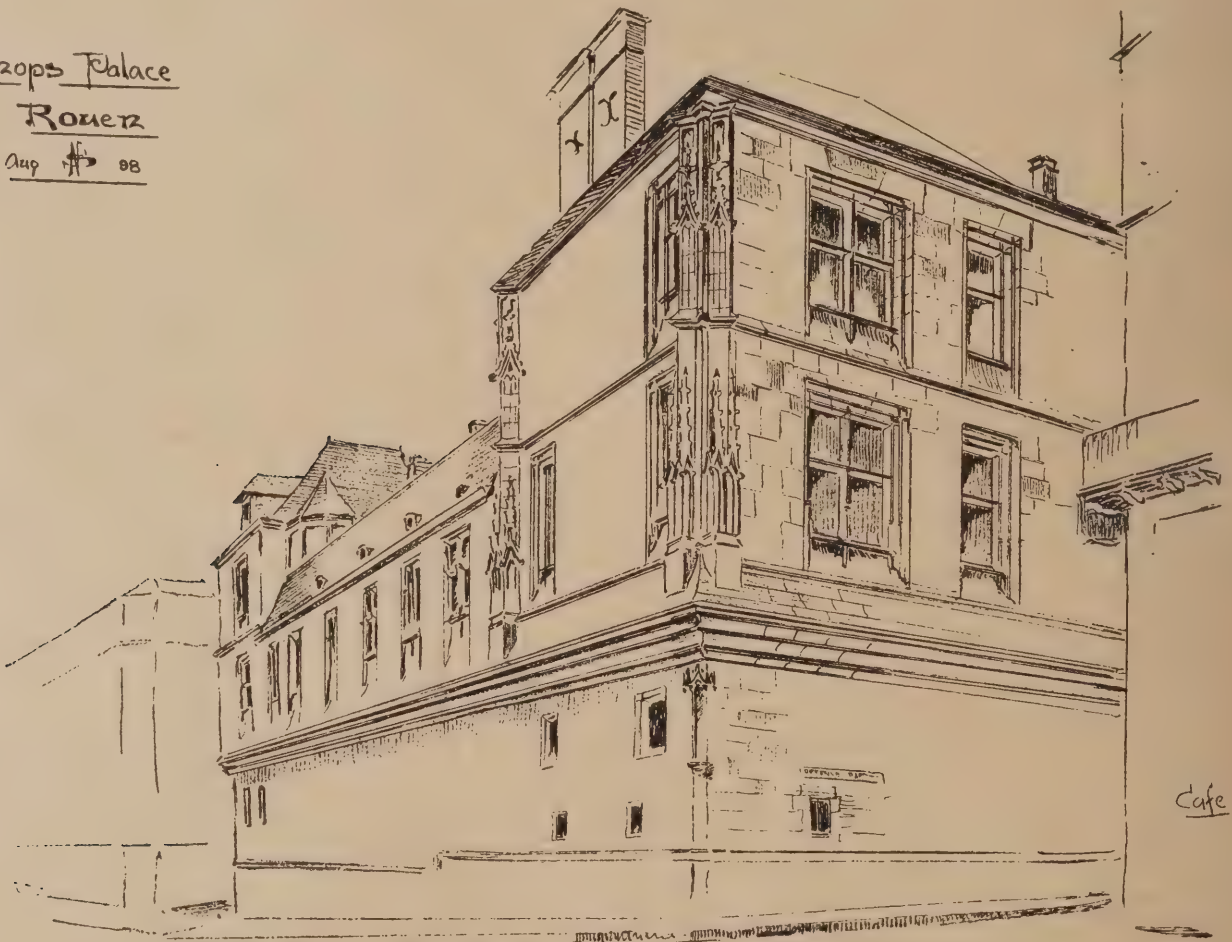
There is a great variety of class of work in Caen—good Norman and Gothic; while in the back streets, Domestic work, both in stone and timber, the former very simple, well-proportioned, and in good preservation.

The two churches founded by William the Conqueror and his Queen are in opposite extremities of the town—the Abbaye aux Hommes, and the Abbaye aux Dames. The Conqueror's church is pure Norman; the effect is noble and imposing, with all the usual Norman details. There are some fine Roman capitals, otherwise it calls for no special comment. The Abbaye aux Dames is naturally very much more interesting; it was founded in 1066. The west front is very interesting. It has very good doorways, and also two rich

Bishops Palace

Rouen

Aug 1898



SKETCHED BY G. SALWAY NICOL.

worthy of notice. The whole building often rests on a stone-moulded base, say, about 2ft. high; on this is a deep wooden sill of oak (as is all the timber), on it are fixed upright angle posts, 8in. to 10in. square, the intermediate upright posts being as small in some cases as 7½in., but they vary greatly. On the top of these uprights is a wooden sill, on which the wooden corbels project, and they, strange to say, in many cases go right through to the back of the house, and also serve as floor posts. There are pieces put between these corbels on the front elevation, with great covette mouldings, which give splendid effect of light and shade. The sill courses to the windows are rudely moulded, and grotesque carving often appears either at the end of corbels or over the doorway, and this construction is repeated on each story, terminated by a steeply pitched tile roof. There are two alternatives for the infilling—plaster or bricks—the bricks in the very old houses being about 10in. by 1in., with a ¾in. mortar joint; they are either laid on diagonally or in

of which it is built, curiously enough, has caught the infection and weathered a greenish hue. Internally it is so simple one might almost be tempted to call it bald, but the proportion and simple detailing redeem it.

Our next stopping place was Caen, distant an hour by train. Ridges of limestone, separated by wide flats of rich meadow, characterise that part of Normandy in which Caen is situated. Old Caen was placed on one of these ridges, but modern Caen has gradually spread over the lower ground, and is a large, clean town, almost entirely built of stone, having inexhaustible quarries in its immediate vicinity. I may mention in passing that the easiest way of visiting Caen and its neighbourhood is to sail direct from Southampton, which takes one into the centre of interest without the tiresome railway journeys which are so characteristic of France.

Our visit here was a short one, and most of it was taken up in measuring the façade of the Hotel D'Ecoville, which is one of the best examples of French Renaissance. They were

Norman towers, with a Transitional tower over the transepts. In the interior the embattled frette is carried round the arches of the nave. It is a splendid interior. There is a most delightful church opposite which has been made into a carpenter's shop, with a very rich doorway. The building that really takes one's breath away is the Church of St. Pierre. It is in the centre of the town. With a most beautiful tower and spire, it is another masterpiece, like St. Ouen at Rouen, of the graceful style which prevailed in the beginning of the fourteenth century. The spire is pierced, and is surrounded by eight small turrets. It is one of the most complete churches we came across, with a touch of Renaissance about its later additions which makes it all the more interesting. Inside one can sit for hours studying the detail. There are some nice Renaissance tablets in the chapels which cluster round the east end. One would like a fortnight in this church alone.

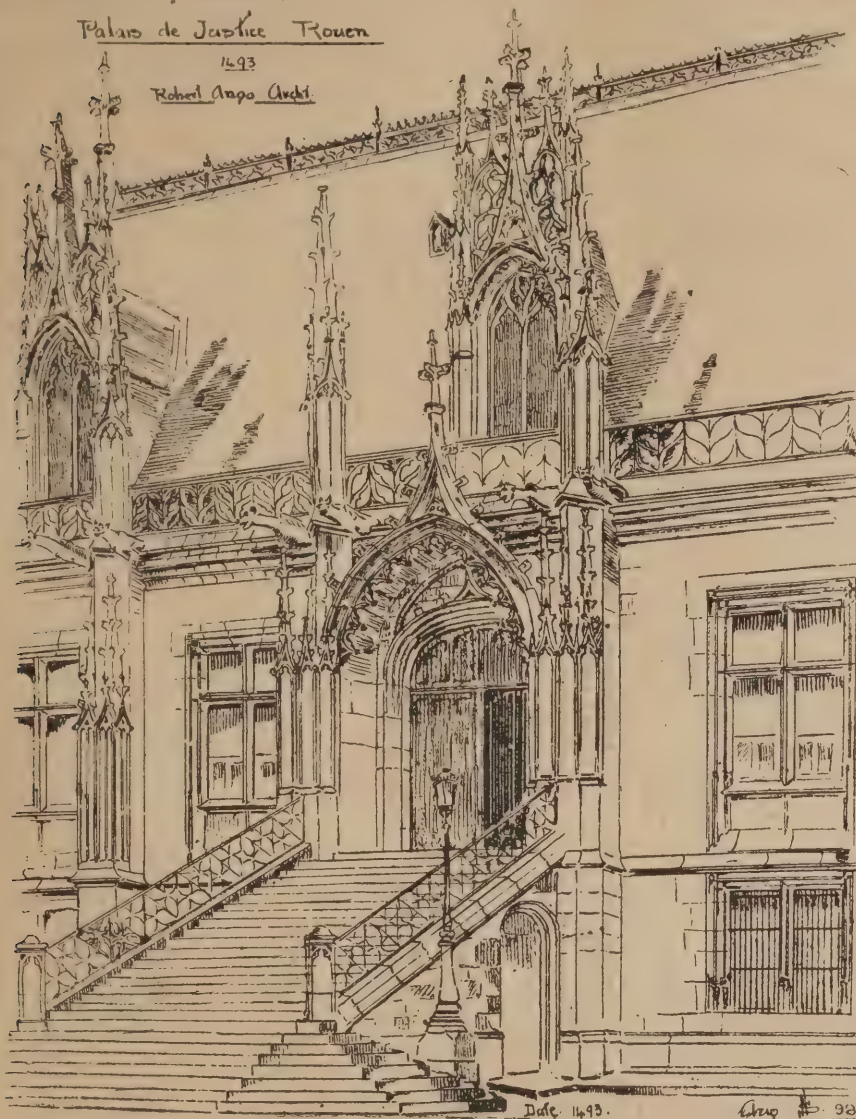
(To be continued.)

Dalle des Procureurs.

Palais de Justice Rouen

1493

Robert Anjo Archt.



Date 1493.

Anjo 92

SKETCHED BY G. SALWAY NICOL.

ARE ARCHITECTS' ASSISTANTS UNDERPAID?

To the Editor of THE BUILDERS' JOURNAL.

SIR.—I have read with some amount of interest and approval the correspondence on the above question.

It is my candid opinion that architects' assistants are a great deal underpaid, when we consider the rapid strides the labouring classes have made in regard to wages and hours.

What is £2 2s. or even £3 3s. for an architect's assistant in comparison? Why, even the bricklayer will average his £2 and £3 per week, and have the privilege of smoking his pipe all day, and his employer dare not say anything to him or "I'll pick up my tools and go." A salary of £3 3s. per week is not satisfactory when we know there are hundreds of builders' foremen getting far more. In my opinion our salaries ought to increase according to the mechanics', and thus keep us on a higher footing. Hours, too, are the same as with the working-man, viz., eight hours.

The working-man gets time-and-a-half for overtime, but very few architects' assistants get paid anything for their overtime.

Building is getting more expensive, owing to independence of workmen. Of course, this means more commission for our employers, therefore they are able to increase our salaries if they wish. I sincerely hope some prominent member of R.I.B.A. (or otherwise) could introduce some scheme to shorten our hours and increase our salary which may satisfy discontented assistants.—Yours, &c.,

"BE-SQUARE."

THE SOCIETY OF ARCHITECTS.

PRESIDENTIAL ADDRESS.*

By MR. WALTER EMDEN, J.P.

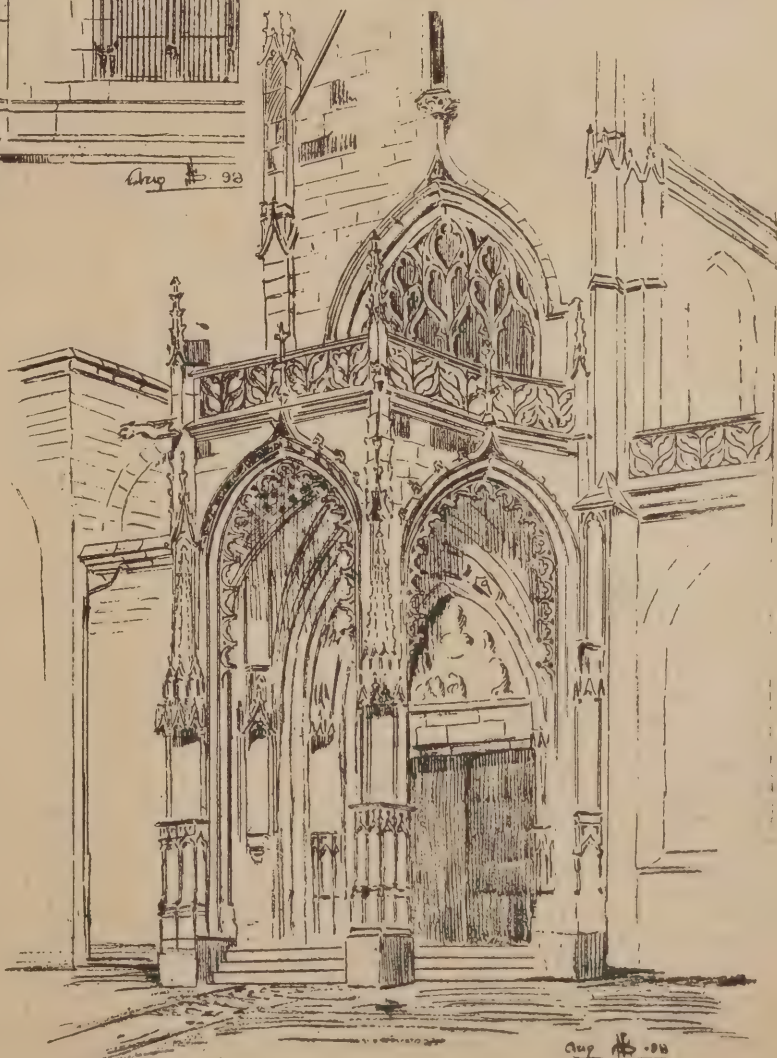
THE work which this Society has always set itself to do, is that of being of practical assistance to its members and the Profession in general. Any subject which will benefit the Profession or the public, and which lies within the scope of the work of a professional society, will always receive earnest consideration and attention.

The way in which this Society has dealt with the question of registration of architects, is a proof of its determination to persevere with its work in the face of many difficulties, and I feel sure this Council will not be found less persevering or less ready to labour for the accomplishment of any other of the Society's aims.

During the past year, as was told us in the report, the Society has made some progress with this question of registration, and indeed, slow as the process of education in this direction may seem, there is no doubt an Act will eventually be passed for the protection of the public, by the procuring of properly qualified architects.

Voluntary examination may be all very well in its way, but there should be in all professions where the lives and pockets of the public are so much at its mercy as they are in building operations, no volunteering about the qualification, but an absolute certainty that the qualification has been obtained by the necessary examinations being passed.

* Delivered at St. James' Hall, Piccadilly, W., on Thursday, Nov. 24th, 1898.



Anjo 92

CHURCH OF ST. VINCENT, ROUEN: WEST PORTAL. SKETCHED BY G. SALWAY NICOL.



OLD HOUSE, RUE CONDORCET, LISIEUX. SKETCHED BY J. EDWIN FORBES.

The Council have instituted, and trust it will grow during the course of this coming year, a bureau for the employment of clerks, so that those requiring clerks, and clerks requiring appointments, can have an easy channel of communication, and with the advantage that those requiring appointments by passing through the books of the society, will show that some enquiry as to their capabilities has been made.

It is also proposed (and the last Council has already given a large amount of consideration to the subject), to establish under the Society's control a system of tests. In this present age when invention has been making such vast strides, and every year sees large numbers of improvements and patents of all kinds added to the list, it seems to us, a very useful purpose will be served if some thorough and independent tests were from time to time, obtainable with regard to their value and serviceability. While it would encourage the inventor it would, at the same time, prove a considerable source of benefit to the public by their having confidence in its use.

The great difficulty in dealing with improvements is sifting out the good from the bad, and the usual process through which the public have to go is an extremely expensive one. They have indeed to buy their experience. They purchase and use what may, and often indeed, proves afterwards to have little or no value, and by such expensive experiences are discouraged from taking any further risk, and thus leave much which might in their work or business prove a valuable economy untouched.

Set out in the Society's journal of September are some of the ways in which such a system of tests could be of service to the public, to the professional man, and to the inventor.

The tests, however, would not be limited to new inventions. There are constantly new materials coming into the market which have their special attractions in price or manufacture, and which, at the same time, being untried, want of experience prevents being freely used.

RIGHTS OF LIGHT AND AIR.

Another practical work, and that of the first importance, which is being undertaken by the Society, is that of bringing about some change in the law which (without affecting the rights of property) shall prevent the vast waste of time and money which there is every year in negotiating and litigating over questions of light and air.

Every architect and surveyor knows well the annoyance which his client and he also is put to when proposing to erect buildings in any

town. It is no exaggeration to say that in some cases a building which may greatly improve the surrounding property by its being erected, is attacked on all sides by questions of light and air, and that a crop of ten or a dozen cases may be raised against it, often, many of them, of the most trivial nature; and it must be an especially lucky building owner who commences and completes his building without any such claim being made.

Almost all of these cases arise from the uncertainty as to what does or does not really affect the rights of an adjoining owner and what can legally be held to materially affect it, and beyond this I am afraid it is only truth to say that the desire of gain largely affects the claims made. Not only professional costs, but the larger gains contained in the question of whether, rather than have his building stayed by an injunction, and risk the large amounts necessary to fight an action on nothing more than trivial rights or even imaginary ones, the building owner will not pay a sum of money or blackmail.

If we look for an instant at what has to be faced by a building owner, it will be seen at once that it must often enough curtail building enterprise, as does the state of uncertainty seriously impede those who legitimately wish to rebuild or improve their premises.

Everyone seems to think that a building owner is fair game for compensation.

It is only natural that each surveyor should desire to look first at his client's interest and desire to do well for him, and necessarily in dealing with the business in hand they do not trust the other side to look after their clients; and the state of uncertainty as to what are, or what are not a client's exact rights under the law as it stands, all tend to prevent a settlement and produce a law suit.

The same affects the solicitors when they come on the scene and consequently not only do the professional costs get piled up by the law's uncertainty and one man will get through where another is stopped, but a law suit becomes almost inevitable.

In order therefore to protect the interests of a client an injunction is obtained, and I fail to see that the architect or solicitors can be blamed if, in their client's interests, they obtain an injunction where the case may be of a trivial character, if they think their client is likely to obtain a monetary benefit by so doing, which may even be larger than the real value of the damage.

These cases, too, depend so much on technicalities, while the necessity to bring home to judge and jury the facts as they are, is so great, that models and numberless plans have to be prepared, and experts at expensive rates

called in order to prove fully the views of each side to those who have to try and decide the case.

What wonder is it then, that these cases become enormously expensive, and that thousands of pounds are every year more or less wasted in costs on them? This very expense is the opportunity of the man with rights great and small, to obtain from the building owner a sum of money, rightly or as a blackmail matters not so long as it is paid; as at all events it leaves the building owner better off than to try the case with its attendant risks and costs.

I venture to think that no enquiry into this subject could be made, without disclosing not only the great number of these actions, but their wasteful cost.

I am sure, in the eyes of every honourable professional man, it is necessary to avoid this useless waste of money; and he would desire to prevent the class of case being set up which so often assumes the aspect of blackmail.

The Council of this Society has set itself to work to make a determined effort in the direction of preventing this useless waste, which affects not only the public, but the honour of professional men.

There is no doubt the question is a difficult one to deal with when first approached, because it is not desirable that people's vested interests and rights of property should be interfered with; but it seems to me that the object which we have in view can be obtained without any such interference, and yet justly and effectively prevent the waste which has been and is a growing evil in England.

In Scotland, the Court of the Dean of Guilds deals with these questions, and the canny Scot is saved the annoyance and expense; and, conservative as we may be in England, there can surely be no reason why we should not adopt some similar or suitable means to accomplish the same end here. The Building Act Tribunal which, in dealing with Building Act cases in London has shown that there can be no difficulty in appointing a Technical Court to deal with these matters; and the payment of its cost would be the merest fraction of the costs to which building owners are now put.

The secret of this wasteful and improper system lies, like all other wasteful systems, in the uncertainty of the extent and value of the rights affected, and until these can be decided before commencing to build by an independent decision from a Court to which it is compulsory to go as in Scotland instead of stopping the building in the middle, the waste and impropriety of the present system will grow and scandalise our ability as businesslike and honourable men.

The suggestion which I would make and which I think this Society should adopt, is that a technical court under the London County Council in London should be established, and every building owner should be compelled to deposit a full set of the plans of any new building or material alteration of a building with the central authority paying some such fee to cover the expense of dealing with them, as may be deemed necessary, and that the authority should then require the owner to give notice to all the adjoining owners who may be affected, so that if after examining the plans they think there is interference with their rights of light and air or other easements, then the tribunal after seeing that all interested had had notice should proceed to hear the objectors and the building owner, and after hearing, decide as to what height, &c., the building can be carried without interference with the lights and easements of the objectors.

The fact that such a decision is given before building operations are commenced, and before the building owner is pledged to his contract with his builder, would of itself be a substantial boon apart from the great saving of time and money, and apart also from the saving made by its being an absolute preventive of blackmailing by factious and petty cases being raised and the fighting of expensive actions.

I fail to see that anyone could suffer injury by this course, and the good arising from it must undoubtedly prove a valuable incentive to



OLD HOUSES, RUE DES TANNEURS, LISIEUX. SKETCHED BY J. EDWIN FORBES.

the public and professional men alike in the numerous building operations which in this great city are constantly necessary.

There is no doubt that when cases are carried on, men's feelings and men's judgments get involved and warped, and cases are carried in consequence to such lengths that thousands are spent on small and petty matters, which in themselves, taken at the very largest valuation, would not represent more than a very small portion of the costs which are incurred.

I in no way wish to pledge myself or the Society to the details or the exact methods by which this beneficial change should be brought about, but I suggest what must appeal to all as advisable, and simple means, such as an extension of the powers of the Building Act Tribunal in London, by which to accomplish it. The fees charged could be made to cover all the expense of the Court and its attendant officers, and would then be moderate enough to prove a mere drop in the ocean, compared to the present wasteful process. Future discussion on this subject may devise better means, but anyway it is, in my opinion, and I trust it is the opinion of all those to whom I speak, necessary that the settlement of this subject should not be longer delayed, and that the remedy should be applied at an early date.

The Society have presented a petition to the Lord Chancellor, and I have also laid before the London County Council a notice of motion for the Building Act Committee to consider this important question, and I hope for the hearty and substantial support of the whole of the Society.

The only difficulty is that the question does not appeal directly to the great body of the public who, though they may suffer in certain ways, only suffer occasionally and for the most part indirectly, but those who build and have built will, I am sure, feel the force and necessity for the remedy which we advocate, and I trust they will use also their endeavours to bring it about.

I trust, too, that the efforts of leading men in the professions of both architect and surveyor, as well as those of the legal profession, will not be wanting in the necessary effort to bring about a reform so greatly needed, and which will once and for all sweep on one side the exaggeration of claims of a petty and improper character, with all the attendant waste of clients' money which comes in its train.

THE LOCAL AUTHORITIES.

I would like to say a word or two on this

subject, more particularly as applied to London. There is in London much overlapping of authorities, and a multiplication of applications totally unnecessary for the protection of the public, and, indeed, tending rather to befog it, and to leave loopholes.

A valuable reform might be made in this direction, and perhaps when we have the New Municipalities Bill of the Government this might find a place.

A simple reform could be made by extending in the Council's hands, their powers as a Court of Appeal, with power also for the making of rules and regulations, but place entirely (except as to the necessary inspecting officers to check the local authority) the administration of such rules and regulations, and the passing of plans in the hands of the district or local authorities. Let the district surveyor also be the surveyor of the local authority. Let there be but one surveyor, with a competent staff in each division of the County of London, and only one administrative authority, the local or divisional one to pass the plans of buildings, both as to structure and sanitation, and indeed for all purposes.

Appeals from the decisions of the local authority could then well and properly lie with the London County Council as the central and head authority. Now, not only have plans to be passed through several authorities, but there is the absurdity of the London County Council having appeals against itself, a course, which in my opinion, good as has undoubtedly been its work, is calculated in the long run to lower its authority, and prevent that public confidence which there should be in its decisions.

THE STATE OF SANITARY WORK.

There is another subject, vast in its proportions, and far-reaching in its effects upon the health of the public, which requires urgent attention.

No one can fail to know that in the smaller towns and in the provinces very little inspection goes on, and houses are drained and allowed to keep or use appliances of a most dangerous class, a fact which not only keeps up, but spreads disease to an extent which many will hardly believe. Every year brings its crop of cases of typhoid and other diseases caught in country houses and country towns of the smaller class.

The remedy lies in the law enforcing a strict uniformity of requirements adapted to town and country buildings, with a regular and full

inspection, and with power to enforce requirements.

We are told to leave the town and go to the country for health, but I venture to say that the health statistics will show London and other large cities, taken as a whole, have a less death rate than many a country town and many a country district.

It cannot be said the large towns are perfect; indeed, they are far from it, and must so continue while the apparatus and system approved in one district are disapproved in the next (merely across the road), and while this uncertainty and confusion exist, this imperfect state will not decrease but will probably increase.

The remedy is simple, let the battle of systems be fought out before some competent and independent authority, appointed by the Local Government Board, and then let us have uniformity.

There is no reason by so doing to discourage improvement, but rather to encourage it, as the same authority could and, in my opinion, should have power to examine, at the instance of any Sanitary Authority, any suggested improvement and to certify it as suitable for use.

Of course, the system for London, or in large towns, cannot be the same as for a country district; but there are equally good systems of drainage for country houses as for London houses, all that is necessary is that their use shall be defined and enforced.

We cannot but hope that this important question will not be left until some terrible epidemic brings it home to those who at present neglect and sleep over it.

LONDON IMPROVEMENTS.

There is still one subject more I would like to call attention to; it has been claiming some attention lately, and is of serious importance to the good working of this vast city.

Sir J. Wolfe Barry, in his address to the Society of Arts, suggested great improvements in the thoroughfares of London. I do not question the need for the great and growing necessity for widening main thoroughfares, but I fear that before the authorities have the courage or, possibly, the inclination, to spend such vast sums as the proposals he makes will cost, the necessity will become unbearable. No doubt, with our present knowledge, we could lay out a city on much better lines than those on which London at present exist (though there is much to be said for the picturesque

and quaint appearance of many of our streets), but it is and would be too costly to try the means suggested, and the disturbance of trade centres and existing business premises would affect in a very detrimental manner the occupiers and the ratability of the district through which the improvements were carried.

It seems, therefore, that we must meet the growing want and present pressure by some less costly method. No doubt, we must press on the widening of some of the various great thoroughfares where feasible; no one will suggest that where the cost is such as the community can reasonably bear, that there should not be further and well considered improvements, but it is clear these will not meet the pressure. The increasing traffic caused by those who work in and whose business brings them in increasing thousands to this great city must be met, and we must, therefore, examine into other means for meeting the difficulty, within the power of the ratepayers' pocket.

It is, no doubt, a fair question to ask: "Are we, because great new streets are too costly, to sit still?"

It is some years ago since I first suggested subways for London to prevent the great inconvenience to traffic and business by the constant upheaval of the road surface for the laying and repairing of pipes, wires, and drains.

My suggestion went so far as to propose that the whole width of the roadway should be a subway, which could be well used for and would amply accommodate not only all the pipes and wires, but would also leave good broad ways for pedestrians, and, if it should be necessary, for bicyclists too.

The advantage of subways in saving the road surface is great. The benefit to companies for water, gas, or electric, in the facility for examining, testing, and attending to their pipes and wires must be evident and would in my opinion, prove such a saving as to make the rent to the authorities well worth paying. Thus not only could a very much increased traffic be covered by the same roadway, with its subway under, but an outlay of much less capital would be required, with considerable prospect of some return by rents. There would be much less disturbance to business, there would be no goodwill of business, or leaseholders' or freeholders' interests to pay for; indeed, the land would be obtained without cost, while the cost of the subways being almost entirely that of building, the expenditure would give employment to the great numbers of workers who live in this city, and who spend their earnings in it, and thus those who had to find the cost would obtain some return benefit from its expenditure. I must conclude, however, and content myself with what has been already said, in the hope that some of these great and pressing questions of reform which are before us may commend themselves to those whose duty it is to take note of public opinion and public necessities.

A TWO-STORIED house, No. 19, North Crescent Mews, Burton Crescent, King's Cross, has collapsed owing to the shorings giving way. The front of the house fell into the road.

The new buildings of the London Library in St. James's Square will be formally opened on Monday, December 5th. The buildings have been built by Messrs. Cubitt, and the architect is Mr. J. Osborne Smith.

A CORRESPONDENT writes:—"The bust recently purchased by the Russian Ambassador at Madrid—the Christ with blue eyes—is pronounced by experts to be the work either of Donatello or Michael Angelo. The discovery has created a sensation in the world of Art. A photograph was sent to Her Majesty Queen Victoria, who has expressed a wish to have it copied."

THE Colonel North Memorial Hall and the Plasnewydd Higher Standards Schools, Maestag, which have recently been opened, are warmed and ventilated throughout by means of Shorland's Patent Manchester Grates. The buildings have been erected from the designs and under the supervision of Mr. E. W. Burnett, architect, of Tondy, near Bridgend.

BUILDING REGULATIONS

IN TOWN AND COUNTRY.

THE interesting controversy in the Times on the subject of building by-laws in town and country still continues. Mr. W. Wykes-Finch, in a recent letter, supplies considerable food for reflection. He says:—"I not only agree with your correspondents that 'the building by-laws cause unnecessary expense and inconvenience in rural districts,' but I unhesitatingly assert that if such laws are not restricted in their operation to places and areas of an urban character very serious mischief will arise. Rural district councils have no authority under any Act of Parliament to pass by-laws. Before they can move in the matter applications must be made to the Local Government Board for urban powers. But the same section—viz., 276—in the Public Health Act of 1875 which allows this application allows also the same privilege to the 'persons' of every 'contributory place' whose assessment to the poor is not less than one-tenth of the total assessment of that contributory place; so that every parish and every separately rated area can, with a facility as great as that of a rural district council, obtain urban powers for its own better government. And, this being so, I am strongly of opinion that 'urban powers' should in no case be granted to a rural district council until it has satisfied the Local Government Board that some contributory place of an urban character, within its district, persistently refuses to ask for urban powers. I go even further than this, and say that the

GRAVE RESPONSIBILITY OF PASSING BUILDING BY-LAWS

at all should not be placed in the hands of such small and inexperienced bodies as are rural district councils. They should be framed by an expert committee of the House of Commons, submitted to that House for discussion and approval, then administered by officials independent of local prejudice and local favouritism. But in no case should they be in force outside urban districts, unless the new buildings are within, say, 30ft. of a neighbour's boundary. I do not write without experience. I have been for many years a member of the Kidderminster Board of Guardians, and, since the Act of 1894, a member of the Rural District Council. This Council has recently adopted building by-laws for the whole district, of the most drastic nature, without one line read or section discussed! though in the agricultural parishes a new building is a very uncommon sight. Indeed, owners of property in the country have scarcely money wherewith to do common repairs. To illustrate the absurdity and

OFFENSIVENESS OF THESE BY-LAWS,

let me say that my house stands quite alone, surrounded by my own fields. There is no one within half a mile, and yet, if I build, I should be subjected to the same espionage, the same dictation, the same rules and regulations, the same penalties, the same interference with freedom of action as if I were erecting a new building in the most crowded part of Kidderminster! Than this, it is difficult to conceive a more offensive invasion of a man's reasonable liberties. And not only so, but the operation of these building by-laws in rural districts will be disastrous to the interests of the working classes. I could give the names of owners of large estates who absolutely refuse to build, or rebuild, under such conditions. I know of very many who are determined to follow the same course. Self-respect demands it. Old cottages, not worth repairing, will be pulled down, but not rebuilt, and the erection of new cottages will be stopped. The cost of building in the country is considerably greater than in the town, though the rent in the town is three times that in the country. Under these by-laws this condition of things will be much aggravated. The cost will be increased 25 per cent. Thus the agricultural districts, under the blighting influence of these laws, must in

the near future decrease in the number of cottages (for a large proportion are in a decayed state); and therefore in population. Thus the working-men will be driven into the already overcrowded towns, and a grievous wrong be done them; and thus, too, the farmer

WILL BE DEPRIVED OF BUILDINGS

essential, it may be, to his making "both ends meet," through the resentment of the landlord to such by-laws and the increased cost of building. For, monstrous to relate, he could not so much as put up a pigsty without sending the plans to the district council for approval, and building the walls either on solid rock or 6in. of concrete, even though a mile away from his nearest neighbour. I shall be obliged, sir, if you will kindly insert this letter in the Times, for the question of building by-laws is fast becoming one of national importance through the reckless and unthinking way in which small bodies of little experience adopt them. They are so searching in operation, so costly in detail, so extensive in application that no authority short of the House of Commons should pass and impose such laws on the community. Dr. Langstaff writes: Experience on the Building Act Committee of the London County Council, now extending to nearly ten years, and covering the long period of the preparation of the London Building Act, 1894, involving protracted negotiations with architectural and other bodies concerned, and long proceedings before both Houses of Parliament, has made me realise the extreme difficulty of this subject. I stated before Lord Cross's Committee that the principle insisted upon by the Local Government Board—viz., that all building by-laws should be absolute, and that the local authority should have no power of relaxing the same—had led to evil results in the country, and that without such power of relaxation in the hands of the County Council it would be

IMPOSSIBLE TO FRAME ANY BY-LAWS FOR LONDON,

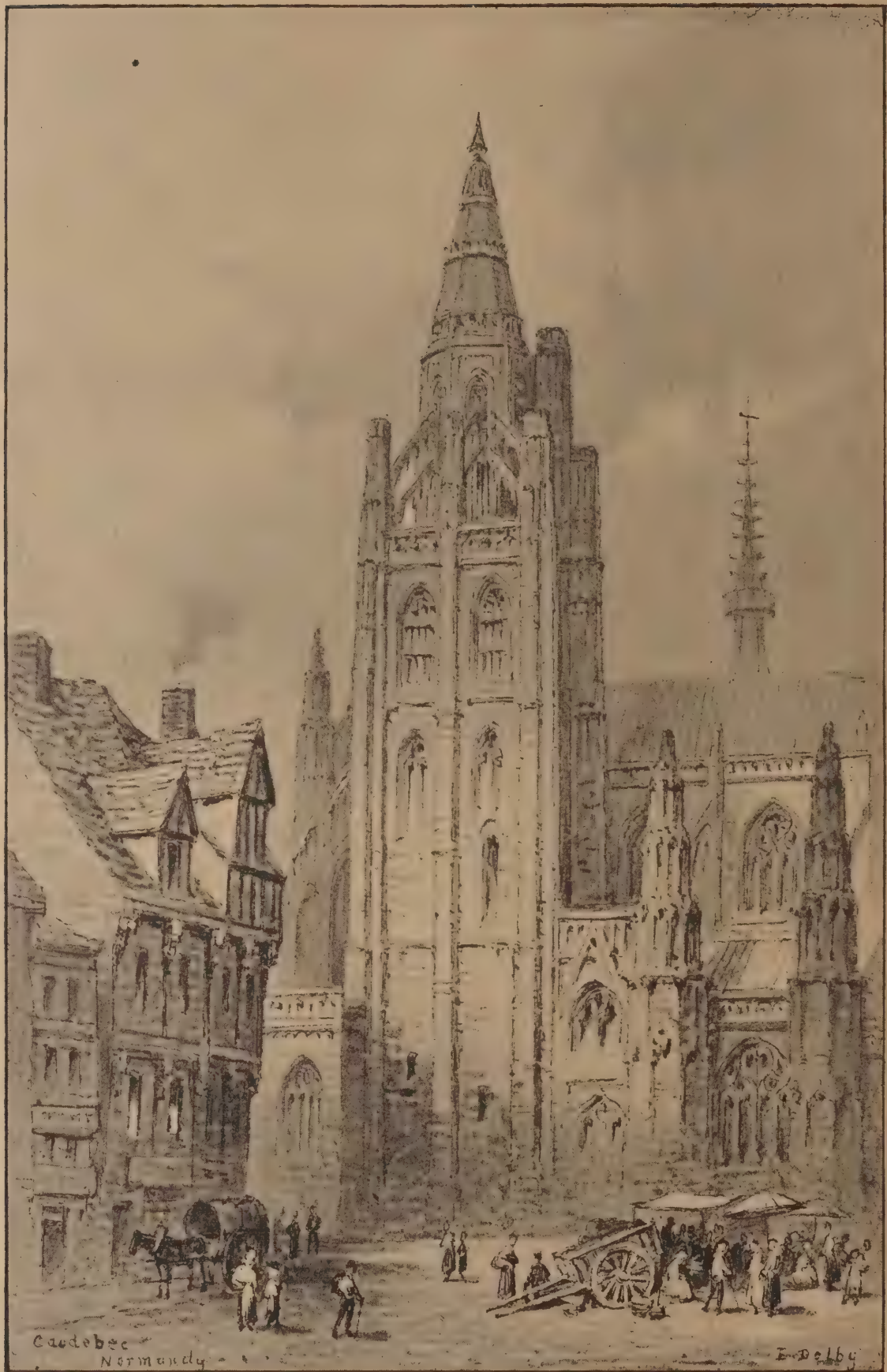
and in consequence of my evidence the House of Lords' committee overruled the objection to the Bill lodged by the Local Government Board. The truth is that the fundamental difficulty of framing building regulations is the extreme diversity of the conditions to be dealt with—e.g., even in London the difference between such districts as, say, the City, West Kensington, and Eltham, clearly demands different treatment. Your correspondent, Mr. W. Wykes-Finch, points out a general method of exemption which largely meets the difficulty—viz., in favour of buildings situate at a certain distance from other buildings not in the same occupation or the lands of different owners. Such an exemption existed in the old Act (18 and 19 Vict. c. 122, s. 6), but in a form that minimized its operation and

OFTEN PRODUCED ABSURD RESULTS.

The exemption was incorporated in the London Building Act, 1894 (s. 201, sub-secs. 11, 12), but in a form of much wider application. Dr. Poore objects that the speculating builder takes the minimum enacted by the by-laws as his model. I must confess that I do not see any means of entirely obviating the difficulty; but a liberal exemption of the kind advocated by Mr. Wykes-Finch, by freeing the builder from a variety of more or less vexatious restrictions, would give him a strong inducement in suitable cases to treat his land more liberally. This is not the place to enter into details, but certain obvious objections might be met by making some of the by-laws obligatory in all cases. Although the present building law of London fails in many cases to secure as much light and air as should be insisted upon, it still, in spite of valuable concessions to the architects, in some respects restricts without adequate reason the liberty of private individuals.

THE L.C.C. has become suddenly impressed with the fast disappearing haunts of London's illustrious dead. Having given Andrew Marvell his memorial on Highgate Hill, it is proposed to erect statues to two of the greatest citizens—Chaucer and Milton.

LIBRARY
OF THE
UNIVERSITY OF ALABAMA



A SKETCH IN AN OLD NORMAN TOWN: CAUDEBEC. By EDWIN DOLBY.



A SKETCH AT BERNCASTLE, MOSELLE. BY EDWIN DOLBY.

LIBRARY
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ORIEL AND BAY WINDOWS.*

BY PAUL WATERHOUSE, M.A., F.R.I.B.A.

THERE is something unusually humane about the rule of the Association which lays before the readers of papers, not merely the duty of producing an oration, but the subject of the discourse. The ordinary untempered request for a paper brings with it a double horror, for with the honourable burden itself there comes the duty of selection—a duty which, as the paper writer passes in review the possible titles of possible essays, so fills him with the sense of his own ignorance that the process of choice becomes merely a process of rejection, followed eventually by recourse (or shall I say relapse?) into some faltering selection of a theme where, for the moment, the mist of nescience seems to hang less thickly than over the surrounding regions of architectural learning. The course adopted by the Association is more humane. The committee gives one a subject—by what process of papers in hats, or balls in ballot-boxes, I do not profess to know—a subject and a man are mated and for better or worse, are introduced to one another. There is

BLESSING IN THE SYSTEM

—it saves a world of trouble, and is the means of introducing a large number of middle-aged practitioners to subjects of which they had previously no knowledge whatever. For the writer who is faced by an unresponsive title goes to his "Parker's Glossary" and his "Architectural Dictionary," drinks eagerly, if not deeply, at these fountains of knowledge, and comes smiling to his audience, refreshed with the sense of having put himself at least abreast of common knowledge in the subject which he has so lately made his own. Alas! for the student of oriel and bay windows; the dictionaries give them but cold comfort under either heading. You will find there, to be sure, a wonderful turmoil over definitions and derivations. You will learn there that some consider the word oriel to be originally and properly applied to the projecting

WINDOWS OF MEDIEVAL DINING HALLS,

or to that part of the refectory occupied by the monks who were slightly indisposed, while others hold that it originally connotes a recess for an altar or for prayer, whether a window or not, and that it certainly cannot properly be applied to the bay window of a banquet hall. *Orare*, to pray, is, say some, the foundation of the word, making it, apparently, synonymous with "oratory," while others see in it the Saxon for an "eye-hole," though why they should overlook the fact that *oreille* (a seventeenth century spelling of the word) means in French, an ear and not an eye, nor why again the oriel window should be considered more of an eye-hole than any other kind of window is more than I can say. Another derivation connects it with *Areola*, a diminutive of area which in certain senses is the equivalent of the "halo," of Greek origin—and, indeed, the similarity of the term aureole (undoubtedly based on a *reola*) favours this source, which is probable enough when one considers that circularity is the essence of the "halo." Plunge, if you desire it, into the controversy on this topic in the IVth Series of Notes and Queries, and you will learn at least enough to induce you to drop the use of the word altogether. Probably you will conclude with me that the ancients used the term a good deal more loosely than even we are tempted to do; and that an oriel,

LIKE A "YORKER" AND A "GENTLEMAN,"

is one of those things which can be better understood than defined, also that it makes no great matter for example whether you restrict the term to bay windows which are corbelled out, or extend it to those whose form continues down to the ground. Busybodies have been at work, too, even with the innocent term bay window, which most people can understand by

the light of nature as meaning a window whose bulging form, whether polygonal, semi-circular, or segmental, produces on plan a bay-like addition to the room it affects. But some wiseacre has produced a glossary of terminology to qualify the word. We are taught, for instance, of the "square bay" and the "canted bay," of the "compass bay" and the "square and compass bay," of the "bow bay" and the "square and bow bay," and lastly of an elliptic horror entitled the "cabinet window!" A modern tradition often enforced upon young gentlemen under articles of pupilage confines the term "bow" to the circular forms, and "bay" to the rectangular or polygonal, while yet another refinement of etymology would banish the word "bow" altogether. Let it suffice to say on this unprofitable topic that the ancients called them all bays, whether they had or had not angles in their composition, and that there are many examples to which we cannot deny ourselves the luxury of applying the gracious and expressive term bow. Thinking the matter over, it has seemed to me that we may well avoid in this evening's discussion both the etymological question and the archaeological. An historic treatment seems undesirable, and even the constructive aspect, important as it is, may well be laid aside for a season in favour of the attractive subject which I may call, for want of better title,

"THE MORALITY OF THE BAY"

—I mean its properties and its proprieties, and the rights and wrongs of its uses and significations. Has it ever occurred to you, in thinking about bays, that they are bound to be either the glory or the shame of the building to which they are applied? A bay window is, in the literal sense of the word, an extravagance, by which one means, not merely the escape of money from somebody's pocket, but a deliberate variation on the part of a building from the normal boundary lines of common construction. Now, it is in the nature of extravagances of all sorts that they must either be successes or failures, and the rule applies to bows and bays. They challenge attention both from within and from without, and if the attention they attract amounts to unfavourable criticism they bring shipwreck on the building they encumber. Let us think of the objects for which these excrescences exist. They are few, and consist of:—(1) The desire to increase either the

SIZE OR THE AMENITY OF A ROOM.

(2) The desire to enable the occupants to look out obliquely or even sideways without putting their heads out of window. (3) The desire to attract oblique sunshine to a room; or finally (4) A desire which is at once the most attractive and sometimes the most fatal of all—pure ambition of a worthy or unworthy kind. The word ambition is as happy in its literal application as was the word extravagance. Meaning as it does a certain "going round" it touches in its primary and literal no less than in its secondary senses the essence of the ambient bow. Now it may seem absurd to some of you to go thus intimately into the rationalities of an architectural feature; but I suspect that we architects can lose nothing by any attempt to study the true significance of any of the items out of which we compile our compositions. There is one special reason for thought in dealing with such a matter as this—namely, that if we find ourselves dealing in bay windows merely for looks, it is of vast importance to be sure of

THEIR EXCELLENCE AND OF THEIR PROPRIETY.

I am not arguing that utilitarian reasons only are the proper grounds for their application, but I wish emphatically to mark the necessity of ensuring appropriateness in the bay which is merely a luxury. We are all familiar with the commonest of all examples of inappropriate bays—I mean the almost invariable excrescence which decks the speculative villa. But let us be sure, in condemning it, that we condemn it on the right grounds. Ambitious as these features appear, there is generally an economic reason for their existence. Sometimes they are one story high, sometimes two, and, in either case, the use of this un-

lovely addition is generally dictated by one of Nature's fundamental laws—the economy of space—which is the economy of material. The one-story bay tells the passer-by, not merely that the speculative builder wished to give a spurious gentility to his drawing-room at the expense of the garden, but that, desiring to put on the ground floor a room of larger capacity than that of the floor above, he hit upon the bay as the best expedient. Even where the bay is two floors high, thus belying the reason just given, another cause may be at work. Without the bay, there would have been the need of making the wall of the large front room line with the wall containing the front door; in other words, the room would have had to be cramped or the entrance lobby unduly lengthened. In fact, the common villa bay, so far from being an ambitious luxury only, is generally born of the desire to keep down the cubic contents. So much for its shape, its plan, and its capacity; as for its decoration, that is another matter. That it is generally stop-chamfered on every stop-chamferable surface, that it has what they call a patera in the middle of every lintel, and that it boasts of columns of the fern-leaved order of Gothic—all these things are to its shame, but they do not disqualify its original title to existence. Someone should write an article or even a book on the cost of ugliness. The pathetic squalor of middle-class homes is greatly due, not to the absence of unattainable embellishments, but to the addition of the undesirable. I know a town in a good stone country, inhabited by persons of comparative wealth (for it is the country home of a neighbouring business centre), the architectural appearance of which has been hopelessly ruined by sins not of omission but of commission. I suppose that if, on an average, £10 less had been spent on everyone of the houses in that place, it might have been comely, whereas to-day it is loathsome.

IT BRISTLES WITH BAY WINDOWS,

of course, and they have nearly all got stone dressings, but there is scarcely a square arris to be found in the town, and not a chamfer but is mutilated with fancy stops. If all these chamfers had been run out to their legitimate terminations, or, better still, if half of them had never been at all, if all that square sunk foliage had never been square sunk, if all those pateræ (their creators call them "paterasses") had never been cut, the builders might have been richer, the rents might have been lower, and the town itself might have been natural and beautiful, instead of looking like the purgatorial region which lies between the Angel, Islington, and the Seven Sisters Road. Alas for the villa bay! Its existence is justified, but its usual development is one of the darkest sins of architectural wantonness. I have mentioned, as one of the legitimate causes of the bay window, the desire to obtain an oblique view from the room. To this cause is due the well-known and often gracious feature which one may call "the seaside bay;" with this we are all familiar, and, happily, we are able, among the bays of this class, to distinguish a successful as well as a disgraceful variety. The Englishman's cultivation of the seaside dates practically from the last century, and probably the desire on the part of landladies to claim a sea-view as an excuse for additional rental is coeval with the birth of watering places. It is to this excusable rivalry in the possession of

A GLIMPSE OF SALT WATER

that we owe, in most marine towns, the amiable belied fronts of the streets which run at right angles to the coast line. Without the use of bay windows a sea view in such streets would be impossible; with their employment comes the possibility of such a view—a little strained perhaps, in the further buildings, but still appreciable; just worth having and just worth paying for. Indeed, so identified in our minds is a street of bay windows with the mental image of a seaside spot, that the very look of certain houses suggests the sea as much as do bathing machines and a smell of tar. There are people who will tell you that they can smell the Channel on the north side of Hyde Park, but it is more a question of eyes than

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nostrils. It is, in fact, the existence of a row of smiling, sunlit houses planted along one side of a broad street only, and, above all, the prevalence of bay windows, and especially of bay windows in certain transverse streets that cultivate the illusion—one falls irresistibly into the trap. You remember how in the play of Liberty Hall the old man says there are more "burials" than "blooms" in Bloomsbury. One might transfer the pun to Bayswater, where there are more bays than water, but the former do so connote the latter that they set one at least thinking of sand and waves, though all the time the houses are bowing and bellying and jostling round one another's shoulders for a peep, not at the blue ocean, but at the green trees and grass.

OH, THESE SEA-SIDE BOWS

—the real ones (not the Hyde Park ones)—how well we know them! The modern varieties are tall and pert, not circular, but octagonal, and bastard octagons at that, with one gaunt oak-grained sash in the centre light and two thin and equally tall ones in the side lights. And then the brickwork all covered with pale stucco, and the weak lead roof that lets the wet through! The old ones, how different and how insidiously attractive! As I write I think of one which, on plan, is about a third of a circle; it is divided into three sashes of equal size, all made circular, of course, and between them comes no brickwork, but just the sash boxing, so that, in fact, the entire construction is of wood; on the floor above the running of the front room over the entrance passage made the bay unnecessary for space, but unwilling to give up the lines of the bay, whose delicate curve means so much to the expression of the house; the designer continued the treatment, and added to its emphasis by a light metal roof of similar form, covering a curved balcony, with a balustrade of ironwork. A great deal of the charm lies simply in the shallow curve and in the appreciation, however latent, of the slight extravagance of the circular joinery. The cheap building of last century or of the early nineteenth century seems never to have denied itself circular joinery; but to-day—probably owing to the prevalence of machine-made mouldings—circular work is apparently the first thing one has to give up in the attempt to save money. In the circular sashes one's satisfaction rests not merely in the delicate form of the sweeping segment, but also mentally—and perhaps unconsciously, in a sense of the added labour, in which there is a gleam of Ruskin's lamp of sacrifice. Not that the later nineteenth century knows no extravagance. The householder who shrinks from laying out money on the refinement of a long-radius curve would scorn to be without his stained-glass "kingfisher."

IN THE PANELS OF THE FRONT DOOR,

and will probably run to tile risers for the steps. Can it, oh, can it be a fact that every age of building finds at last some corresponding period of admiration, and will it ever be the lot of some degraded generation to cherish a cult of to-day's abominations? Will there be some day talk, among the as yet unborn, of the good old days of our great-grandfathers and their cathedral-tinted door panels, their delicately tiled halls, their winsome stop-chamfers, and their charming bay windows, the angle piers of which were formed sometimes of quaint wire-cut bricks, covered with grey cement rendering, and sometimes with dainty cast-iron columns with neck mouldings—mark the extravagance—four times the true Palladian size, and branching capitals cast in the similitude of the common polypody. Such a day I hope can never come; or rather, when the time does come for our great-grandchildren to pass judgment on what is left of the bricks and mortar of to-day, they will have before them such a vision as we cannot have in any of our retrospects. There is in the work of to-day a visible contrast between the good and the bad such as is not to be found by any searcher of our time in the recesses of our past. The contrast line, unhappily, does not lie between architects' buildings and builders' buildings; for, to our shame be it spoken, there

are things bred on the drawing-board of men with brass plates which have to find themselves classed on the wrong side of the line. But that the contrast exists there can be no doubt, nor can there, happily, be a doubt that there are many beautiful things—bay-windows among them—which will do as happy resting-places for the eyes of our antiquarian descendants. But we are getting away from the bays, which, to do them justice, set one thinking and drive one's thoughts afield. In bays of the circular form—and, indeed, in polygonal ones as well, but perhaps specially in the former—it is important to remember, as a designer, that the plan form, whichever is adopted, is the most important thing about them; that it must be cherished and led up to, and that finally it will accomplish more of its mere self than a person of moderate experience would expect. Perhaps it seems unnecessary to say this, but there is a special reason for emphasising the observation. In the actual process of designing we deal necessarily with orthographic elevations as a means to our end. A similar bay window put on to an elevation is

A COMPARATIVELY DULL THING.

You as architects, realise its circularity on your own or other men's drawings, especially on your own, by the toil of drawing in the mullions in oblique elevation. But the drawing does not tell its full tale of effect, and you may be tempted to attach an (apparently lacking) interest to the member by some addition to the simplicity of its lines—some crowning feature, for example, or an addition to the centre of the cornice, if there is one. In this there is danger of error. The circular or segmental plan once adopted, you cannot serve its end better than by the accentuation of the horizontal lines which partake of the circularity. Herein lies the difference, or one of the main differences, between those old bays that we admire (be they stone and Tudor or wood and Georgian) and the modern horrors in which hang the "apartment" labels. The modern bay makes for height in its apertures; it avoids bars, especially horizontal bars, in its glazing; transoms are probably altogether absent, and the piers are made thick and heavy so as to break even the moderate continuity of the sashes meeting rails and of the heads and sills. With the older types this is different. Copious window bars (or in stone work well defined transoms) perform the double office of

BREAKING-UP UNDUE VERTICALITY

and of emphasising the plan-form of the bay, while the small piers, mullions, or sash boxes only produce as much intermission as the eye (that unconscious arbiter of stability) demands as a guarantee of sound construction and as a preventive of the worst of all faults—the over-bowing lintel. If you do not know what I mean by this last, ride down Oxford Street on a 'bustop and look at the excrescence which is the sole feature of the Frascati restaurant. To design a bay of this description, you take a centre on the frontage line of the building (or a little outside it if you prefer to increase the effect), and turn a wall circle the inner radius of which is only about three times the length of the thickness of the wall. Here you have produced on plan a semi-circular bay which you proceed to embellish by the insertion of one mullion. To be sure, the omission of mullions altogether would have made the thing more startling, but the one mullion gives the public enough to reflect about with some sadness. As they pass the building they naturally and generally view it obliquely; the eye glancing across the curve which looked so fair on plan, and at least respectable on elevation, takes a straight line from the edge of the single mullion to the jamb, and above it they see transome and head vaunting their unsupported circularity. This sad example leads to what one may call

AN AXIOM OF ALL GOOD CIRCULAR WORK,

that the vertical supports must always be sufficiently close together to prevent the appearance of the horizontal members being unsupported. This rule is, in one sense, the counterbalance of what I mentioned before—the need of emphasising the horizontal members; but it is surprising how little, how

slender, the vertical supports may be and yet satisfy the eye in this matter. In the old inn windows of many a coaching hostel the slimmest glazing bars between the glass panes are enough to prevent the eye being troubled by any optical instability. In the splendid segmental or semi-circular bays, which are the glory of some of the country houses of our English Renaissance, the mullions are always so placed that there is no chance of offence in this respect. It should be borne in mind that the relative closeness of these vertical supports is necessitated and regulated, not by the measurement of the length of segment, but by the length of its radius. The flatter the bay, in other words, the less need for the frequent support. It will readily be understood that the greatest importance attaches to the way in which a bay is covered in. Obviously a bay, like other structures, can be roofed in either of two ways—either with a flat roof or a sloping one. If your bay extends upwards to the whole height of the building its roof may possibly form a part of the general roofing of the house. This, which is often a successful treatment, needs handling with great caution, especially if the bay be large and the building comparatively small. In a very large structure the roof of the bay, whether polygonal or circular, can appropriately be formed as a member growing out of the rest of the roofing; or it may even, if the plan of the bay be part of a regular polygon, or of a circle,

TAKE FORM AS A TURRET,

and rise above the apex of the normal roofing. It is, however, very often the lot of a bay window to be the largest feature; or one of the largest features, of a comparatively small house, and in such a case the use of a high-pitched roof of such wide span, with eaves at the level of the general eaves, will often result in the production of a feature whose size will swamp not only the building, but with it the bay itself. It may easily happen that the architect finds himself driven to the use of a flat invisible roof for his bay for this very reason, that any form of sloping roof would work itself out into something too gigantic for the scale of his building. There is one treatment, popular some few years ago, which I think we may unhesitatingly condemn as inappropriate in nearly all cases. It abounds in the neighbourhood of Fitzjohns Avenue, and consists in the cheerful expedient of clapping a gable of the full width of the bay on to the unfortunate erection, which is placed in the difficulty of reconciling its own polygonal form with the square structure which surmounts it. The problem is usually resolved by one of two expedients. Either the canted angles of the bay are treated as gigantic chamfers, and brought to the square by

THE USUAL LATTER-DAY EXPEDIENT

of a vast stop, or corbelling, or the gable, which is at times half timbered, gets its triangular soffits supported by a bracket. These expedients, particularly the bracket business, are unhappy at best for they cast a shadow on to the splayed windows, besides offering gratuitous harbourage to sparrows and their nests. If a bay must be surmounted by a gable, there are ways of getting over the difficulty. One may make the bay itself square and so produce one of the most beautiful features that can be devised. Indeed, so successful is the appearance of the square bay under a gable that where this form is used one can tolerate a greater width in the gable, and a resultant soffit on either side, though the triangle soffit left by the polygonal bay is so far from tolerable. All good rules have their exceptions, I suppose, and there are buildings of bygone days which successfully carry through even the problem of the square gable on the canted bay. You may see an example in the Talbot Inn at Oundle. The homely satisfaction of this building goes to prove that our forefathers could sometimes succeed where their descendants generally fail. On the whole, one of the most beautiful treatments, though a very unusual treatment of a gabled bay of polygonal form, is that of which one finds an example at Weston, an

old house between Leeds and Ilkley. In this case the front or flat wall of the bay runs up to form the gable face, and the splayed sides are surmounted by parapetted wings with finials. The wings having horizontal copings do not, of course, exactly follow the line of the roof. Viewed from the back, if one could so view them, they would present the appearance of triangular blanks, but there is no great harm in this, nor, indeed, would there be any harm in their following the roof line, sloping downwards. A gable formed on a canted plan is often very successful, as those will agree who know the gabled apse of St. Michael's Church at Folkestone, where the gable is, like this at Weston, so to speak, three-sided. In cases where the bay we are dealing with has walls which are lower than the main walls of the building, the roofing difficulty is often nearly as great, at least where pitched roofing is attempted; and the difficulties in this case are caused by the intersection of the bay roof with the vertical face of the main wall behind. It is obvious that the roof of a segmental bay, if projected at an oblique angle on to the main wall, produces nothing more or less than one of those eccentric outlines which the geometers know as conic sections. With a polygon—if it be (as it generally is not) the exact half of a regular figure—there is no great difficulty, as the centre of the figure will line on the wall line, and the roof can be brought up to a true apex with regular mitres on the hips. But when the figure formed by the plan of the bay is something less than the half of a regular polygon,

A LITTLE COOKING

is sometimes indulged in with results which are elegant on the elevations, but disastrous in the eyes of ordinary spectators, who cannot be induced to see things as they would appear on a drawing-board. Generally speaking, canted bays are not parts of regular octagons, but have their canted sides less than the front. In such a case there may be a small piece of straight return between the cant and the wall. It then becomes necessary to regulate matters so that the hips of the canted sides shall exactly meet on the wall line, otherwise a roof is produced which nothing but cooking can save, and which the said cooking will generally shipwreck. In this connection it is well to observe that many of the best old examples, particularly in Tudor and Renaissance work, have no square returns at all, and further that the angle of the cant is frequently flatter than 45°. There is, to be sure, an objection to the practice of allowing a very flat cant to die into a wall face without the intervention of a square return, namely, that the mouldings of the bay become unduly developed in their incidence upon the wall. This difficulty has to be met either by

EXTREME MODESTY ON THE PART OF THE MOULDINGS

which have, in fact, to moderate their projection, or by continuing the same mouldings on the wall face as strings or cornices. On the whole, there is a good deal to be said against pitched roofs for bays of the lower description, unless it be in the case of those with roofs of weathered masonry. In these it need hardly be pointed out, the *planning* must be done in strict regard to the form which will be brought about by the intersection of the roof slope with the back wall. There is one simple consideration which often altogether upsets the possibility of applying a stopping roof to a bay, namely, the height which such a slope occupies upon the wall space. If your bay projects 3ft. it is obvious that with a slope of anything over 45 deg., a pitched roof with its flashings will make a window for the room above almost an impossibility, unless its sill be at an unusual height from the floor. The corbelled windows, to which we generally and perhaps incorrectly apply the term "oriel," are frequently covered with high-pitched roofs of masonry, but with this exception the bays of mediæval, Renaissance, and Georgian architecture—in fact, all

THE BEST BAYS OF OUR ANCIENT PERIODS

are covered with flat roofs, or with roofs so flat as to be invisible behind their parapets. The roof in these cases being of no account

architecturally, it remains to be considered how the parapet is dealt with. Some of the best examples in this, as in other departments of Architecture, are the quietest. I noticed the other day, in a remote East Coast village, a plain brick house, whose only challenge for attention was a front door and two bays. The bays were canted, and very flat, and they extended to the whole height of the wall—in fact, their coping, a 3in. York stone, was level with and identical with that of the main house wall. Our modern Georgians would have put a ball at each of the angles perhaps, and the balls would have looked very well too. I should not blame them. The composition I am speaking of, simple as it was, did without the balls, and looked as nearly perfect as things of the kind can look. It was as if a plain brick front, adorned only with the necessary openings, and its equally necessary coping, had been taken and bent in two places to form the bays which, with the door, were the only ostentations of the house. The roof, of course, ran straight, did not break over the bays, and the slight projections of the bays were covered by a lead flat, which was little more than an extension of the gutter of the main roof. In these cases we have the simplest treatment, which, however successful, is no argument for the suppression of all more ambitious conceits. Parapets in all ages have been things to play with, and the bay being, as one might say, the luxury-point on a house's front, is not the feature to forego all licence. Our old friend, the battlement, used even by the ancients, as much for ornament as for the defensive objects which its warlike name implies, is a frequent infester of the tops of bay windows. He is not inadmissible, but he should be used with care. Too big he becomes gigantesque and ludicrous; too small he is liliputian and again ludicrous. Even when the proportions are sound he may break up indecently the horizontal continuity which I have spoken of earlier as one of the secrets of success in a bay. Open work of most kinds in the parapet involves piers, and these again, though very valuable in the canted bay as implying strength at the angles, may introduce an ill-placed verticality. Our modern trick of the festooned or swooping outline is sometimes happy, but is better employed on the straight-sided bays than in the circular, and the same may be said of finials (whether balls or other forms) unless they occur with such frequency as shall cause an effect of *series* so as rather to carry the eye along the line we are emphasising than to interrupt that emphasis. Where indulgence is taken in open-work parapets or in finials or other means of breaking the outline, it is still possible to maintain the emphasis of plan form by a cornice of some vigour. There is, especially in the circular forms of bay, a marvellous charm in the simple bending of a moulding, however unelaborate, to the selected form. Even a plain unmoulded band, say of stone, among the brickwork has its value, and in cases where the bay is not mullioned, but pierced with large sash openings, it is difficult to over-estimate the importance of all the horizontal bands in giving continuity to the form. A base will often help—even a single plinth with the smallest possible projection; just enough to catch the light and continue, so to speak, the message of circularity. It is time to say something of those bays whose form is not continued downwards to the ground level. The simplest way of treating such a feature is obviously to cut it off flat, and, strange as it may seem, there are many examples of such bays on a small and homely scale and in wooden construction which are singularly successful and happy in effect. The bare idea is contrary to all one's notions of propriety, and the bald simplicity is helped in many cases by a slender wooden corbel or cantilever, which makes no pretence of really doing the work; but the fact remains that in many old villages, such as these which happily still surround London, there are small bays of this description with absolutely plain soffits which are not by any means displeasing in their appearance. The corbelled-out bay, to which, as I have mentioned before, some authorities restrict the name "oriel," is a more favourite feature in

foreign Architecture than in our own. If you look through the pages of those two monumental works on the Renaissance—I mean the *Denkmäler Deutscher Renaissance* and Mr. Gotch's book on our English buildings of the same period—you will be struck by the fact that, whereas bay windows abound in both, the German examples are very largely of the corbelled-out variety, while the English ones are almost invariably of the simple, solid, down-to-the-ground type. Where the Englishman broke loose was in his timber work; his bays in woodwork are sometimes marvels of projection, but in stone the Briton was ever more modest than his foreign rivals. It may be said to the credit of the English that they have never been very over-reaching in the matter of corbels. Visible stability, even in the wildest days of the early Renaissance, has always been as much revered in English architecture as it was ignored elsewhere. There are nations whose natural impetus has led them in Architecture to the production of portents. It has been their aim to make stone look like a lace pocket-handkerchief, or to run it fine with corbels in real buildings as a child sports with gravitation in his box of bricks. These tricks have not been English tricks, and where they grow on English soil they are of foreign planting. We may be known by our bays and bows as by other things, and our solidity is something of a virtue. At the same time, one must allow a certain beauty to even the extravagant German frolics. Those bays in particular which grow out of the angles of a building are sometimes of singular grace, and when they are of the square type are often so arranged as to do no violence to the sense of stability. I had promised not to go into the construction question, but there are one or two points of appearance so closely allied to construction that I cannot conclude without a reference to them. First, as to bays

AT THE ANGLE OF BUILDINGS.

It is a common fault, and a perfectly avoidable one, to so place a bay at the corner of a room that the carrying of the wall angle above it becomes to inquiring spectators a matter of conscious or unconscious anxiety. I am applying principally to villa building. Of course one knows there is some jugglery of rolled steel joists going on out of sight, but there is no reason why the unconscious faculty which asks building construction questions on its own account should have been worried at all. It is perfectly easy to so plan a bay, circular, or square, or polygonal that the normal wall angle shall be either upon or slightly outside the line of the bay. This gives no detriment to the effect within, and is a great relief to the spectator inside. To have anything so cardinal as the angle of a building apparently descending into the untrustworthy embrace of the lead flat over a drawing-room bay is, to well-ordered minds, a sin. There is also sometimes a sin in the popular collegiate device of a corbelled bay over an entrance-archway. It may be all right in appearance, as well as in construction, particularly if the corbelling is not pressed too hard on to the arch. If well arranged

THE CORBEL AND ITS BURDEN

seem only to be paying a compliment to the stability of the arch, but if once you get anything approaching to a collision between the arch moulds and the corbel the result is miserably weak—at least in looks. If close quarters are essential some form of keystone treatment is the only possible expedient. One may make a Classic or semi-Classic keystone the base of a corbel where it would be impossible, on grounds of appearance, to let a corbel take liberties of trespass with a Gothic arch. It is time for me to draw these rambling remarks to a conclusion, and I feel the lack of any great central doctrine or leading truth with which to pull the subject together. These bays of which we have been speaking grow more in the house than in the palace; indeed, the monumental styles of Architecture find less opportunities for their use than the more strictly domestic. The bay has no place in the Palladian method, and though one may find here and there a Classic clubhouse, whose

smoking-room has an ex-crescent window claiming the name of bay, you will discover it to be disguised outwardly

BY SOME TORTURED COLONNADE

whose insulted entablature seems to be only waiting for the time when it may go back to the straight again. Gothic Architecture and the freer Renaissance styles gave the opportunity of using bays even in buildings of size and dignity, but the bay as we have ordinarily to deal with it, is the appendage of a house—of a home. Its importance as part of a design can hardly be exaggerated. It is, if one may use a homely simile, like the nose on a face. Add 10 per cent. to its size, or take a degree from its flexure, and you may ruin the countenance—I should say the elevation—to which it belongs. A young architect not infrequently opens practice by “throwing out a bow” for a relation. The simple manoeuvre is thought to be a safe task to entrust to an unrisen genius. Confiding friends! They little know the risks they run. To be sure, the money-hazard is less than of the cost of a house, but they little understand the test to which they put their aspiring architect. You know Tennyson's poem of the flower in the crannied wall—

“If I could understand,” he says,
“What you are, root and all, and all in all,
I should know what man and God is.”

The knowledge of the little is a test, in fact, a proof of the knowledge of the great—of all. So with your bit of a bay window. It isn't any fool's job. There is a task for eye and hand, a task for the senses of proportion and propriety, a task, in fact, for all the powers that go to make an architect even in the least of these trifles. Bays and oriels are not to be despised. If a man can design them, it is, perhaps, a sign that he can design most things. “Throw out your bays” by all means, and if you can do them worthily you are probably capable also of throwing up your town halls and your palaces.

THE parishioners of St. Lawrence Jewry and St. Michael Bassishaw met to consider what steps should be taken to remove the Sacramental plate, the fine old Grinling Gibbon carved work, and the monuments, for which St. Michael's, one of the creations of Christopher Wren's architectural genius, is famed. The two parishes, by a recently-formulated scheme of the Ecclesiastical Commissioners, are now amalgamated. It was resolved to apply to the Commissioners for a faculty to remove to St. Lawrence's the plate and church services. As to the monuments, the Rector said it would be difficult to find room for them, as St. Lawrence Jewry was at present a veritable Campo Santo with its many memorials of the dead, and it would be as well to leave their future disposal in the hands of the Ecclesiastical Commissioners when St. Michael's is demolished.

WRITING to The Times in connection with the proposed widening of High Holborn, Mr. H. C. Jones, Clerk of the Board of Works for the St. Giles District, recounts the circumstances of the suggested improvement. He says:—“The attention of the Board was first directed to the desirability of an improvement being effected when the old buildings were demolished. On May 11th, 1898, I addressed a communication to the Clerk of the London County Council urging that the opportunity should be seized for carrying out the much-needed improvement. Further communications passed between the Board and the Council upon the subject, from which the Board were led to believe that their recommendation would be adopted. On July 19th last the Improvements Committee of the London County Council presented a report recommending that the Board's suggestion for the widening of High Holborn between Southampton Row and Southampton Street to 70ft. should be carried out, but the reception of the report was opposed and the matter stood over. At the next meeting the Improvements Committee presented a report stating that, upon reconsideration, they had determined not to proceed further with the improvement and withdrawing the recommendation.”

Bricks and Mortar.

EFFINGHAM HOUSE, ARUNDEL STREET,

November 30th, 1898.

“I know what it is to live in a cottage with a deal floor and roof, and a hearth of mica slate; and I know it to be in many respects healthier and happier than living between a Turkey carpet and a gilded ceiling, beside a steel grate and a polished fender. I do not say that such things have not their place and propriety; but I say this, emphatically, that the tenth part of the expense which is sacrificed in domestic vanities, if not absolutely and meaninglessly lost in domestic discomforts and incumbrances, would, if collectively offered and wisely employed, build a marble church for every town in England; such a church as it should be a joy and a blessing ever to pass near in our daily ways and walks, as it would bring the light into the eyes to see from afar, lifting its fair height above the purple crowd of humble roofs.”—JOHN RUSKIN.

AT last the committee intrusted with the selection of the piece of Architecture to be copied for the forthcoming Paris Exhibition has come to a decision. The British pavilion in Paris will be in every exterior detail a reproduction of Kingston House, Bradford-on-Avon, Wilts. This is considered to be one of the handsomest examples of seventeenth century Architecture in England, while the house has many historical associations. The replica to be erected in Paris will provide accommodation for the Prince of Wales, when, as is expected, he visits the exhibition. Except on those occasions the house will be open to visitors.

A DEPUTATION from the Society of Architects has just waited on the Lord Chancellor, and presented a petition praying that a Parliamentary Commission should be appointed to inquire into the present law with regard to ancient lights, with a view to saving the large amount of moneys being expended in determining the rights of owners in regard to the same. The deputation was introduced by the Earl of Hardwicke, and comprised Mr. Walter Emden, J.P. (President of the Society), Mr. Silvanus Trevail, J.P., and Lieutenant-Colonel F. S. Leslie, R.E. (the Vice-Presidents), Mr. Ellis Marsland (Hon. Secretary), and Mr. H. Morse Hewitt (Morse Hewitt and Farman). The deputation proposed that a Building Act tribunal of the London County Council should be appointed to deal with, prior to the commencement of building operations, applications made by owners of buildings to define the limits within which they are entitled to build, having regard to the adjacent properties, and also a similar tribunal for other parts of the country.—His Lordship, after discussing the matter, informed the deputation that he would give the matter careful consideration.

ONCE upon a time a municipality—we think it was Brighton—were seriously annoyed by the vagaries of an elderly citizen of large means whose hobby it was to buy up house property in the town and allow it to remain unoccupied for months and years. The result was not only to render ugly the streets in which these derelict tenements with their blindless dirty windows were situated, but also seriously to diminish the rateable value of the town, since no rates were chargeable on these empty houses. Without entirely approving the tactics of that elderly gentleman, we could almost wish, says the Globe, that some millionaire, or better still, some syndicate of many millionaires, would devote themselves to buying up vacant sites in London, and keeping them vacant. Though it saddens a Londoner to see some more or less historic building come to the housebreaker, yet for a few weeks or months he is a little comforted by the new sensation of light and air in streets which had long been strangers to these blessings, and by

the unaccustomed vistas which the demolition has opened to his gaze. Not long ago Drury Lane was for quite a considerable period one of the breeziest thoroughfares in the metropolis by reason of the large number of houses which had been simultaneously pulled down there. Just now Holborn is in the same desirable condition owing to the destruction of Furnival's Inn. But it will not last. Already the masons and the bricklayers are at work on the foundations, and very soon they will have raised some gigantic building, whose architectural beauties will not console us for the light that it will shut out.

IF there is any real necessity for the establishment of the Central School of Arts and Crafts which is projected by the County Council, some serious failure to fulfil their professed mission must be credited, says the Globe, to the Government Art Schools at South Kensington and elsewhere in London. These particular centres of Art education are supposed to exist especially for the benefit of the designer and craftsman, and to offer advantages to the student of the applied arts which are denied to the would-be artist. Yet in all directions are being established Polytechnics and technical schools independent of Government control, and managed on lines that are quite distinct from those followed by the Science and Art Department. All this implies that the system to which the official educators are committed is not recognised as either complete or efficient.

SOME definite changes in the policy of the Government schools would certainly seem to be necessary if they are to maintain their authority. If they are to be places where picture painters can be trained, masters must be provided who have a sound acquaintance with the principles of pictorial art; and if the claims of handicraft are to be preferred, the teaching must be in the hands of men who know by actual experience what is most likely to be useful to the craftsman. As things are at present the Science and Art Department is being ousted from its position because it caters properly for neither class of students; and the work it might do is being taken from it by other bodies which are better in touch with the educational necessities of the moment. But this duplication of schools throws upon the community that has to pay the cost of these competing establishments a burden that is, to say the least, very inconvenient.

A CORRESPONDENT, writing to the Times in reference to Sir John Wolfe Barry's address on London Highways, emphasises the necessity of every opportunity being grasped for opening new thoroughfares and widening those now existing. “That this necessity is imperfectly appreciated,” he proceeds, “is evident in the case of the Cheapside improvements now about to be made between Newgate Street and St. Paul's Churchyard. The demolition of all the houses immediately behind the Peel statue affords an opportunity for completing a portion of the scheme of Sir Christopher Wren, referred to by Sir John Barry, and it is only natural to suppose that the City Corporation would jump at such a fine opportunity for opening up in a wide thoroughfare the northern roadway of St. Paul's Churchyard, now barred and useless for wheeled traffic.”

BUT what are the facts of the matter? The block of buildings at the corner of the churchyard, now occupied by Mr. Nicholson, is the property of the Bridge House Estates Committee of the Corporation, and that Committee has had the future disposition of the site in question under prolonged consideration; in spite, however, of repeated reminders in the Court of Common Council of the glutted condition of the City traffic, and the desirability of seizing this opportunity to open up a new channel, already half made, the Court has now granted a lease of the property for eighty years to the present occupier, and at a greatly increased rental. When the matter was under discussion in the Court it was strongly and clearly pointed out that the northern side of the churchyard is, geographically, a portion

of the great main highway running through the Metropolis, extending from Bow and Stratford in the east to Westminster in the west, and that the opening up of this barred section of the highway would be the natural complement of the widening of Ludgate Hill, and of the Strand and Fleet Street improvements, but all to no avail. As the matter now stands this magnificent improvement is blocked for eighty years to come, unless at a considerably increased cost to the ratepayers.

THE complete scheme need not be effected at once; all that is needed now is that this obstructing house shall be put back to a building line, on its southern face, corresponding with the north side of Cheapside; the remainder of the scheme can be continued as opportunities occur by the falling in of leases, thus extending the cost of the work over a series of years. Immediate action is requisite to prevent the commission of such a blunder as that I have indicated above, for it is only by the pressure of public opinion that the progress of the scheme on its present lines can be arrested.

WHEN Sir Henry Tate gave £80,000 for the fine gallery for British art at Pimlico he arranged that the building to be set up with the money should be so designed that, while complete in itself, it should be capable of extension to just about double its original size. That extension is now being carried out, and, indeed, is far advanced that the new building has attained its full height, and the scaffolding will soon be cleared away from the external walls. The new portion will be rather larger than the old, or, at any rate, will afford more wall space.

IN the extended Tate Gallery an important feature will be a large central floor for British sculpture. The terms of the Chantry bequest have unfortunately been legally interpreted in a way that will, it is to be feared, put some difficulty in the way of filling this gallery. That bequest stipulates that works purchased shall be finished and complete, and one of the Courts has decided that in the case of sculptures this means that only bronze or marble can be purchased, the artist's modelling being regarded as the sketch from which a finished work may not be commissioned, though that finished work may be only an exact reproduction in a more valuable and enduring material. The effect of this ruling is that artists who cannot or who do not care to afford the expense of marble or bronze until they are sure of disposing of their work have no chance of getting it purchased by the Chantry Trustees.

To get upstairs without any particular effort is a desideratum with many people, and hence the invention of the now familiar "lift." But at "Harrod's," Brompton, visitors are shown how to ascend to the upper regions by means of a "revolving" staircase. The operation is simplicity itself. The "traveller" puts his feet on the staircase, his hand on the rail, and is "wafted" by imperceptible motion to the place where he would be. The invention is new to England, but has, for some time, been at work at the Grands Magasins du Louvre, in Paris. The staircase consists of an endless floor, on rollers, and the machinery is in the basement. The inventors suggest that "the moving staircase" would be of great use in hotels, railway stations, &c.

THE most troublesome piece of work in connection with the Central railway is the roofing over the subway in front of the Mansion House. The subway itself has been excavated, and its walls built round, but at present the whole of the roadway with its tremendous traffic is supported on timber. The problem to be solved is how to remove the entire surface and the timber supports beneath and to replace them by a fabric of iron and steel, and to lay down a new roadway of concrete and asphalt without interrupting the vehicular traffic. It will be dealt with, of course, bit by bit, and the Act of Parliament authorising the work requires that it shall be done wholly by night, and that holes shall be

timbered over for the passage of vehicles by day. The Company are trying to get the consent of the City authorities to their working throughout the day and night. They urge that it will take a couple of hours every morning to construct their timber viaduct, and two hours more at night to clear it away, so that their night will be short, and the day will be wholly lost. The continuous working would involve some diversion of traffic, but it certainly looks as though the speediest method will be the best.

AFTER a prolonged and arduous work, the Midland Railway Company have now opened a portion of the widening of their line between Kentish Town Station and St. Pancras. For some time past a sort of bottle-neck has existed at this part, and the suburban traffic has frequently been very congested. The widening has been in operation for several years; and, now that it is completed, the suburban traffic between Kentish Town and Moorgate Street will be considerably accelerated. Four additional platforms have been provided to meet the requirements of the suburban traffic, two at Kentish Town and two at Camden Road Station. The same Company also opened, at Somers Town, a new coal depôt, which has a superficial area of over ten acres. Hydraulic power is used throughout, and by means of four lifts about 400 wagon loads of coal may be emptied daily. In pulling down a part of old Somers Town a fine artesian well was discovered, from which sufficient water can be obtained for all the hydraulic power necessary. This huge addition to St. Pancras Station has cost fully half a million sterling, and the erection of a second surface above the level of the roadway is quite a feat of engineering.

THERE exists in Austria an Art and Industrial Museum, the objects of which are to promote the production of artistic goods in the various manufacturing industries. The chief means adopted by the museum is to prominently exhibit models which it considers suitable for Austrian makers to imitate. The Archduke Rainer, a cousin of the Emperor, has for many years been protector of the museum, and under his direction no furniture has been exhibited there except in old German style or purely Viennese work. Recently a new director of the museum was appointed, a certain Councillor Scala, and he at once set himself the task of introducing English furniture into Austria. English furniture now has the place of honour in the museum, and the result has been a marked increase in the purchase of English furniture in place of the cumbrous old German work. The Archduke Rainer protested in vain against the Anglicising of the furniture industry, and resigned his position as protector of the museum when Councillor Scala persisted in his course. A storm of indignation from the local furniture manufacturers has likewise failed to move Herr Scala, and the importation of English furniture proceeds apace.

THE feature of the Old Masters' Exhibition this year is suggested by the Amsterdam Exhibition. It is to be a collection of Rembrandts. Sir Edward Poynter has obtained promises from practically all the English contributors to the Amsterdam show to allow their pictures to go to the Academy on their return from Holland. A few of the foreign Rembrandts may also be included in the London show.

SIR W. B. RICHMOND has just delivered to the Hampstead Art Society another of those interesting lectures on his work in mosaic, which have marked the various stages of his progress with the St. Paul's decorations. He insisted with justifiable pride upon the importance of his achievement in practically creating a school of mosaic workers in this country, and claimed for the result of their efforts a position by no means inferior to the best that has been done in other parts of the world. As an instance of the growth of skill in the craftsmen under his direction he referred to the quarter dome just unveiled in the Cathedral, which he pronounced to be one

of the finest pieces of mosaic he had ever seen. To have so far perfected in the short space of seven years a form of decoration scarcely understood before by British workers is immensely creditable to his energies.

IN Part IV. of "The Temple, London," which is being issued by Messrs. Frost and Reed, Mr. Percy Thomas illustrates "The Master's House," and "The Choir of the Temple Church." Both are etchings of more than usual merit, delicate in handling, capable in draughtsmanship, and agreeable in their refinement of tone. They are distinctly attractive as renderings of picturesque subjects, and do credit, both in selection and treatment, to the artist's judgment. Canon Ainger, the Master of the Temple, continues his descriptive notes on the plates.

OLD ENGRAVINGS of London are getting scarce, and fine prints especially are now rarely obtainable, except at greatly advanced prices. The sale of the second portion of the collection of the late Mr. J. H. Wilson at Sotheby's last week was therefore of exceptional interest. Many of the prints and drawings related to Central London, but there was a fine collection of views south of the Thames, together with some relating to the districts east of the Tower.

MESSRS. CHRISTIE, MANSON, AND WOODS sold on Wednesday week old English and Irish silver plate, &c., from various sources. The more notable lots included 36 silver dinner plates, weighing a total of 690oz.—£217; a collet necklace, composed of 61 graduated brilliants, and with single-brilliant snap—£285; a silver-gilt tea-kettle, richly chased in relief with medallions of figures in Chinese costumes, festoons of flowers, &c., by William Grundy, 1758—108oz. at 26s. per ounce; a parcel-gilt beaker-shaped cup and cover, on three ball feet with pierced appliqué ornament, chased with grotesques, a group of the Good Shepherd in the centre, 12in. high, 30oz., Augsburg work—£46; a pair of ormolu wall lights, with scroll branches for four lights each, mounted with old Dresden porcelain figures of birds—60 guineas; a pair of Louis XVI. bronze fire-dogs, with Chinese figures—40 guineas; a pair of Louis XVI. ormolu candelabra, with figures of Cupids supporting scroll branches for ten lights each, 40in. high—66 guineas; a set of ten carved mahogany Chippendale chairs and two armchairs, from Lady Jane Goding's collection—£68; a set of four Chippendale mahogany chairs, carved with a belt and scrolls, an arm-chair and a settee, both nearly similar—£52; and a large Sheraton mahogany wardrobe, inlaid with medallions of figures, flowers, trophies, and ribbons in satin and other woods, 84in. high, 100in. wide—£70.

WHEN the scheme for improving Downing Street is carried out, that part of the garden which belongs to No. 10 will be left as it is now; but the five-story building which is to occupy the site of No. 11 (at present the residence of the Chancellor of the Exchequer) and No. 12 (the Government Whips' office) will cover also the open space at the back of these houses, and the garden of No. 10 will thus be sandwiched between two high walls that will restrict the outlook to a bit of the Horse Guards' Parade. When the western end of Downing Street has been rebuilt in accordance with the plans of the Office of Works, the Board of Agriculture, and the Irish Office will be transferred thither, the former from Whitehall Place and St. James's Square, and the latter from Old Queen Street.

THE First Commissioner of Works has, through the Hon. R. B. Brett, written to the vestry of St. Margaret and St. John, Westminster, stating that the remaining blocks of buildings between Parliament Street and King Street will very shortly be demolished, and the site between those streets entirely cleared. In these circumstances it is desirable, he states, that the new line of street adopted by the Government should be formed without delay, and it is suggested that steps should be taken

as soon as possible to carry out the requisite alterations. The Works and General Purposes Committee of the vestry will recommend that body to inform her Majesty's Office of Works that the vestry concur in the desirability of the new line of street being formed without delay, but that it does not appear that the Act of Parliament under which the improvement is being carried out imposes any obligation upon the vestry in the matter.

PROFESSOR J. W. HALES, lecturing at Hampstead to the members of the local Antiquarian and Historical Society on the famous hostelry known as "Jack Straw's Castle," now in course of rebuilding, said it was almost certain that from early times an earthwork stood on the site of the present building, and hence the name of "Castle." Jack Straw, a leader of the revolt of the peasants in 1381, was credited with having made a camp on the spot, but historical authorities were against it. On Wednesday, June 12th, Wat Tyler, at the head of the Kentish men, was encamped on Blackheath; while Jack Straw, with the Essex contingent, was at Mile End. On Saturday Wat Tyler was slain at Smithfield, and the insurrection was over. Jack Straw was taken and executed on the Sunday, and it was hardly possible that he could have found his way to the part of the heath which now bore his name. It was quite clear, however, that Jack Straw and his men went to Highbury, and there attacked the country seat of the Prior of the Knights Hospitallers, against which Order the peasants entertained a great hatred. Highbury Barn was the grange connected with the ancient priory, and Highbury could lay claim to a genuine "Jack Straw's Castle." The hostelry was originally a private house, built at the beginning of the last century, and it was a curious fact that the wood of the gallows on which a highwayman was hanged in 1673 was built into the wall. About the middle of the last century it became a public-house, and seemed to have been merely known as the Castle Inn. The first literary mention of it as "Jack Straw's Castle" was in a book called "The Cabinet of Curiosities," published in 1822.

Just a year ago the great fire of Cripplegate took place. For months, it will be remembered, the whole area was left in much the same state as when quitted by the firemen. Negotiations that were in progress with a view to running a central street through the district, and widening the other thoroughfares, were the cause of the delay in resuming constructive operations. When these schemes failed in April, with one accord owners started to rebuild, and the whole area in a very short time became a veritable forest of scaffold-poles and timber. When once the builders had taken possession no time was lost, and now, a year after the event, with the exception of a long gap on the churchyard side of Well Street, the whole of the premises have practically been rebuilt, on just the same frontage lines as formerly, not an inch having been conceded to the public in either of these busy streets. Although the site is now roofed in, much remains to be done before business resumes its wonted course. In Jewin Crescent very much remains to be done, but there is much more activity here than in Well Street, where a very large space running almost from the vicarage to Nicholl Square shows no sign of development. The vicarage has been restored, as has the Church of St. Giles.

A NEW STREET, connecting Crutched Friars with Fenchurch Street, at a cost of only about £13,000, may be described as something very cheap in the way of Civic architecture. The new thoroughfare will run from John Street, Crutched Friars, through a vacant site, and will be 40ft. wide, the Corporation making the roadway and constructing sewers, subways, and vaults. The owners of the vacant space have agreed to contribute £6000 of the sum mentioned, also to give up land, which has been valued at nearly £90,000. In return they will receive frontages to the new street, the creation of which is bound to greatly enhance the value of the site.

Professional Items.

ABERDEEN.—The new Church of St. Peter, at Walker Road, Torry, was formally opened last week. The new church is a handsome addition to the Ecclesiastical architecture of Aberdeen. A notable feature is its height. The church is constructed on the design of a nave with projecting right and left aisles, which are supported on internal pillars. The width of the nave is 35ft., and the height from the floor to the apex of the arched ceiling is no less than 60ft. Another feature of the design is the lighting arrangements. The pillars supporting the aisles are so close together as to hide the aisle windows from anyone not directly opposite them, and the curious effect is produced of the building being filled with a flood of light, while from either end no windows are visible. The narrow aisles are intended solely for processional purposes. The masonry is of red granite, in small oblong blocks, by which is secured a pleasing effect. The cost of the building is about £5000.

AVONMOUTH.—The first instalment of Messrs. Elder, Dempster and Co.'s cottage building scheme at Avonmouth is now completed. The rank consists of a dozen houses, designed by Mr. Bligh Bond, and fronting what used to be known as Green Lane. Each house has a parlour, a living room, a scullery and bathroom on the ground level, and three bedrooms on the upper floor. Each plot of land is 17ft. wide by 100ft. deep. Other houses are to be built on the same side of the street, and additional land has been secured on the other side of the way for further buildings.

BATTERSEA, S.W.—Probably there is not in all southern London a more uninteresting district than that part of Battersea which lies between York Road and the river. There, however, amid the unlovely streets and houses about half-way between Battersea and Wandsworth bridges, the Gonville and Caius College, Cambridge Mission and Settlement have built a new church and mission at a cost of £4000, years ago. In October of 1892 the ground floor of a fairly large building, called Caius Hall, was completed, and now the new church has just been dedicated by the Bishop of Rochester. The church stands over the hall, the latter now forming a kind of crypt for it. The church consists of a broad single-span nave and a chancel considerably narrower, with an organ chamber and vestry beneath. The church is of brick with stone dressings, and is in the Geometric Gothic style—plain in design but pleasing in its simplicity and its proportions. The architects are Messrs. W. and C. A. Bassett Smith, of the Adelphi, W.C., and the builder is Mr. W. Hammond, of York Road, Battersea.

BIRMINGHAM.—The laying of a memorial-stone in the new church in course of erection at Stirchley took place on Saturday week. The site of the new church abuts on the High Street. The church has been designed in the later decorated style of Gothic architecture, and consists of a nave 82ft. long by 35ft. wide in the clear, with north and south ambulatory aisles, each having five bold but low arches from the nave. The chancel will be 32ft. 6in. by 22ft. On the south side of this will be the clergy and choir vestries, the latter being carried up as a tower, in which will be the organ chamber over the vestry; and again, above the organ chamber, will be a ringing loft and belfry large enough for a peal of eight bells. At the western end of the nave, and connected to it by a triple arcaded and traceried opening, will be the apsidal-shaped baptistry, and north and south porches and inner porches, and above the triple arcade will be a large window. Over each of the nave arcades there will be ten two-light traceried windows, and carved corbels and shafts supporting eleven hammer-beamed principals and intermediates, having traceried spandrels; while bold flying buttresses, whose arched

soffits will be visible inside the shallow aisles, will stiffen the walls carrying the wide spanned roof. The chancel will have a seven-light east window, and two windows of two lights each on the north side, and one on the south side. The roof of the chancel will be wagon-shaped, and divided by ribs into panels. All the walls will be built of brick throughout. The external dressings are to be of red terra-cotta, on account of its greater durability than stone in a manufacturing district, and the internal piers, arches, and other dressings will be in selected Farleigh Down Bath-stone. In the architect's design a morning chapel, on the north side of the chancel, was shown, but this is not being carried out at present. A vault for the heating apparatus is provided in the tower basement. Mr. William Hale is the architect, and Mr. Thomas Smith the builder.

BRISTOL.—Many new factories have of recent years been erected in various parts of the city and its suburbs. One of the largest of these is that of Messrs. Watham, Gardiner, and Co., clothing manufacturers. The whole of the main building, which measures 210ft. by 150ft., is lighted from the roof on the North light principle, using upwards of 13,000ft. of plate glass set in steel bars. The roof is supported on iron columns, with light steel trusses and framing. Entering by the main hauling way the offices are on the left, and in front is a corridor running through the centre of the factory, from which all the rooms can be inspected and approached. The whole building is warmed by a hot-water apparatus, supplied by Messrs. Crispin and Sons. The elevation is generally of pennant stone, with Cattybrook brick dressings and cornices, the central block being entirely of brick, with Broseley tile roof. The general contract has been carried out by Messrs. Cowlin and Sons, and the engineering by Mr. G. Tuckey. The architects for the whole of the works were Messrs. La Trobe, F.R.I.B.A., and Weston, of 20, Clare Street, Bristol.

CARDIFF.—A new church in Albany Road has just been opened. The building gives seating accommodation to close upon 1000 worshippers, and has been erected at a cost of £6800, the contractors being Messrs. E. Turner and Sons, and the architects Messrs. Jones, Richards, and Budgen. In addition to the church, the building comprises two large parlours, four spacious classrooms, and other offices. The building generally has a very light appearance with plenty of window space, filled in with nicely-tinted cathedral glass. The roof is curved with massive ribs at intersection of nave and transept, these resting on stone pilasters. The carving in the treatment of the base of these is very effective and forms a feature of the building. The remainder of the roof is panelled, the colouring of which is pleasing and warm. The chapel is heated with hot air, the apparatus being supplied by Messrs. Langfield and Co. Limited, of Manchester, whose method of ventilation has also been adopted. The building has been constructed with Newbridge stone, with Bath stone dressings.

COLCHESTER.—The complete list of builders' tenders for the erection of the new Town Hall at Colchester, in Portland stone, we understand to be as follows:—George Dobson and Sons, Colchester, £46,270; F. Dupont, Colchester, £44,975; Everett and Sons, Colchester, £44,135; Lawrence and Sons, City Road, £43,114; Platman and Fotheringham, £40,350; William Downes, £39,820; John Shillito and Son, Bury St. Edmund's, £39,492; W. Chambers, Colchester, £38,446; John Thompson, Peterborough, £38,028; Grimwood and Sons, Sudbury, Suffolk, £37,294; W. Pattinson and Sons, Parliament Street, London, S.W., £36,292; and Kerridge and Shaw, Cambridge, £34,214 (accepted). With certain necessary additions, Messrs. Kerridge and Shaw's tender will total about £35,000, and it may be mentioned that the estimates do not include the erection of the upper part of the Victoria Tower.

FECHNEY.—The directors of the Industrial School are erecting a new entrance gateway and lodge at this school in the Glasgow Road. It was designed by Mr. David Smart, architect, 8, High Street. The contractors are:—Mason work, A. Beveridge; joiner, D. Crichton; slater, J. Buchan; plumber, Frew and Sons; and plasterer, John Peebles—all of Perth.

LONDON, E.C.—Considerable structural alterations have recently been made at the London offices of the Caledonian Fire and Life Insurance Company. The offices are situated in King William Street. The alterations have mainly taken place in the life department of the office, and consist of the removal of heavy cross walls and a stone staircase from the ground floor, and the substitution of an internal mahogany staircase leading from the general offices on the ground floor to the secretary's and other offices situated upon the first floor. The new life office has been refitted with handsome mahogany counters and fittings. The premises have been heated by low pressure hot water by Messrs. Edwards and Son, of Great Marlborough Street. The general contractors for the works were Messrs. Thompson and Beveridge, of Albany Street, N.W. The alterations were designed and carried out under the personal supervision of Mr. Howard Chatfield Clarke, of Bishopsgate Street Within.

METTINGHAM.—The parish church of Mettingham has been re-opened by the Bishop of Norwich after the completion of extensive restoration. The church is of Norman style, and stands on a commanding eminence. Some idea of the nature of the work of restoration may be gathered from the details which are appended. The whole of the exterior, flint and stone work has been restored and made good, the old flat tiles on the roof have been replaced with slates, and the lead on that part over the nave and aisle has been taken off and re-cast. As regards the interior of the edifice, this has been entirely re-seated in pitch pine, and in the chancel two seats have been added, and their carved oak fronts considerably lengthened. The old brick paving has been removed, and a wood block floor laid in its place. The spars in the roof over the aisle, which were formerly naked, are now covered with panelled oak lining, and the under side of the bell-chamber floor has also been panelled and moulded. On the south side, the lobby entrance has been converted into a vestry, laid with wood block flooring, the old vestry, which was found to be most unsuitable, having been pulled down. At the north entrance a lobby has been added having a loose panel in the roof for ventilation. The windows have all undergone treatment. Some have been renewed and others restored, whilst those which had formerly been bricked up have been opened out, and all have been re-glazed with square clear glass in a steel-coloured border, giving the interior a very light and cheerful appearance. The walls have been re-coloured, and the oak-work cleaned and oiled, and the church is now effectually warmed by a heating apparatus on the hot air principle by means of one of Porritt's air warming underground stoves. During the progress of the work, two piscinas were discovered, one in the chancel and one in the south aisle. They must have been built up a great many years, but they have now been re-opened, and are considered very beautiful. The whole has been carried out by Mr. A. D. Botwright, builder, of Bungay, from plans and specifications prepared by Mr. W. A. Coombs, architect, of Charing Cross, London, the contract price being £609.

NORTH SHIELDS.—The Queen Victoria School, situated in Lovaine Place West, North Shields, the latest addition to the educational establishments erected by the Borough of Tynemouth School Board, has been formally opened. The buildings consist of eight classrooms, capable of seating sixty children in the mixed department, and in the infants' department, seventy-two. The present buildings form only two-fifths of the whole scheme. Playgrounds and sanitary arrangements have been provided for the complete school, for

1350 scholars. Externally, the schools are well-proportioned and pleasing. The designs for the school were prepared by Messrs. Marshall and Dick, architects, whose plans were selected in competition for the work, and the contract for the buildings has been carried out by Mr. Joseph Elliott, of North Shields, while the heating apparatus has been supplied by Messrs. Emley and Sons, of Newcastle. Messrs. Doulton, of London, supplied the terra-cotta. The clerk of works was Mr. W. Moore, the superintendent architect being Mr. C. T. Marshall, M.S.A., of Newcastle and North Shields.

PERTH.—Under an Act of Parliament, procured about five years ago, the Police Commissioners of Perth got authority to make a new street from South Street to Mill Street in line with Kinnoull Street and Scott Street. Among the public buildings already erected are the Post Office, the Sandeman Public Library, and the Wilson Church. One of the most striking of the buildings in the street is rapidly approaching completion. It is situated at the corner of South Street and Scott Street, and is a four-story tenement of shops, offices, and dwelling-houses. The style of Architecture is Classic. The first-floor windows are ornamented with Corinthian pilasters and pediment, while the top story is surmounted by a large cantilever cornice and the attic windows have ornamented pediments. The treatment of the corner takes the form of an ornamental oriel window. The building was designed and erected under the personal superintendence of Mr. David Smart, architect. The contractors were:—Mason work, Robert Brand and Son; joiner work, Leith and Lumsden; slater, James Buchan; plumber, James MacLeish; plasterer, John Mackie—all of Perth.

Enquiry Department.

SOUND-PROOF FLOORING.

To the Editor of THE BUILDERS' JOURNAL.

SIR,—Can you kindly inform me of the best method for preventing sound passing through a floor? Eleven inch deals are used to carry the floor, and 1½ in. by 3½ in. floorboards—which are not yet fixed—with a lin. counter floor, half way through the joists, nailed to slips, nailed on joists.—Yours truly, R. S.

The method suggested would suffice, especially if the space between the counter boarding and the floor proper were filled with slag wool.

Correspondence.

GODALMING COMPETITION.

To the Editor of THE BUILDERS' JOURNAL.

SIR,—I should like to point out to your Special Commissioner that the conditions do not require the fixtures to be shown in either the Court Room or Council Chamber, and therefore the conditions have not been extravened, but, on the contrary, the reply to question No. 4, states "the floor should be capable of being cleared," and it was so shown by yours truly,

THE AUTHOR OF No. 3.

November 23rd, 1898.

London, E.C.

AN ANTIQUARIAN FIND.

To the Editor of THE BUILDERS' JOURNAL.

DEAR SIR,—The notice in your paper as to the seal found at Selby Abbey reminded me that a few years ago, when at Scarborough, whilst wandering round the Castle Hill, I picked up an old bronze seal, very much coated with verdigris. By the lettering, I should say it is about the same period as the Selby find. Canon Raine greatly admired it, and translated the inscription: "Sⁱ Johis ad Ecclesiam" (The Seal of John of the Church). There are two or three similar seals at the museum at York.—Yours truly, J. T. P.

York.

Under Discussion.

THE ARCHITECTURAL ASSOCIATION.

On last Friday a meeting of the Architectural Association was held at 9, Conduit Street, W., Mr. G. H. Fellowes Prynne in the chair.—A vote of thanks was passed to Mr. Batsford for presenting several new books to the library.—Messrs. L. Blank and A. Woodroffe were elected members.—Mr. Paul Waterhouse's paper upon "Oriel and Bay Windows" (which we publish elsewhere) was well received, and in the discussion Messrs. E. A. S. Stokes, F. T. Baggallay, H. H. Statham, Alexander Payne, Thomas Blashill, H. A. Satchell, and G. H. Fellowes Prynne took part.

BRITISH ARCHEOLOGICAL ASSOCIATION.

The second meeting of the season was held at the rooms in Sackville Street, Piccadilly, a few days ago; Dr. Winstone in the chair.—Mr. Andrew Oliver exhibited the remains of a sword and a small knife, together with the boss of a shield, which were found with three skeletons at Portslade, near Brighton, in July last, in the formation of a new road. The opinion of the meeting was that the exhibit belonged to the Roman-British period.—Mr. Gould exhibited another photograph of the Roman pavement at Leicester, which has already been illustrated in the Journal of the Association, and read some additional details regarding it, bringing out the interesting fact that the houses recently demolished, under which the pavement was found, occupied the site of a house once the residence of John Bunyan.—A paper on Wool Church, Dorset, by Dr. Fryer, was read in the author's absence by the Rev. H. J. W. Astley, hon. secretary. One of the principal features of this church is the chancel arch, of the thirteenth century date, which is, perhaps, unique for that period. The unusual and effective appearance of this arch is produced by the filling up of the large arch, and piercing the wall with three arches of equal width, each 10ft. 6in. high and 3ft. 6½ in. wide. These three sub-arches rest upon shapes of octagonal form, 32in. in circumference, without capitals and with base moulds near the floor. The tympanum is quite plain, with no trace of decoration, although it is quite likely this was originally intended. The church also possesses a font of the fifteenth century of special interest, as it was evidently purposely designed for its present position, against the westernmost pier of the north arcade of the nave. Fragments of cresset stones have occasionally been discovered in England, but Wool Church possesses one in almost as good a condition as when it left the hand of the mediæval mason. There is a tradition that the bells of Wool Church were stolen from Bindon Abbey at the dissolution, but this is contradicted by the bells themselves, as all of them are dated, the oldest being of the year 1606.—The first portion of a paper upon the Welsh Marshes, by Mr. C. H. Compton, V.P., was read by the author.

CONDITIONS WHICH RENDER HOUSES UNHEALTHY.

At the last meeting of the Glasgow and West of Scotland Technical College—Architectural Craftsmans' Society—a paper by Mr. James I. Little, sanitary inspector, was read on the above subject. In considering his subject, the lecturer first named the three essentials for a healthy life—light, air, and water; and contrasted in several ways the conditions of town and country life, noting, for example, the impure air in the town and the bad water in the country. He then treated of various evils in our towns, such as the centralisation of buildings causing smoke, and from that fog, which assists the growth of bacteria by shutting out the blue sky. Building on free coups and damp soil, porous stones, curtained windows, dark inside stairs, untidy offices, defective drainage, lack of ventilation, and free space were several of the innumerable conditions which cause unhealthy houses.

TENDERS.

ABERDEEN.—For the erection of school buildings, Six Bells, for the Llanhilleth School Board. Messrs. Swash and Bain, architects, Midland Bank-chambers, Newport, Mon. Quantities by the architects:—
C. Jenkins and Son ... £2,325 | D. Jones £2,065
W. Morgan 2,200 | W. F. Morgan 2,057
C. H. Reed 2,100 | W. Phillips 2,050
D. Lewis, Llanhilleth* 2,070 | Mainwaring & Davies 1,950
* Accepted.

ALCESTER.—For the erection of a workhouse infirmary, for the Union Guardians. Mr. W. H. Ward, architect, Paradise-street, Birmingham. Quantities by Mr. W. H. Elsmore, London:—
J. G. Fincher & Co. ... £7,500 | Smith and Pitts £6,250
J. Atkinson 5,789 | J. Smallwood and Co. 6,197
B. Whitehouse & Sons 6,693 | Gowing and Ingram ... 6,049
Lindsey Jones 6,498 | W. Robinson 5,950
Huins 6,300 | G. Huxley, Redditch* 5,757
* Accepted.

road. Messrs. Wade and Turner, architects, 10, Pitt-street, Barnsley. Quantities by the architects:—
Building.—Elliott Moorhouse, Barnsley ... £2983 0
Joinery.—Wm. Hammerton's executors, ... 350 0
Voorsbrodale 95 15
Slating.—Miss M. Fleming, Barnsley 65 5
Plumbing.—William Dransfield, Barnsley ... 105 0
Painting.—Stephenson and Son, Barnsley ... 30 0

BARNSELY.—For the erection of seven houses, Doncaster-

Beckenham and Elmer End-roads, for the Urban Dis-

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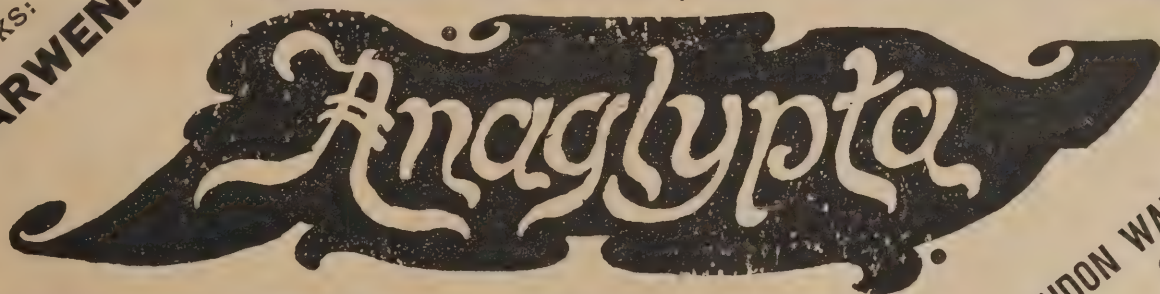
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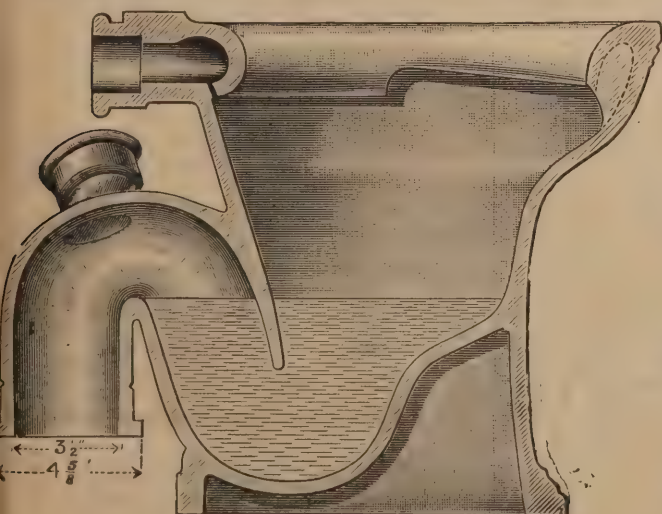
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trict Council. Mr. J. A. Angell, surveyor, Council's offices, Beckenham:—
G. Wilson ... £643 23 0 | E. Ties, Mitcham ... £463 19 9
J. Mowlem & Co. ... 479 0 0 | Common* ... * Accepted.

CHELMSFORD.—For erecting a pair of cottages, Legg-street. Mr. R. Mawhood, architect:—
F. Johnson ... £560 | H. Porter* ... £500
W. Fincham ... 500 | * Accepted.

CHELMSFORD.—For erecting a pair of cottages, Springfield Park Estate. Mr. R. Mawhood, architect:—
Samms ... £326 | Ely* ... £450
Gowers ... 495 | * Accepted.

[All of Chelmsford.]

CHELMSFORD.—Accepted for forming, &c., new roads and footpaths, Waterhouse building estate. Mr. C. Pertwee, surveyor, Bank Chambers, Chelmsford:—
R. A. Bonnett and Co., Baddow-road, Chelmsford ... £320

CROMER.—For the erection of public conveniences, for the Urban District Council. Mr. A. F. Scott, surveyor, Council's offices, Cromer. Quantities by surveyor:—

Buildings.
R. Daws and Son ... £1,950 0 | G. A. Lines ... £1,492 3
J. Youngs and Son ... 1,592 0 | J. S. Smith, City-road, Norwich (accepted) ... 1,533 15
G. E. Haws ... 1,565 14
T. Gill ... 1,495 0
Sanitary Fittings.
George Jennings ... £312 18 2 | Doultons and Co. ... £219 18 3
Shank and Co. ... 234 14 10 | Adams and Co. ... 212 12 0
G. B. Davies ... 233 9 0 | Twyford and Co., Hanley and London (accepted) ... 175 0 0
B. Finch and Co. ... 223 0 0
F. Barber and Co. ... 220 12 10

LAUNCESTON.—For the erection of a cattle market, &c., for the Town Council. Mr. Otho B. Peter, architect, Launceston:—
E. Sharland ... £3,389 | J. Broad ... £3,513
R. Burt ... 3,250 | Nankivell and Sons ... 3,026
R. Waill ... 3,183

LEEDS.—Accepted for the erection of two mortuaries to chapels at Holbrook Cemetery, for the Corporation:—
Wade Pricers, Woodhouse-lane, Leeds ... £114 11

LEYTON.—For the erection of two houses, Francis-road, Leyton, for Mr. J. J. Lara:—

H. Hood ... £1,538 | Camp* ... £840
J. Haydon ... 1,548

LLANELLY.—For the erection of a school at Pontyberem, for the Llanelly School Board. Mr. J. B. Morgan, architect, New-road, Llanelly:—
E. Mainwaring ... £1,331 0 0 | J. Evans ... £1,235 10 0
G. Mercer ... 1,249 10 0 | E. Richards ... 1,193 5 0
B. S. John ... 1,248 12 0 | D. Davies ... 1,135 1 6
[Architect's estimate, £1,250.]

LONDON.—For new laboratory, &c., at Millwall, for the Electrical Power Storage Company, Limited. Mr. Alfred Roberts, architect, 18, Nelson-street, Greenwich, E.C.:—
Jones and Groves ... £1,681 | W. Mills ... £1,502
T. D. Lang ... 1,608 | Windsor and Co. ... 1,345
Jerrard and Sons ... 1,573

LONDON.—For pulling down and rebuilding No. 2, Duke-street, Manchester-square, W., for Mrs. Brooks. Mr. Alfred J. Hopkins, architect, 37, Mortimer-street, W.:—
Keary and Hollick ... £3,235 | Cowley and Drake ... £2,825
Webber ... 3,100 | Sanders ... 2,825
Beer and Cash ... 3,049 | Lole and Lightfoot, Trafalgar-square, Chelsea, S.W.* ... 2,773
Davenhill ... 2,950
Spreckley and Co. ... 2,927
Faulkner and Co. ... 2,883
* Accepted.

LONDON.—For cast-iron lamp columns for the Hornsey District Council. Mr. E. J. Lovegrove, engineer and surveyor:—

	Per ton.		Per ton.
E. Stevenson ...	£14 0 0	Newton, Chambers, and Company ...	£8 0 0
Moorgate Engineering Company ...	10 0 0	J. Kees, Coulson, and Co. ...	7 17 6
T. Howden & Sons ...	9 9 0	Stokes and Co. ...	7 15 0
Stanton Iron Works ...	9 0 0	Gibb and Co. ...	7 5 0
J. Shaw and Co. ...	9 0 0	Pontifex and Co. ...	7 3 6
Rowland, Carr, and Co. ...	8 10 0	Coleman-street* ...	Each.
F. Bird and Co. ...	8 10 0	G. Smith and Co. ...	1 19 0
J. B. Hollom & Co. ...	8 4 0	T. E. Kershaw ...	1 9 0
H. and G. Measures ...	8 0 0		

* Accepted.

LONDON.—For constructing new road through Queen's Wood, Highgate, for the Hornsey District Council. Mr. E. J. Lovegrove, engineer and surveyor:—

	Pipes per ton.		Pipes per ton.
W. Langridge ...	£3,978	Killingback and Co. ...	£3,500
H. Clark ...	3,976	Pédrette and Co. ...	3,499
W. Griffiths ...	3,651	W. Walker ...	3,464
E. T. Bloomfield ...	3,593	R. Ballard, Lim. ...	3,453
W. T. Williamson and Sons, Lim. ...	3,570	T. Adams ...	3,367
C. Ford ...	3,508	J. A. Dunmore, Crouch End* ...	3,278

* Accepted.

LONDON.—For cast-iron telephone pipes and pit covers, for the Hornsey District Council. Mr. E. J. Lovegrove, engineer and surveyor:—

	Pipes per ton.		Pipes per ton.
H. and G. Measures ...	£12 0 0	Jukes, Coulson, Stokes, & Co., 11, Clements-lane, E.C.* ...	£6 5 0
Pontifex and Co. ...	7 0 0	Newton, Chambers, & Co. ...	6 3 4
Stanton Ironworks Co. ...	6 18 6	Gibb and Co. ...	each.
Hollom and Co. ...	6 10 0	Bird and Co. ...	£1 6 4
Bird and Co. ...	6 5 0	Jukes, Coulson, Stokes and Co., 11, Clements-lane, E.C.* ...	1 3 9
Stanton Ironworks Co. ...	£1 17 6	H. and G. Measures ...	6 3 0
Newton, Chambers, and Co. ...	1 17 6		
Pontifex and Co. ...	1 10 0		
Hollom and Co. ...	1 7 0		
Gibb and Co. ...	1 7 0		

* Accepted.

LONDON.—For alterations at the "Magnet," Old Kent-road. Mr. John Hamilton, architect:—
Irwin ... £1,389 | Snewin Bros. and Co. ... £1,098
Whitehead and Co. ... 1,123

LONDON.—For alterations at "The Mitre," Edgware-road. Mr. G. G. Fye, architect:—
Rhodes ... £1,540 | Bennett ... £1,363
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td., ... £3,717 R. Taylor and Sons ... 2,880
Thompson ... 3,500 E. Banks and Co., ... 2,775
Arnott ... 3,420 Ltd.

LONDON.—For alterations, additions, and dilapidations No. 51, Leytonstone-road, Stratford, E., for Mr. G. ther. Mr. Fred. A. Ashton, architect, 17, Romford-road, Ratford, E.:

G. Maddison ... £2878	A. E. Symes ... £2800
and H. Cocks ... 847	C. North ... 789

LONDON.—For the rebuilding of Nos. 61 and 62, Hounds- ch, E.C., for Mr. J. Farquharson. Mr. G. Sparks, archi- t. Quantities by Mr. H. Williams Mellor, 17, Bucking- ham-street, Adelphi, W.C.:—
tman & Fotheringham £2,913
hby and Horner ... 2,841
le and Lightfoot ... 2,798

NORWICH.—For the re-erection of The "Grapes" ublic-house, Wensum-street, Norwich, for Mr. R. J. llett. Messrs. George Pitt and Co., Limited, architects d surveyors, Queen-street, Norwich:—
Hurn ... £1,519 10 0
Youngs & Son ... 1,510 0 0
aries Bros. ... 1,498 0 0
M. G. Hunt ... £1,325 0 0
Son, Anderson and Son, Norwich * 1,144 13 4
* Accepted.

PETERBOROUGH.—For the erection of club premises, ops, &c., Boroughbury, Peterborough, for the Liberal ub Building Committee. Mr. A. W. Ruddle, architect, roughbury, Peterborough. Quantities by the architect:—
Howard ... £3,620
W. Rowe ... 3,478
rnis Bros. ... 3,369
Patterson & Sons ... 3,143
Colls ... 3,075
bley Bros. ... 3,030
J. Bridgfoot & Son ... £3,017
J. Guttridge ... 2,993
G. Clare ... 2,910
Watson and Lucas ... 2,912
D. Gray, Peterborough * 2,746
* Accepted.

SWANSEA.—For the execution of drainage works, orton, for the Rural District Council. Mr. J. A. omas, C.E., 32, Fisher-street, Swansea:—
ohn Harvey ... £2445 0
Lane ... 420 6
F. Weaver ... 415 0
C. Bennett Bros. ... £2390 0
C. Hanney, Morris-son * 317 16
* Accepted.

YSTON (Leicester).—For the execution of sewerage rks, for the Barrow-on-Soar Rural District Council. Messrs. Simpson and Harvey, engineer, Alliance Chambers, orsefair-street, Leicester:—
Thos. Philbrick, Leicester ... £26,210

ULLINGTON QUAY.—For the construction of sewers, he Urban District Council. Mr. J. F. Davidson, sur- vior. Potter-street, Willington Quay, Northumberland:—
Murphy and Macmillan, Willington Quay (on schedule of prices).

WRITTLE (Essex).—Accepted for erecting three cottages, ney Green. Mr. R. Mawhood, architect:—
Moss, Writtle ... £625

CONTRACTS OPEN.

TO BUILDERS.

TENDERS are invited for the ERECTION of FOUR SHOPS, with dwellings over, on present site of Norwood House, London-road, St. Albans.
Plans and full specification can be seen at the office of Mr. J. E. AUSTIN, Electric Light Engineer, 23, York- place, Baker-street, London, W., or complete copies will be forwarded upon receipt of 18s. 6d. to cover cost.
Tenders should be delivered at 23, York-place, by first post on SATURDAY, DECEMBER 3rd, 1898.
Tenders will also be received for the Building (as it stands) known as Norwood House. Price to include removal.

COUNTY BOROUGH OF CROYDON.
ERECTION OF NEW BUILDINGS AND ADDITIONS TO THE BOROUGH HOSPITAL AT WADDON.

Notice is hereby given that the Council are prepared to receive TENDERS for NEW BUILDINGS and ADDITIONS to this Hospital, consisting of a New Ward Pavilion and Additions to Administrative Block and Corridor.
Plans and specifications of what is required may be seen at the Borough Engineer's Office, Town Hall, Croydon, where also bills of quantities and particulars can be obtained on payment of a fee of Five Pounds, which sum will be returned on receipt of a bonâ-fide Tender.
Tenders to be sent to me by ELEVEN o'clock in the forenoon on WEDNESDAY, DECEMBER 7th next, endorsed "Tender for Borough Hospital."
The Council will not be bound to accept the lowest or any Tender.

By order,
Town Hall, Croydon, E. MAWDESLEY,
November 14th, 1898. Town Clerk.

WEST HARTLEPOOL SCHOOL BOARD.

TO BUILDERS, CONTRACTORS, AND OTHERS.
Persons desiring to TENDER for the COMPLETE CONSTRUCTION of a BLOCK of SCHOOL BUILD- INGS providing accommodation for 1502 children, Caretaker's House, &c., upon a plot of ground situate in Lister-street, Osborne-road, and Flaxton-street, West Hartlepool, can see the plans and specifications prepared by E. PERCY HINDE, Esq., Architect, Liverpool, upon application at the School Board Offices, Park-road, West Hartlepool, where bills of quantities can be obtained on payment of One Guinea, which will be returned on receipt of a bonâ-fide Tender.

The person whose Tender is accepted will be required to pay the workmen employed by him the local standard or Union rate of wages.
Sealed Tenders, endorsed "Tender for Lister-street School," must be delivered to me on or before FRIDAY, the 2nd day of DECEMBER, 1898, at FIVE p.m.
The lowest or any Tender will not necessarily be accepted.

J. ROBSON SMITH,
School Board Offices, Clerk of the Board.
Park-road, West Hartlepool,
November 9th, 1898.

PARISH OF ST. PANCRAS, LONDON.

The Guardians of the Poor of the Parish of St. Pancras invite TENDERS for ALTERATIONS to the DRAINAGE SYSTEM and SANITARY ARRANGE- MENTS generally at their School at Leavesden, near Watford.
Persons desirous of Tendering may obtain full parti- culars and form of Tender upon application to the Architect, Mr. CHARLES P. AYRES, 14A, High-street, Watford.
The Guardians do not bind themselves to accept the lowest or any Tender,
ALFRED A. MILLWARD,
Clerk to the Guardians.
Vestry Hall, Pancras-road, London, N.W.,
November 17th, 1898.

THE ROMFORD URBAN DISTRICT COUNCIL invite TENDERS for the following

TIMBER:—
350 ft. run 1½ in. by 24 in. Pitch Pine in not less than 25 ft. lengths.
700 ft. run 1½ in. by 18 in. Pitch Pine in not less than 25 ft. lengths.
900 ft. run 4½ in. by 4½ in. best second Memel or Dantic in long lengths.
To be free from loose or dead knots, shakes, sap, or other defects, sawn to sizes, and delivered to Breton's Farm, Hornchurch, Essex (which is about 1½ miles distant from the Dagenham Station of the London, Tilbury, and Southend Railway, and three miles from the Romford Station of the Great Eastern Railway) on or before the 31st JANUARY, 1899.
A contract, and bond, with sufficient sureties, will have to be entered into, and given by, and at the expense of, the person or persons whose Tender may be accepted. Tenders, marked "Tender for Timber," to be delivered to me on or before FOUR o'clock p.m. on FRIDAY, the 2nd DECEMBER next.
The Council do not bind themselves to accept the lowest or any Tender.
GEO. BAILEY, Clerk,
Romford, Essex,
November 16th, 1898.

CITY OF HULL.
TO MAKERS OF TERRA-COTTA AND ARTIFICIAL STONE.

The Corporation are prepared to receive TENDERS for BUFF TERRA-COTTA or ARTIFICIAL STONE for the String Courses, Tracery, &c., for a Crematorium.
Forms of Tender and other particulars may be obtained of the City Engineer, Hull. A limited number of blue prints of the Contract plan will be supplied at 5s. each, not returnable, but the Corporation do not undertake to supply all applicants.
Remittances to be made payable to Mr. T. G. MILNER, City Treasurer.
Tenders, endorsed "Tender for Tracery, &c., are to be addressed to the Chairman of the Burial Committee, and delivered at the Town Clerk's Office before NOON on MONDAY, DECEMBER 5th, 1898.
The Corporation do not bind themselves to accept the lowest or any Tender.
By order,
Town Hall, Hull, A. E. WHITE,
November 21st, 1898. City Engineer.



HALL'S - SANITARY - WASHABLE DISTEMPER (PATENTED),

A NEW SANITARY WATER PAINT, HAS great advantages, some of which are as follows:

- It Sets Hard, Kills Vermin, and Disinfects.
- It is Washable in 3 Weeks, Does not Scale, can be Painted or Varnished, and will Stand Inside or Outside.
- It is made in Dark Rich Shades as well as in Light Tints, contains no Lead, and Does Not Turn Black. It only requires the addition of Water to make it ready for use, so that anybody can apply it.
- It is Cheaper, Cleaner, Healthier, and more Artistic than Wall Paper.

It is Sold by leading Chemists, Drysalers and Ironmongers, and Manufactured by
SISSONS BROTHERS AND CO. Limited, HULL,
From whom Samples, Shade Card, and other particulars can be obtained.
FOREIGN AGENTS WANTED.

MEASURES BROTHERS, LTD. LONDON.

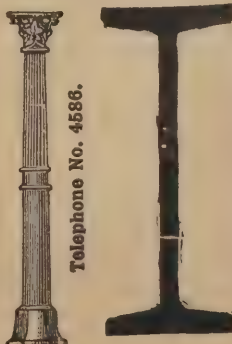
SIEMENS-MARTIN AND BESSEMER STEEL JOISTS.

MEASURES' JOISTS ARE THE BEST AND CHEAPEST IN THE MARKET.

Have now in their Town Stock 6500 tons of STEEL JOISTS, 31n. to 201n. deep; also 1000 Tons of Iron Joists, Channels, Tees, Angles, Plates, &c. Riveted Girders, Fireproof Floors, Stanchions, Columns, Chequered Plates, Rails, Bolts, &c.

SECTION SHEETS AND ESTIMATES ON APPLICATION.

Prompt Delivery from Stock. Steel Joists specially adapted for Pit Props and Colliery Work.



Telegraphic Address: "MEASURES, LONDON."

Telephone No. 4586.

From 31n. to 201n. deep.

**COUNTY BOROUGH of WEST HAM.
TO BUILDERS AND CONTRACTORS.**

The Council hereby invite TENDERS for the ERECTION of QUARTER SESSIONS COURT, POLICE CELLS, and MORTUARY, West Ham-lane, Stratford, E.

Plans may be seen, and specification, form of Tender, and further particulars obtained, on and after MONDAY, NOVEMBER 28th, 1898, at the Office of Mr. LEWIS ANGELL, Borough Engineer, Town Hall, Stratford, E., upon the deposit of a Five Pound Bank of England Note, which will be returned upon receipt of a bona-fide Tender.

Tenders, endorsed "Tender for Quarter Sessions Court, &c.," to be sent to my Office not later than FOUR o'clock on TUESDAY, DECEMBER 13th, 1898.

The Council do not bind themselves to accept the lowest or any Tender. The Contractor will be required to enter into a bond, with two sureties, for the due performance of the contract, and no work will be ordered under the contract until such bond has been duly executed.

As regards all work to be done at the site or elsewhere within a radius of twenty miles from Charing Cross, the contractors will be bound by the contract to pay to all workmen (except a reasonable number of legally bound apprentices) employed by them wages at rates not less, and to observe hours of labour not greater, than the rates and hours set out in the Council's list, and such rates of wages and hours of labour will be inserted in and form part of the contract by way of schedule.

By Order of the Council,
FRED. E. HILLEARY,

Town Hall,
West Ham, E.
November 15th, 1898.

RAINHAM (Essex) PARISH COUNCIL.

The Council invite TENDERS for the ERECTION of a small CHAPEL, BOUNDARY FENCING, CONSTRUCTING ROAD and PATHS for the proposed new Cemetery at Rainham.

The drawings, specification, and form of contract can be seen at the Office of the Council's Architect, Mr. C. J. DAWSON, F.R.I.B.A., Barking, Essex, between the hours of TEN a.m. and FOUR p.m., and on Saturdays from TEN a.m. to ONE p.m.

Forms of Tender and bills of quantities may be obtained at the Architect's office on payment of £1 ls., which will be returned on receipt of a bona-fide Tender.

Tenders to be delivered at my Office by FOUR o'clock p.m. on DECEMBER 8th, 1898, endorsed "Tender for Cemetery."

The Council do not bind themselves to accept the lowest or any Tender.

The Contractor will be required to enter into a bond, with two sureties, for the due performance of the contract, and no work will be ordered under the contract until such bond has been duly executed.

THOS. CAPRON,
Grays, Essex,
November 21st, 1898.

CORPORATION of MANSFIELD.

The Town Council, acting as the Urban Sanitary Authority for their District, are prepared to receive TENDERS from competent persons for the CONSTRUCTION of about 500yds. of 9in. PIPE SEWER, with all the necessary lampholes, manholes, ventilators, flushing arrangements, and works incidental thereto.

Plans and specifications of the work may be seen, and the form of Tender and schedule of quantities obtained (on deposit of £2) at the Office of Mr. R. FRANK VALLANCE, C.E., F.S.I., Borough Surveyor, Mansfield, the Engineer for the Works, on and after DECEMBER 1st next.

The deposit will be returned after a contract has been entered into to every person making a bona-fide Tender, and on the return of the documents entrusted to him.

In the event of a Tender being withdrawn the deposit will be forfeited.

The successful contractor will be required to pay the standard rate of wages recognised in the district in the several trades.

Sealed Tenders, on the form supplied, endorsed "Tender for Outfall Sewer, Littleworth," are to be delivered at the Office of the undersigned, in the envelope provided for the purpose, on or before DECEMBER 14th, 1898, at NOON.

The Town Council will not be bound to accept the lowest or any Tender.

J. HARROP WHITE,
November 17th, 1898.

Deputy Town Clerk.

SMOKY CHIMNEYS CURED

BY

Milne's Registered

Anti-Down-Draught

CHIMNEY TOP

(With Syphonie Action)

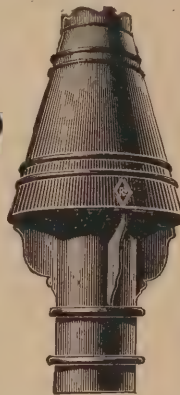
INCREASES

UP-DRAUGHT.

Prices and Full Particulars on application to

E. P. MILNE,

101, MELODY RD., WANDSWORTH COMMON,
S.W.

**PARISH of ST. PANCRAS, LONDON.**

TO BUILDERS.

The Guardians of the Poor of the Parish of St. Pancras are prepared to receive TENDERS for the ERECTION of TWO CHAPELS at the Workhouse, King's-road, St. Pancras, according to drawings and specification, which may be seen at the Offices of the Guardians' Architects, Messrs. A. and C. HARSTON, 15, Leadenhall-street, E.C., on and after THURSDAY, DECEMBER 1st, 1898.

Bills of quantities have been prepared by Messrs. CORDEROY, SELBY, and CORDEROY, and Mr. W. F. FARTHING, and may be obtained, at the Offices of the Architect as above, upon payment of a deposit of Five Guineas, which amount will be returned to persons sending in a bona-fide Tender with the priced bills of quantities.

The Guardians do not bind themselves to accept the lowest or any Tender.

Tenders, sealed and endorsed "Tenders for Two Chapels," must be delivered at the Offices of the Guardians, Vestry Hall, Pancras-road, N.W., not later than THREE o'clock p.m., on THURSDAY, DECEMBER 22nd, 1898.

By order,

ALFRED A. MILLWARD,

Clerk to the Guardians.

Vestry Hall,

Pancras-road, N.W.

November 21st, 1898.

**TO CONTRACTORS, SURVEYORS
ENGINEERS, ETC.****STANLEY BROS., LTD.,****NUNEATON,**

Having opened up New Blue Brick Works at Nuneaton, are in a position to execute contract orders for

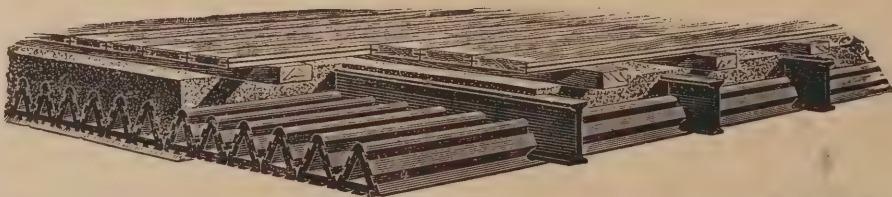
BLUE PRESSED BRICKS,

**BRINDLED AND BLUE WIRE CUT BRICKS,
KERBING, CHANNEL BRICKS, ETC.**

Quotations and Samples on Application.

HOMAN'S FIREPROOF FLOORS.

Used in
nearly
2000 BUILDINGS.



Roofs, Piers,
Bridges, Joists,
and Girders.

CONSTRUCTIONAL STEEL AND IRONWORK.

GRANITIC STEPS AND PAVING, ASPHALTE, &c.

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LONDON {Offices: 17, GRACECHURCH STREET, E.C.
{Works: NINE ELMS LANE, S.W.

Telegraphic Address: "HOMAN RODGERS, LONDON." Telephone No. 1026.

MANCHESTER {Offices: 10, MARSDEN STREET.
{Works: WEST GORTON.

Telegraphic Address: "NAMOH, MANCHESTER." Telephone No. 637.

FIRECLAY BRICK WORKS, PARKSTONE, DORSET.

Flooded Basements Prevented by using

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BALL TRAP INTERCEPTORS, BALL TRAP
W.C.'S, SYPHON INTERCEPTORS.**

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Works and Offices—14, TUDOR STREET, CARDIFF.

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EASTWOOD & Co. Limited,
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GODWIN'S TILES
For PAVEMENTS
WALLS HEARTHES &c
AS USED BY THE
Leading Architects & Builders
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FLOOR TILES
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Quick Supply!
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London Showrooms—15, BARTLETT'S BUILDINGS, HOLBORN CIRCUS, E.C.

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NOVEMBER 30TH, 1898.

BOYLE'S PATENT "AIR-PUMP" VENTILATOR.

THE LATEST PATENT HAS DOUBLE THE EXTRACTING POWER OF EARLIER FORMS AND IS ONE-HALF THE COST.

ROBT. BOYLE & SON, LTD., 64, Holborn Viaduct, LONDON; & 110, Bothwell St., GLASGOW.

See Large Advertisement, Back Page, Monthly.

INTRODUCTION OF NON-FLAMMABLE WOOD INTO EUROPE.

The British Non-Flammable Wood Co. Ltd.

Beg to announce that their Works in London, the first erected in Europe, are now completed, and they are prepared to
Take Orders for the supply of "NON-FLAMMABLE WOOD" in large quantities.

"NON-FLAMMABLE WOOD," as produced by the Company's process, is now in use on the following

UNITED STATES WAR VESSELS:—

BATTLESHIPS.—"IOWA" and "OREGON." MONITOR.—"MIANOT." CRUISERS.—"BROOKLYN," "CHICAGO."
GUNBOATS.—"HELENA," "WILMINGTON," "NASHVILLE," "ANNAPOLIS," "WHEELING," "MARITTA," "NEWPORT," "VICKSBURG."

And is being used for the Battleships "KEARSAGE," "KENTUCKY," "ALABAMA," "WISCONSIN," and "ILLINOIS," now being built.

"NON-FLAMMABLE WOOD" has also been used for all the Carpentry and Joinery Work in the following well-known
colossal Buildings in New York:—

THE COMMERCIAL CABLE BUILDING, THE QUEEN'S INSURANCE BUILDING, and THE R.G. DUN BUILDING,
(each of which is over eighteen stories high).

"NON-FLAMMABLE WOOD" has been tested by H.M. Admiralty, and Large Orders have been given to the Company
by the Government.

Quotations will be furnished on receipt of Specifications.

Address all applications to the General Manager,

BRITISH NON-FLAMMABLE WOOD CO. Limited,
2, Army and Navy Mansions, Victoria Street, London, S.W.

THE CONSTRUCTION OF HOSPITALS For Consumption and other Infectious Diseases.*

By DR. JOHN W. HAYWARD.

(Continued from page cxxv.)

IN order that the patients may have as much sunshine as possible, there should be numerous windows, and the window openings should be well splayed both inside and outside, so as to admit as much sunshine as possible with as little glass as possible; large windows have a very cooling effect.† And, further, to ensure this, the pavilions should not be more than two stories in height.‡ Small hospitals may be composed of two, three, or four pavilions, but large ones may require quite a number.

For consumptive patients, especially, warmth is quite as essential as fresh air and sunshine; it is, perhaps, more difficult to provide, because of the varying temperature of the different seasons of the year, and the difference between day and night. In this climate, Nature does not supply sufficient warmth for the health and comfort of invalids much more than three months in the year; for at least eight months' warmth has to be procured by artificial means; that is, by the combustion of fuel, in either firegrates or furnaces. Small wards may be warmed by open fires, with the Pridgeon Teall grate; but corridors and large wards require hot water or steam pipes, which, in order to distribute the warmth in the vicinity of the patients, should be run round, or partially round, the ward, about a foot above the floor, as many times as will be required to keep the ward up to 65 deg. F. at Christmas; this is much preferable to coils, even over the inlets. The furnaces should be in the basement, and attended to by the porter—a furnace for each wing. It would indeed be well to have even small wards warmed by pipes, because of the many objections to open fires.§

AUTHORITIES:—

NOTE.—ENCYCLOPEDIA BRITANNICA, 9th Edition, 1891. Article: "Hospitals."

BUE BOOK: "Report of the Commissioners appointed by Government to inquire into the best means of warming and ventilating apartments of dwelling-houses and barracks." Printed by order of the House of Commons, 1857.

HEALTH AND COMFORT IN HOUSE BUILDING, 3rd Edition, 1890.—E. and F. N. Spon, 125, Strand, London.

* A paper read before the Liverpool Architectural Society on Nov. 7th, 1898.

† "Long wards," says the writer in the *Encyclopædia Britannica*, "should have windows down each side, and perhaps one at the further end; if possible a window for each patient; never less than one for every two beds. . . . There should be free play of sunlight upon each ward during at least some portion of the day." (loc. cit.) "The cooling effect of each square foot of glass of an ordinary window," say the authors of "Health and Comfort," "is equal to the cooling down of a cubic foot of the air of the room to the temperature of the external air." (p. 77.)

‡ "The space between the pavilions," says the writer in the *Encyclopædia*, "should be at least twice that of the height of the pavilions, so that there may be the freest possible circulation of air around them, and no cul-de-sac or enclosed space where air can stagnate." (loc. cit.)

§ For hospital wards open fires are risky, costly, and troublesome; they greatly embarrass all plans of ventilation, and are in many other ways objectionable—they radiate heat only from isolated and distant centres, and cannot warm wards at all equally; they are noisy and dusty and require frequent attendance, and this disturbs the patients' sleep and rest; besides, the warmth they supply varies with the nurses' attendance to them, and is sometimes much, sometimes little. They are of but little use as means of ventilation; they certainly abstract air, but they take it principally from near the floor, whereas the foul air accumulates near the ceiling, being heated and so made light by the same means that foul it. Hospitals warmed only by open fires are sure to be very imperfectly warmed; and if at the same time they are attempted to be ventilated only by open windows they are most certainly also very imperfectly ventilated. It is much to be regretted that some hospitals are professed to be ventilated and warmed by simply open windows and open fires, even throughout the winter in this climate; and if the inefficiency of open fires be hinted at, appeal is made to the thermometer hanging in the ward, to show that the ward is sufficiently warm—that is, is not under 60 deg. F. Now, if the outer air be below 32 deg. F., and is coming into the ward directly through open windows at the rate to change the whole air of the ward every twenty minutes, it is absolutely impossible it can be warmed up to 60 deg. F. in the vicinity of the patients by open fires. If, therefore, a properly placed thermometer registers 60 deg. F., this is of itself proof positive that the air of the ward is not being changed every twenty

Special provision should be made for the admission of abundance of fresh air at all times, in winter as well as summer, at night as well as in the day time, and in both wards and corridors. "Another great cause of the mortality in hospitals," says the writer in the *Encyclopædia*, "is the want of efficient ventilation" (loc. cit.). By "ventilation" is meant the continuous removal of the air that has been used, and the replacing of it with fresh air that has not been just used. There is some difficulty in doing this satisfactorily in our climate, because of the varying temperature of the different seasons of the year. It requires to be considered in relation to (1) summer, (2) spring and autumn, (3) winter, because the arrangements for one of these seasons are quite unsuitable for either of the others. It should also be considered in relation to the three parts of the twenty-four hours for the same reason, that is (1) daytime, (2) morning and evening, (3) night; also in relation to the number of persons in the hospital. The ventilation should, therefore, be completely under easy control, that is, susceptible of being easily increased or diminished according to circumstances, or be shut off altogether if necessary.

FOR SUMMER.—Perhaps the best provision for ventilation during summer—in the daytime, at any rate—is to have a pane of about 15in. deep across the top of the windows, hinged at the bottom so as to open inwards; the openings to have side flanges and bevelled lintel, so that the incoming air shall be directed upwards towards the ceiling; and, in this case, the top of the window should be square and about 18in. below the ceiling (see Plan A—a). These window openings should be so under control as to be easily opened and closed, according to the temperature of the outer air and the way of the wind. Also, the windows should be so made that the lower sash may be raised 4in. and the bottom be closed by blocks, hinged to the frame outside; and the frame inside should be made 6in. deep at the bottom, so that the lower sash may be raised and the bottom remain closed, so as to let in the air only between the two sashes, and direct it upwards. By these means, the incoming air will be prevented from rushing straight on to the beds (see plan A—a.b.) When the air is being let in through the windows all other (all special) inlets to the wards should be kept closed, and the ward door shut. It should also be remembered that open windows afford efficient ventilation only when there is sufficient movement of the outer air; on hot sultry days, when the air is comparatively motionless, they are of little use in the way of ventilation; for such times some means that will cause the air to move are necessary.

FOR WINTER, and for spring and autumn, and for most nights even in summer, the outer air in our climate (and more so in countries such as Canada and Russia) being generally too cold to be admitted through open windows, it must be let into the wards out of the corridors, where it is warm. It is, of course, impossible to warm the air as it enters, before it impinges on the patients, when it is let in through open windows and the warming is done by open fires, because the patients lie between its entrance and the means of warming.* The

minutes—that is, that the ward is not being sufficiently ventilated. It is preposterous to maintain that one open fire can warm sufficiently a ward even for only ten patients—40ft. long, 25ft. wide, and 13ft. in height—that is, can raise 13,000 cubic feet of air from 32 deg. or lower up to 62 deg., whilst the air is passing in and out at the rate of the whole being renewed every twenty minutes. "In point of fact," say the Government Commissioners, "it is not to be expected that one small fire can maintain 10,000 cubic feet of air at an equable temperature when it is required to heat every minute from 3000 to 4000 cubic feet, one degree in addition to that cooled by the walls, as well as to heat all required for ventilation." "Blue Book," p. 64. And in a new "Blue Book," issued in 1898, "On the Ventilation and Warming of Board Schools," on p. 23, occurs this statement, in reference to ventilation by open windows:—"In those cases in which the ventilation was effective the temperature of the dormitory would follow closely that of the outside air, and would not exceed that of the outside air by more than about 2½ deg."

* "In our climate," say the authors of "Health and Comfort," "openings from the open air cannot be endured; nor can doors or windows, except on rare occasions, be left open even in the day and never in the night without risk . . . the admission of cold air is particularly dangerous during sleep." (pp. 3, 10.)

air may be let into the wards out of the corridors by openings through the bottom of the wall, and through the doorways; these should both be at the further side of the ward from the fire and the outlet. The special opening to each single bed ward should have an area equal to 15in. square, the openings on the upper storey being a little larger than those on the lower, because of the increase of obstruction. These openings should be under easy control by shutters.* With reference to winter ventilation, the writer in the *Encyclopædia* says:—"The fresh air should be brought in at the lowest part of the ward" (see plans A—c, B—a, C—a). If this passing of the air straight out of the corridors into the wards should be thought to be objectionable or found to be felt as a draught, the air may be carried 6ft. up inside the ward by a round cornered zinc or wooden tube on the Tobin plan, the terminal end being covered with wire grating, to prevent the patients from blocking it up. This plan should certainly be adopted for the convalescent rooms, a tube on each side of the doorway. These special inlets out of the corridors should, theoretically, be sufficiently large to give passage to the air required for all the purposes of the ward; that is, for the patient, the nurse, the gaslight and the fire; practically however—seeing that the nurse is not always in the ward, and the gas is used only at night, and the fire only in cold weather—the special openings need not be larger than 15in. square, for single-bed wards, for if the air in the corridors be sufficiently warm the door may generally be left partially open, and so be used as the principal inlet; as a matter of fact, indeed, the door is seldom shut. The quantity of air required for the patient, the nurse, and the gaslight is about 20 cubic feet each per minute, and for the fire 600 cubic feet, that is, for all the purposes of the ward, 40 cubic feet per minute in the daytime; 60 cubic feet when the gas is lighted, and 640 cubic feet when also the fire is burning. Of course the supply for the fire need not be provided for when the ward is warmed by pipes. The corridors should be supplied with fresh air in such quantity as to cause the air to move into the wards whenever the doors are opened; this will tend to prevent the air of the wards spreading throughout the hospital every time the doors are opened; letting the air in through the windows tends to drive the air of the wards into the hospital, which is always objectionable; and is also risky when there is infectious disease in the wards. In winter this supply should be obtained through the basement, by gratings in the floors of the corridors, as shown on Plan A—d, j, B, C.

The temperature of the air in the corridors should never be allowed to fall below 65deg. F., in order that its movement into and through the wards may not be felt as a draught; if it be at all below 65deg. it is sure to be so felt, and if possible be prevented from coming in; that is, the openings will be closed and the doors shut, whenever possible; at all events in hospitals for consumption.†

So much for the supplying of fresh air; what about the removing of the foul?

The air of the wards, after having been used, should be abstracted and replaced with fresh.

The rule on this point is that the whole of the air of the ward shall be abstracted and the ward replenished every twenty minutes; and that this shall be continuously going on at all times, day and night, winter and summer alike. Now, the regulation provision being at the very least 1000 cubic feet of air space for each patient, this means the removal of at least 1000 cubic feet of air out of the ward every twenty minutes, or fifty every minute for each patient. How shall this be done? In summer,

* These shutters should be on the corridor side of the wall, and be made to slide up and down on pulleys like the lower sash of a window.

† In all hospitals indeed it is to be expected that openings which let in cold air would, if the patients had their way, be closed on every possible occasion, and with reason, because in persons debilitated from exercise, the circulation and the chemical and vital changes of the body, become so languid that invalids are adversely affected by movements and conditions of the atmosphere that persons in health and activity do not feel at all.

in the daytime at any rate, it is not difficult of accomplishment by open windows alone, when there is sufficient movement of the outer air, as the windows can be opened to almost any extent; nor is it difficult in winter by the fires alone, when these are burning, as each fire takes away 600 cubic feet of air every minute.* In spring and autumn, however, it is somewhat difficult to accomplish satisfactorily, because the weather is then generally too cold to have the windows always open and yet not cold enough to have the fires continually burning, so that the abstraction cannot then be accomplished efficiently by either windows or fires; it must consequently be done by outlets specially provided for the purpose. "The foul air," says the writer in the *Encyclopædia*, "should be taken out at the highest part of the ward."† These outlets should then be in the wards, in or near their ceilings; and the best place for them is by the chimney breast, to lead into flues run up the chimney stack by the side of the smoke flue, as the Government Commissioners point out. (see plans on page cxxiv. and cxxv., A—e, C—b.) There must be a separate flue from each ward, they should lead straight to the outer air, and be capped by a Boyle's abstracter.‡ They must be somewhat tapering, that is, the first length must have an area for each single bed ward equal to a foot square, and the terminal length an area equal to only one-third of a foot square; they should be made of earthenware, glazed inside, circular or with rounded corners and without abrupt bends or angles, so that they may be easily and frequently cleaned out, so as to leave no risk of germs lodging in them to be driven back into the ward should unfavourable circumstances ever cause a puff of draught; that is, should there ever be at one and the same time closed inlets, motionless outside atmosphere, and strong draught up the ward chimney. These are, however, very seldom likely to occur all at the same time. These outlet flues should be sufficiently capacious to give passage to all the air of the wards in twenty minutes, when the speed in them is not greater than 6ft. per second, because the ventilation may at times depend principally on these outlets.

To the plan of abstracting the foul air near the floor, as advocated by Mr. Smead, of America, there are at least four grave objections: (1) It is opposed to Nature's law of atmospheric pressure, and therefore requires the use of special abstracting power by means of furnaces for its accomplishment; (2) By drawing down the foul air it causes it to be breathed over again, which recently breathed air ought never to be; (3) The fresh air supplied is apt to be forced in overheated, in fact burnt, and so made unhealthy; (4) The long tortuous abstraction flues cannot be kept clean, and will therefore become lurking places for dust and germs. The plan is quite unsuitable for hospitals, and should certainly never be used where there is likely to be infection. Besides, it is also open to the

same objections as ventilation, by open fires, viz., that it tends to draw away the air of the lower part of the ward, where it is always the least impure. Moreover, the slight tendency of the thin layer of air in contact with the outer walls to fall downwards, is no demonstration that the mass of foul air over the centre of the ward should be attempted to be drawn down, in order that it may be taken out at the bottom. "The method of low ventilation," says the Government Commissioners, "should be avoided on various grounds. . . . The heated air which passes upwards, should pass away." (Blue Book, p 4—bottom—pass 30). The plan certainly economises warmth, but it does so only at the expense of the ventilation, that is by the heated foul air not getting away.*

But the abstraction of the foul air cannot be effected by either low or high ventilation, unless at the same time an equivalent quantity of fresh air is being continuously supplied. How shall this supply be procured? Of course, as it cannot in winter be through the ward windows, it will have to be out of the corridors, and the corridors will have to be supplied with an equivalent quantity; and as this cannot be through their own windows, because that would let in cold air, its entrance will have to be provided for otherwise. The best, and perhaps the only feasible way, is that it shall be let in through the basement and allowed to pass up through gratings in the corridor floors, along the sides of the whole length of the corridors, as shown on Plans A B C; it can be then let into the wards either by special openings through the wall or by the doorway, as already mentioned.

Now, inasmuch as in the foregoing arrangement, the foul air flues pass directly from the wards to the outer air, fear may be entertained that the outer air will pass down them into the wards just as it will pass into the wards through open windows. The cases are, however, not parallel; windows afford merely cold openings, whereas the special outlets are tapering tubes, and are somewhat warm. Besides, open windows do not always let in the outer air; in cross ventilation the open windows on the leeward side of the ward act as outlets; when open windows on one side act as inlets, those on the opposite side must act as outlets. The flues, too, being at a higher level and warm, and the air at their mouths being warmer than that entering by the inlets, they must act as outlets; and particularly if the flues themselves are large at the bottom and small at the top like factory chimneys, and there is—as there should be—also continuous ample supply of cooler air flowing into the wards at a lower level (see plan A—e.g.); practically this is found to be the case. Nevertheless, the mouths of the flues in the ward ceilings should be provided with valves, as a safety against adverse circumstances; and their terminal ends outside may be protected by Boyle's air pump ventilators, which, as well as the last length of the outlet flue, must have an area equal to only 4in. square, for each single-bed ward, and must reach somewhat higher than the smoke flues.† The chimney throats also, as well as

being as large as possible, should be provided with shutters for use when the fires are not burning, and the top of the flues with small chimney pots, so as to ensure the top being of much less area than the bottom. In ordinary chimneys, when properly constructed, there is almost always a updraught, even without fires—that is, if air is passing into the room; and so, of course, there will be in the outer flues, when constructed on the same plan and with ample supply of air flowing into the wards. The whole hospital should be constructed on the same plan, viz., with large total inlets and small total outlets. (See Health and Comfort, p. 88, on the cure of smoky chimneys.)

During winter, and mostly in spring and autumn also, the supply of fresh air should be through the basement (see plan A—k.h.l.), and it should be warmed by the hot pipes as it rises into the ground floor corridor, up to the necessary temperature; that is up to 65deg. F. The whole of the basement of the pavilions should be used as fresh air and air warming chambers, their ceilings being about 6ft. above their asphalted floor for the convenience of cleaning out the dust and blacks deposited from the incoming air (see Plan A—h). The fresh air should enter the basement of the wards by openings through the outer walls, on each side of the pavilions (the primary inlets A—k), one for each ward. It should then enter the basement of the corridors (the air warming chamber) by openings through the wall on each side (the secondary inlets, A—b). Along the ceiling of this warming chamber, that is, underneath the ground floor of the corridors, the warming pipes should be distributed, being run backwards and forwards along the whole length of the corridor, in sufficient number to make sure of the air in the corridor being kept up to or above 65deg. F., when the outer air is considerably below freezing; and to ensure the air of the first floor corridor being of the same temperature, the necessary number of pipes should be run along near the cornice underneath the gratings of the corridor of the upper floor, as shown on Plan A. By this means the air will at the same time be dried, which greatly improves it for consumptive patients (see "Health and Comfort," p. 29). These pipes should be heated by a special furnace, that is, there should be two furnaces for each wing, one for warming the air of the corridors and another for warming the wards on each side of the corridor. The primary inlet openings should be near the ceiling of the fresh-air chambers, and the secondary ones about a foot above the floor, in order to break the directness of the current of the incoming air (see Plan A—k-l). The area of the primary and secondary inlets should be about 2ft. square for each single bed ward; that of the openings through the ground floor gratings equal to about 2½ft., and that of the upper floor about 3ft. The outside of the primary inlets should be protected by iron gratings; and the inside, as well as the outside of the secondary inlets, should be controllable by shutters to fall down or to slide down and up on pulleys, like the upper sash of a window, so as to regulate the quantity of cold air entering, or shut it off entirely if ever it should be desirable to do so (see Plan A—ka). Flanges, broader than the openings, should extend inwards over the top of the inside of the secondary inlets, so as to direct the incoming air towards the middle of the warming coil (see Plan A—l). If across these fresh-air chambers, or along the warming chamber, coarse woollen netting be hung, as in the ventilation of the Houses of Parliament, the air of the whole hospital will be filtered; and it may be disinfected, medicated, or perfumed at will.

(To be continued.)

preventers of down-draught; they are also real producers of up-draught, in consequence of the movements of the atmosphere forming a vacuum on their leeward side. The stronger the wind, therefore, the greater the up-draught or suction is likely to be. Any risk of down-draught through them is with a practically still outside atmosphere and somewhat of a vacuum at the mouths of the flues, from fires burning in the room, and little or no inlet of air. They are not here recommended as ventilators or means of abstraction, but merely as aids against down-draught.—See Building News, August 8th, 15th, 1890; June 26th, July 3rd, 1891.

* Unfortunately the air taken away by the fires is mainly taken from below the patient, whilst the foul air is above him; it is therefore disadvantageous rather than otherwise, as it diverts from him the air that is tolerably fresh and leaves to him that which has been fouled; in hospital wards and other inhabited rooms the air near the floor is always less impure than that near the ceiling, because the same means that cause it to rise also foul it. For this, and several other reasons, it is desirable that the fires shall not be used as ventilators, but shall themselves in all instances be supplied from a special and independent source, as recommended by the Government Commissioners. In hospitals constructed on the plan here advocated this could easily be done by flues from the fresh air chambers, terminating at sides of the grate near the floor, one on each side; their terminal ends being closeable by hit-and-miss gratings to regulate the supply, and their mouths by well-fitting valves to close them entirely when the fires are not in use.

† "While the air is in the lungs," say the Government Commissioners, "it acquires so much heat that it becomes specifically lighter than the surrounding air, and rises above our heads. . . . the heated air which passes upwards should pass away. . . . For the ventilation of rooms exits should be provided for the spent air near the ceiling, . . . to such an extent as to remove from fifteen to twenty cubic feet per minute for each occupant." (Blue Book, pp. 30, 94. See also Health and Comfort, p. 36; and Blue Book, p. 97.)

‡ If joined with others in a common shaft, not only will the abstraction be interfered with but any puff of down-draught may drive the foul air of one ward into other wards.

* It is a very mistaken notion that, because cold carbonic acid gas is heavier than atmospheric air, therefore carbonic acid is always to be found near the floor; in occupied rooms and hospital wards it is not cold but warm and therefore light, and with the other warm gases, rises towards the ceiling; besides, carbonic acid is not the only deleterious impurity. There are other more dangerous impurities, all of which, as well as the carbonic acid, are carried upwards along with the heated air. (Blue Book, p. 98.) Moreover, in an occupied room, with lights and a fire, the temperature of the air near the ceiling is generally over 65deg. F., so that air forced in below to rise above it and press it down towards the skirting abstraction, flues must be forced in at or above 70deg. F.; and, so heated, it is unhealthy, because burnt. Except the thin layer against the windows and outside walls, there is no tendency for the foul air to fall downwards, neither is it an easy matter to draw it down to the skirting board outlets; it requires indeed, strong and costly furnace power to do it. This plan of downward ventilation should never be used for hospitals, nor for anywhere else where there is heated foul air or infectious disease. (See Health and Comfort, pp. 10—top—26, 27—bottom.)

† It is essential that the outlet flues have a much less area at the terminal end than at the mouth, and that the mouth be able to be closed entirely or opened to the full extent—not to be closed by grating, but by shutter. Boyle's Air Pump Ventilators are not only very effective

LOW-PRESSURE STEAM IN DOMESTIC BUILDINGS.

By A. HUNTER CRAWFORD.

BELOW is a resumé of a lecture which Mr. A. Hunter Crawford has recently given before the Edinburgh Architectural Society, the Edinburgh Architectural Association, and the Glasgow Architectural Society. The lecture was given to the latter society so recent as the 22nd inst.

In order to give the notes as practical a basis as possible, a ground plan of a house, to cost about £3000, was shown, and the manner in which steam at say 5 to 10lbs. pressure could be utilised for heating and cooking, for hot water supply and for boiling water in the wash-house boiler, so that, if desired, there need only be the one central fire in the house for all purposes except roasting, toasting, &c. which might be done by gas cookers.

The plan showed dining-room, drawing-room, library, billiard-room, conservatory, kitchen, offices, &c., and it was taken for granted the building owner would prefer to retain the expensive cheerfulness of the open fire in all his rooms but that in those facing the north, in the billiard-room, in the hall and in the conservatory. A ready means should be provided for taking the chill off the air at any time of the year in the many damp or cold days in summer as well as in the frosty winter weather. A basement provided accommodation for the steam boiler, which could be either of the cast-iron sectional type, as made in America, or of the welded or boiler plate form, manufactured by English firms, the essential features being an automatic apparatus to regulate the furnace draught, in order that the steam pressure should not vary more than 1lb. at most. A safety valve to act should the pressure rise say 2lb. above the normal, and an automatic water supply from house cistern, with an alarm to sound should the water fall below its safe level.

From the boiler the steam would be led preferably on the "one pipe" system to the radiators, &c.

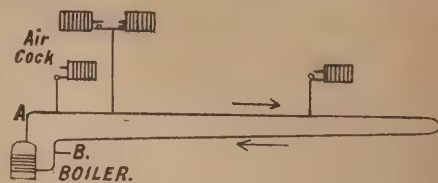
The main pipe to be taken to highest point A, and led by slight fall to automatic air cock at B, where it would descend below water level to boiler. As each radiator by this system has only one valve, the pipe to radiator must be of ample size to take the steam and also to retard the condensation. The two pipe method was also sketched. The radiators suggested were indirect radiators for the drawing-room,* direct radiators for the hall, and conservatory, the latter supplemented by pipes, and direct-indirect radiators for kitchen and billiard-room. A small steam heater would take the place of the kitchen boiler for heating the water which would circulate through a fifty to eighty gallon cylinder as usual, from which secondary flow and return pipes would be taken, or a steam coil could be placed at the bottom of the cylinder.

Steam rattle and air lock, and other faults common in steam and hot water installations, were shown on the model, which consisted of a steam boiler C, heated by a bunsen burner. The standpipe chamber D was connected to steam riser, and red water in D rose in the standpipe as pressure increased until it reached the level of syphon A, where it passed into the gas regulating tube and

closed the mouth of gas supply pipe, and, if pressure still increased, the small holes in the gas supply pipe were gradually cut off by the rising water until 1½lb. pressure was reached, when the gas admitted was sufficient to maintain a mere flicker in the bunsen burner. Should anything prevent the regulator working, the water in D would be discharged, before 2lb. pressure was reached, into cistern, and then there would be a free escape for steam from the boiler. This arrangement was a modification (to suit model) of that in use in Germany and other parts of the Continent, where the ordinary dead weight safety valve was not safe enough for domestic use.

Radiator R¹ was shown properly connected, but the automatic air valve might with advantage be placed higher, say in the middle of the radiator. R² showed a construction by which the steam was confined to the upper portion of the radiator, because the air, being heavier than the steam, lay at the bottom below level of air valve. R³ had a similar fault to R², but not to same extent, as the steam did not reach the air valve so soon as in the latter arrangement.

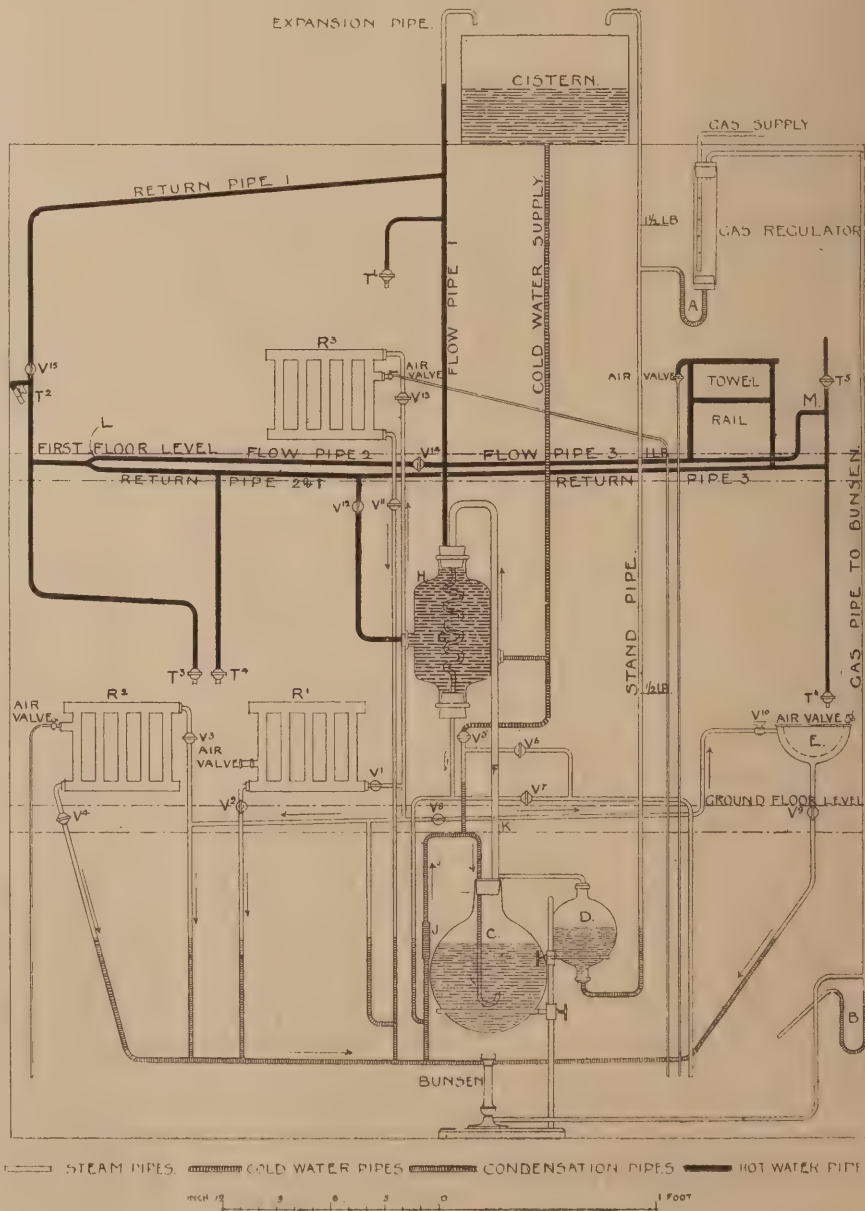
The water of condensation in all cases was returned to boiler on the two-pipe method, with a modification where it entered boiler to prevent glass breaking. The pipe to steam



jacketed boiler E (which was of copper) was taken with a rise to valve 10, and at the point where it turned to the vertical, it was seen that the condensation water formed in the pipe fell back upon the steam and caused a rattle. The steam riser F to coil in cylinder was at first about ¼ in. diameter, but a constant rattle was caused until a pipe, ½ in. was substituted, when the water fell back at the sides of the pipe, and the steam passed up the middle without obstruction.

The hot water circulation was then described, air lock being shown at L and M, and the flow of the water with three different circulations shown by coloured water and powdered amber, and their relative value tested.

A sketch was then made on the principle of flow pipe 1 showing how the most satisfactory result could be obtained.



Surveying and Sanitary Notes.

THE closing meeting in connection with the congress of the Sanitary Institute, which was held in Birmingham in September, took place a few days ago in that city, the Lord Mayor presiding. The report of the local officers stated that the congress had been successful in all respects. The number of tickets issued exceeded those of any previous year, and the attendances were in like proportion. The total number of tickets issued was 1979, as compared with 1531 at Leeds last year, 1225 at Newcastle in 1896, and 1214 in Liverpool in 1895. The number of visitors to the Health Exhibition this year was 85,212, and was 10,000 greater than had been previously attained.—Councillor Martineau submitted the financial statement, which showed that the general expenses of the congress amounted to £1463. The amount of the guarantee fund to be called up was £1469 14s. 7d., which would necessitate a call of 14s. 9d. in the pound being made upon the guarantors.—The report was adopted, and a vote of thanks was passed to the hon. treasurer (Councillor Martineau) and to the hon. secretaries (Messrs. A. Bostock Hill, W. B. Marshall, and J. E. Wilcox).—The Chairman, in replying to a vote of thanks, expressed satisfaction at the success which had attended the meetings. There was a feeling of reality about the congress which impressed him very much, and he felt that the city had benefited by their visit.

THE City Corporation having obtained an Act of Parliament authorising it to extend considerably the Foreign Cattle Market at Deptford and connect it by means of a railway with the London, Brighton, and South Coast Railway, the work, which will involve an expenditure of £100,000, will be carried out without delay. The services of Sir J. Wolfe Barry have been secured as engineer, and from report he has made it would appear that the railway and tramway outside the market will cost £32,250. For the purpose of extending the market, property in the near vicinity will be bought up at a cost of £22,000. Increased accommodation will be also provided in the shape of additional slaughter-houses, cooling rooms, increased lairage, and an extended river frontage. The estimated outlay on these works are as follows:—Slaughter-houses (a first instalment), £5000; lairage, £21,000; a junction of the three jetties (providing a continuous river frontage of 880ft.), £16,000; and property required, £22,000. The extension of the market has been rendered necessary owing to the great pressure which has been put upon the existing accommodation. The business increases every month, no fewer than 510,618 animals being slaughtered there during last year. The financial position of the market is satisfactory, as, although the loan account at one time reached a total sum of £424,000, the amount outstanding at the close of last year was only £21,000.

At a meeting of the Sanitary Inspectors' Association held on Saturday week, at Carpenters' Hall, London Wall, E.C., Mr. T. J. Moss Flower, C.E., who presided, delivered his inaugural address as chairman of the council. Having pointed out that during the fourteen years of its existence, the membership of the association had increased from 170 to 668, and the annual income from £92 to £631, he deprecated the existence of a number of sanitary inspectors' associations in the country, and urged the desirability of amalgamation. He also suggested it would be an advantage if they could organise a students' section, and also institute a fellowship. Touching on the question of superannuation, he expressed the hope that their efforts to secure this would soon be crowned with success. It was most unjust not to grant retiring allowances to sanitary inspectors. Then again, they should never give up agitating until they had been granted security of tenure, for it was a blot on our legislation that men who did such

important work should hold their offices at the caprice of a council.

THE ceremony of cutting the first sod in connection with the new waterworks for Swansea has just been performed. The cost of this scheme will be over £300,000. Messrs. Paterson, of Glasgow, have the contract for constructing the reservoir alone for about £250,000. The plans were prepared by Mr. Wyvill, the borough engineer, subject to some alterations in detail by Mr. Hill, who has now assumed responsibility for carrying out the work. They provide for a reservoir capable of holding 1,000,000,000 gallons of water, and when this is added to the over 200,000,000 gallons the present reservoirs hold it will be seen what a perfect water supply Swansea should possess on the completion of this great scheme. The dam will be at the Cray end—about 1240ft. long, and 70ft. broad at the foundation. The foundation will be laid in the solid rock, which is red sandstone, and the dam, which will be of masonry, will be 80ft. above the water level. In ordinary times the rainfall has been found to be 86.57in. near the top of the valley, and lower down 63.47in., or an average of 70in. Indeed, on one day alone the streams above the dam were so flooded that 750,000,000 gallons of water ran over the gauge at the spot where the dam is being constructed.

MR. ROBERT VIGERS, in his presidential address at the Surveyors' Institution, gave some interesting and remarkable statistics concerning the growth of London within the last half-century. Population within the administrative county had risen from 2,363,274 in 1851 to 4,232,118 in 1891, or about fifty-six persons to the acre. The number of inhabited houses was 306,064 in the former year and 548,315 in 1891, or 7.64 per house. The serious problem was how to provide a population increasing at the rate of about half a million in ten years with the proper means of internal communication. Speaking broadly, the bulk of the heavy traffic of London was between the north and south, or the termini of the great railways on each side of the river. Lighter traffic, and the ebb and flow of the pedestrian tide, was, on the other hand, mainly from east to west. What would the state of things be in twenty or thirty years' time? and yet nothing had been done to mitigate the growing inconvenience. The system of tube railways would probably absorb some of the foot traffic, but their carrying capacity would soon be reached, and wider roads and pavements, and new arteries for vehicles would become imperative. What had hitherto been done was mere tinkering, and an enormous expenditure would have to be incurred in further widening streets like Oxford Street, Holborn, Strand, Fleet Street, and Ludgate Hill, which were originally laid out for a population one-tenth the present size. The value of property had enormously risen in the City, and he had purchased for £73,000 property which the grandfather of the vendors had given £1500, or now representing a rental of nearly £3000 a year.

THROUGHOUT the past week the wealthiest quarter of the wealthiest city in the world has, says the Globe, had its principal thoroughfares in a positively disgraceful condition. Thickly covered with greasy mud, their surfaces are equally dangerous to man and horse. Only here and there is any attempt made to get rid of the filth, and even these efforts are of the feeblest. Instead of first flushing the surface, and then thoroughly cleaning it by either machine-brushing or hand-scavenging, the usual method is to employ watering-carts by themselves. The result is, of course, the creation of mud-morasses, into which whose enters leaves hope behind. When the remedy is so simple, being nothing more intricate or expensive than regular and efficient scavenging, it is simply unpardonable that public convenience and even safety should thus be deliberately set at naught.

ONE might imagine that damp, foggy weather in November is so unusual that the authorities

were caught as unprepared with remedial measures as they generally are when a sudden snowstorm impedes traffic. But in that case there is some slight excuse for delay, owing to the difficulty of obtaining sufficient carts to carry away the snow quickly. No such pretext can be assigned for the non-removal of mud. Every vestry has at its disposal all the necessary cleansing appliances; scavengers, watering carts, machine brushes, hydrants, and refuse carts are liberally paid for, to any required extent, by the ratepayers. The parish authorities cannot, therefore, plead want of means in excuse for their discreditable apathy; it is their lack of will and of energy that produces the present scandalous state of things. Even if they were caught napping at first, they have had ample time to rouse up and address themselves to the discharge of one of their most important functions, that of keeping the roads under their respective controls in clean and passable condition. It should not be left for the metropolitan public to pray for a deluge of rain as the only "deus ex machina" likely to grapple successfully with the mud fiend.

ON July 26th last, on the recommendation of the Main Drainage Committee, the London County Council accepted the tender of Messrs. John Penn and Sons, Limited, amounting to £16,900, for converting four beam-engines at the Crossness Sewage Outfall into triple expansion engines. In a letter which accompanied their tender, Messrs. Penn and Sons stated that they could not carry out the work under the conditions agreed to between the federated engineering employers and the joint committee of affiliated trade unions at the conclusion of the late engineering dispute, but that they did not anticipate there would be any great difficulty on that account. Subsequently, however, Messrs. Penn and Sons informed the Council's solicitor that they were unable to accept the conditions contained in the form of contract, and upon being asked to state in detail to what conditions they objected and what alterations they desired to have made, they replied by stating they could not then undertake the work. The Main Drainage Committee reported that in these circumstances they could see no other course open but to accept one of the other tenders received on June 28th. They passed over the next lowest tender as being one they could not ask the Council to accept, and recommended the acceptance of the next tender, that of Mr. B. Goodfellow, amounting to £20,864, as they were informed that this tenderer was capable of carrying out the work satisfactorily. The Council has now endorsed this recommendation, and the tender has been let to Mr. Goodfellow. From what has transpired it is inferred that Messrs. Penn and Sons' objection to the form of contract related entirely to the labour conditions.

THE Tottenham Urban District Council received a sharp lesson, which is of general application, on the subject of proper attention to roadmaking. They were sued in the Queen's Bench, before Mr. Justice Bruce, for damages by a furniture-van driver named Hill, who in driving down Pembury Road and under a railway arch met with a serious accident. His van was jolted and hoisted to one side by a ridge in the road, with the result that he was thrown into contact with the girders, and his collar-bone and two ribs were fractured. The District Council contended as a matter of law that they were not liable, inasmuch as they had employed an independent contractor to repair the road, and that he was responsible for any defect in it. On the other hand, it was alleged that defendants had retained such control over the contractor's work as to make them liable. Mr. Justice Bruce said there was a duty imposed upon the defendants which made them liable, they having allowed the road to be used by persons driving vehicles at the time the ridge existed. There was, therefore, neglect of duty, and he must give judgment for the plaintiff for £150. He was reluctant to stay execution, but he would do so on condition that £75 was paid over to the plaintiff within a fortnight, and notice of appeal given within that period.

COMPLETE LIST OF CONTRACTS OPEN.

DATE OF DELIVERY.	WORK TO BE EXECUTED.	FOR WHOM.	FROM WHOM FORMS OF TENDER MAY BE OBTAINED.
BUILDINGS—			
Dec. 2	Bradford—Engine House		S. Jackson and Sons, Tanfield-chambers, Bradford.
" 2	Halifax—Pair of Villas		
" 2	Hastings—Coastguard Station	Admiralty	Coastguard Station, Hastings.
" 2	Coverack—Hotel		S. Hill, Green-lane, Redruth.
" 2	West Hartlepool—School	School Board	School Board Offices, Park-road, West Hartlepool.
" 3	Sheffield—Urinal and Wall	Health Committee	C. F. Wike, Town Hall, Sheffield.
" 3	Blackburn—Wing to Infirmary		Simpson and Duckworth, Richmond-chambers, Blackburn.
" 3	Boat of Garten Bridge		A. Mackenzie, Kingussie
" 3	Falkirk—Manse		A. Gauld, Melville-trust, Falkirk.
" 3	Keighley—Houses		W. H. and A. Sugden, Keighley.
" 3	St. Albans—Four Shops, &c.		J. E. Austin, 23, York-place, Baker-street, W.
" 5	Halifax—Villa		G. Buckley and Son, Tower-chambers, Halifax.
" 5	Greetland—Twenty-five Houses		S. Wilkinson, Sowerby Bridge.
" 5	London, W.—Conveniences	St James' Vestry	Surveyor, Vestry Hall, Piccadilly.
" 5	Sutton—Buildings	Great Northern Railway Company	Company's Engineer-in-Chief, Amiens-street, Dublin.
" 5	West Yale—Twenty-five Houses	Sowerby Bridge Industrial Society Ltd.	S. Wilkinson, Sowerby Bridge.
" 6	Loughborough—School	School Board	Barrowcliff and Alcock, Mill-street, Loughborough.
" 6	Rugby—Fire Brigade Station	Urban District Council	D. G. Macdonald, Surveyor, Rugby.
" 7	Waddon—Hospital Additions	Croydon Town Council	Borough Engineer, Town Hall, Croydon.
" 8	Dorking—Shed	Guardians	Bagman and Benison, 76, South-street, Dorking.
" 8	Winchester—Workhouse Additions, &c.		Cancellor and Hill, 12, Jewry-street, Winchester.
" 9	Ovenden—Two Villas		M. Hall, 29, Northgate, Halifax.
" 10	Troon—Schools		H. W. Collins, Penryn-street, Redruth.
" 12	Barnsley—Electricity Buildings	Corporation	G. H. Taylor, St. Mary-place, Barnsley.
" 12	Eccles—Bowl House and Pavilion	Parks Committee	Borough Surveyor, Eccles.
" 13	Coventry—Sub-Stations	Electric Light Committee	J. E. Swindlehurst, St. Mary's Hall, Coventry.
" 13	Easington—Houses	Admiralty	Director of Works Dept., Northumberland-avenue, W.C.
" 13	West Ham—Sessions Court, &c.	Corporation	L. Angel, Town Hall, Stratford, E.
Jan. 24	London—Tunneling Works	London County Council	Engineer's Department, County Hall, Spring-gardens, S.W.
No date.	Barrowby—Room		Canon Welby, Barrowby Rectory, Grantham.
"	Belfast—Cottage	R. Britton	W. J. Moore, Whitehall-buildings, Belfast.
"	Bradford—Warehouse		W. J. Morley, 269, Swan arcade, Bradford.
"	Carlisle—Rebuilding Inn	Jennings Bros. Ltd.	J. Graham, Bank-street, Carlisle.
"	Leeds—Offices		J. M. Fawcett and Son, 26, Albion-street, Leeds.
"	Rotherham—Ovens		Roundwood Colliery, Rotherham.
"	Selbergh—Hotel		J. Hutton, Kendal.
"	Thurnscoe—Three Houses		T. R. Dodds, 19, Baxter Gate, Doncaster.
"	Wrexham—Hotel		C. Bate and Son, Wrexham.
ENGINEERING—			
Dec. 2	Sleaford—Waterworks	Rural District Council	J. Clare, Sleaford.
" 2	Birmingham—Heating	Guardians	W. H. Ward, Paradise-street, Birmingham.
" 3	Chorley—Watermains, &c.	Rural District Council	A. Jolly, 9, High-street, Chorley.
" 5	Bishop Auckland—Sewer Ventilating Shafts	Rural District Council	C. Johnston, 1, Cradock-street, Bishop Auckland.
" 5	London, E.C.—Buoys	Corporation	C. A. Kent, Corporation of Trinity House, E.C.
" 6	Limerick—Steam Road Roller	Corporation	W. M. Nolan, Town Hall, Limerick.
" 6	London, N.—Pumps, &c.	Urban District Council	J. Taylor and Sons, 27, Great George-street, Westminster.
" 9	London, E.C.—Hydraulic Appliances	G.E. Rly Co.	Engineer, G.E. Rly. Co., Liverpool Street Station, E.C.
" 12	Kinson—Extending Hot Water Apparatus	School Board	S. J. Newman, Branksome.
" 12	London, E.C.—Well	Shoreditch Vestry	Engineer, Electricity Department, Coronet-street, N.
Jan. 2	Quebec, Canada—Bridge		Quebec Bridge Company, Canada.
" 6	Johannesburg—Carburetted Water Gas Plant	Town Council	B. Whyte and Co., 22, Bury-street, St. Mary Axe, E.C.
" 24	London—Tunnel	London County Council	Engineer's Department, County Hall, Spring-gardens, S.W.
March 15	Belem, Para, Brazil—Water Supply Transfer	Government	Brazilian Consulate, England.
" 15	Rio de Janeiro—Waterworks		Commercial Department, Foreign Office.
No date.	Liverpool—Cranes		W. P. Hately, Aintree, Liverpool.
"	London, W.C.—Tramway Engines	British Electric Traction Co.	C. H. Gadsby, Doning on House, Norfolk-st, Strand, W.C.
"	Prescot—Tunnels		Manager, Eccleston Hall Colliery, Prescot.
"	Tunbridge—Driving Slants		Manager, Great Mountain Colliery, Tumble.
"	Witlington—Sludge Lifting Plant	Urban District Council	A. H. Mountain, Town Hall, Witlington.
IRON AND STEEL—			
Dec. 2	Lancaster—Pipes	Rural District Council	Surveyor, 5, Dalton-square, Manchester.
" 2	Middlesbrough—Pipes, &c.	Corporation	F. Baker, Municipal Buildings, Middlesbrough.
" 2	Blaen-Rhondda—Gas Mains	Urban District Council	C. Thomas, Engineer, Gas and Water Office, Centre.
" 8	London, E.C.—Steel Tyres		Sec. H. H. the Nizams, Guaranteed State Railways Co., Winchester House, Old Broad-street, E.C.
" 19	London, S.W.—Rails, &c.		Agent-General for Victoria, 15, Victoria-street, S.W.
No date.	Evesham—Mains	Corporation	P. H. Fletcher, Gas Works, Evesham.
ROADS—			
Dec. 2	Hull—Flags	Corporation	A. E. White, Town Hall, Hull.
" 2	East Molesey—Materials	Urban District Council	Surveyor, Walton-road, East Molesey.
" 5	Birkenhead—Macadam	Corporation	A. Gill, Town Hall, Birkenhead.
" 5	London, W.—Granite	Paddington Vestry	Surveyor's Office, Vestry Hall, Harrow-road, W.
" 5	London, W.—Granite Curb, &c.	Paddington Vestry	Surveyor's Office, Vestry Hall, Harrow-road, W.
" 6	Branksome—Road Works	Urban District Council	S. J. Newman, 3, Tennyson-buildings, Ashley-d., Branksome.
" 6	Brentford—Making-up		Borough Surveyor, Town Hall, Luton.
" 6	Luton—Paving	Town Council	Surveyor, Town Hall, Felixstowe.
" 7	Felixstowe—Road Works	Urban District Council	
" 12	Church—Paving, &c.		
No date.	Doncaster—Road Works		I. R. Dodds, 19, Baxter-gate, Doncaster.
"	Gravesend—Road Works	Gravesend Land Co. Ltd.	Rayner and Bridgland, 16, New-road, Gravesend.
SANITARY—			
Dec. 2	Middlesbrough—	Corporation	F. Baker, Municipal-buildings, Middlesbrough.
" 5	Halifax—Scavenging	Rural District Council	A. Roke, Clifton, Brighouse.
" 14	Mansfield—Sewers, &c.	Town Council	R. F. Vallance, Surveyor, Mansfield.
" 15	Walsend—Scavenging	Urban District Council	G. Hollings, District Council Offices, Wallsend.
No date.	Leavesden—Alterations	Guardians	C. P. Ayres, 14a, High-street, Watford.

COMPETITIONS.

DATE DESIGNS TO BE SENT IN.	DESIGNS REQUIRED.	AMOUNT OF PREMIUM.	BY WHOM ADVERTISED.
Dec. 3	Vagrant Wards		S. B. Descon, Pewsey.
" 12	Morley—Schools		Morley School Board, Gildersome-road, Morley.
" 31	Stockholm—New Stations		Secretary, Royal Administration Swedish State Railways.
Jan. 1	Hull—Library	£50, £30, £20	Public Libraries Committee.
" 2	Harrogate—Pump Room	£50, £30, £20	Corporation of Harrogate.
" 2	Harrogate—Alterations to Old Pump Room	£30, £20, £10	Samuel Stead, Boro' Surveyor, Municipal Offices, Harrogate.
" 2	Bradford—Fire Brigade Station	£100, £50, £30	Corporation of Bradford.
" 14	Burnley—School, &c.		Burnley School Board, Ormerod-road, Burnley.

Property and Land Sales.

To Contractors, Builders, Engineers, and Others.

MESSESS. FULLER, HORSEY, SONS, and CASSELL are instructed to **SELL** by **AUCTION**, in Lots, at Bell-yard, Bell-road, Bromley, E., on **THURSDAY, DECEMBER 1st, 1898**, at Twelve precisely, **CONTRACTOR'S SURPLUS PLANT and MACHINERY**, including 18 h.p. portable engine, 7ft. mortar mill, with vertical engine and boiler; mortar mill, with 7ft. pan; 2 Chaplin's portable steam cranes, hand-power derrick crane, 10 crabs and winches, 15 iron ships, Sissons and White steam pile driver, 7 pile and wringing engines, 12 pile monkeys, double cylinder steam winch and vertical boiler, portable steam hoist, 3 Gwynne's centrifugal pumps, 2 chain pumps, 3 pairs contractor's pumps, Blake's steam pump, Blake's stone crusher, Adie's cement tester, 12 one-yard end-tipped wagons, 10 trolleys and frames, 5 tons contractor's rails, 10 iron tanks, 6 portable offices, 6 large anchors, shear and pipe legs, iron blocks, 2 sand-washing machines, 25 tons wheels, girders, and ironwork, 150 loads useful timber, 5 loads greenheart ends, 200 struts, 10,000 assorted bricks, large quantity stone, slates, tiles, &c., iron and wood sashes and doors, stone truck, spring cart, and other effects.

May be viewed the day preceding, and catalogues had on the Premises; and of the **AUCTIONEERS**, 11, Billiter-square, E.C.

FAIRMILE PARK, near Cobham, Surrey.—A **FREEHOLD BUILDING ESTATE** of about 40 acres, with possession.

MESSESS. DRIVER and CO. have received instructions to offer to **AUCTION** at the **MART**, Tokenhouse-yard, Lothbury, **NEXT SPRING** (unless previously sold by private contract), the above property, situate in a favourite residential district, about a quarter of an hour's walk from the Oxshott and Fairmile Station, and about a mile and a half from Cobham Station. The estate comprises Building Land, ripe for development, the higher portion (sloping to the south) possessing charming views over the intervening country to Epsom Downs; and a Residence known as "South Lodge," with stabling and garden; Eight small Villas, some Cottages, and the "Griffin" Beerhouse. On a portion of the estate brickearth is being worked, and will be included in the sale as a "going concern."

Particulars and plans, when ready, can be obtained of **CHARLES JUFF, Esq., Solicitor**, 48, Lime-street, E.C.; and of **Messrs. DRIVER and Co.**, 23, Pall Mall, S.W.

SURREY.—Choice BUILDING ESTATE.

—In a charming district, two miles from Horley station (L.B. and S.C. Ry.) under one hour from London and adjoining a village where are church, shops, and post-office; two miles from Roman Catholic Church.

FOR SALE, a compact and valuable **FREEHOLD PROPERTY** of 53 acres, with a frontage to the main Brighton road of 2000ft., and perfectly ripe for development, with residences of a good class. Prettily timbered. Gas and water mains along the frontage. Would be divided.

Plans and full particulars of the owner's agents, **Messrs. GREEN and SIMES**, Auctioneers and Estate Agents, Blenheim Mansions, Queen Anne's-gate, London, S.W.; or **Mr. W. M. LEACH**, Auctioneer and Estate Agent, Crawley, Sussex.

By order of the Trustees of Morden College.

GREENWICH.

To Brewers, Licensed Victuallers, and other Investors.

MR. MATTHEW MILES (late Warlters, Lovejoy, and Miles) is instructed to **SELL** by **PUBLIC AUCTION**, at the **Masons' Hall Sale Rooms**, E.C., on **TUESDAY, DECEMBER 13th, 1898**, at **ONE O'CLOCK** precisely, the undermentioned very valuable **PROPERTY**, in Two Lots.

A **REBUILDING LEASE** for **EIGHTY YEARS**, at a

Ground-rent of £125 per annum, with possession at Midsummer next, of

The **GLOUCESTER TAVERN**, Fully-licensed Publichouse, with a frontage to King William-street of 169ft. and to Nevada-street of about 83ft., thus offering exceptional facilities for early development. This property is most prominently placed, immediately facing one of the principal entrances to Greenwich Park, and covers an area of about

8460 Square Feet.

A **REBUILDING LEASE** for **EIGHTY YEARS**, at a

Ground-rent of £80 per annum, with possession at Christmas, 1899, of

The **DUKE of WELLINGTON** Fully-Licensed Publichouse, No. 128, Old Woolwich-road, East Greenwich.

having a superficial area of about 4510 square feet.

This house is well situated for business, and when rebuilt should command an extensive trade, to which the improvements now taking place in the immediate neighbourhood must necessarily contribute.

May be viewed by leave of the respective tenants. Printed particulars and conditions of sale, with plan, may be had of **Messrs. GOLDING and HARGROVE**, Solicitors, 99, Cannon-street, E.C.; of **T. BARNES-WILLIAMS, Esq.**, Surveyor to the Trustees, 24, Railway-approach, London Bridge, S.E.; and of the **AUCTIONEERS**, 55, Chaucery-lane, W.C.

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WANDSWORTH.—Freehold, close to the old town.—**Builder's Premises**, about one-third acre in extent, suitable for erection of workshops, laundry, &c., together with large residence and stabling, which **Messrs.**

BOREHAM and COMPANY (of Mowbray House, Norfolk-street, Strand, W.C.) will **SELL** by **AUCTION**, at the **Mart**, E.C., on **WEDNESDAY, DECEMBER 14th**.

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R. I. B. A. SOCIETY OF ARCHITECTS, and CIVIL SERVICE TECHNICAL EXAMINATIONS. Preparation by correspondence, in residence, or personally.—MIDDLETON and GARDEN, 19, Craven-street, Strand, W.C.

PLANS, SPECIFICATIONS, QUANTITIES, &c., carefully prepared by young Architect. Moderate terms to those about to build.—ARTISTIC, 1, West-terrace, Whithy.

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ARCHITECT and SURVEYOR'S ASSISTANT.—WANTED at once, good draughtsman, able to level and make small surveys. Knowledge of specifications required.—Apply, in first instance, by letter only, enclosing references and stating salary required, to **Messrs. POWELL and Co.**, St. Swithun's Estate Offices, Lewes.

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All the "**Granitic Stoneware**" Pipes are made from "**Stoneware**" Clays, of which we are the Sole Proprietors. The Clays are carefully selected and blended to insure a hard, dense, **impervious and imperishable** body, specially adapted for **Sanitary** purposes. The Pipes have a "**toughness**" as opposed to "**brittleness**," which is not possessed by any other Stoneware Pipes. They have been proved to withstand the highest crushing and bursting pressures under tests by Kirkaldy and other authorities at home and abroad. They are made by the most improved Patent Machinery and are highly approved for their uniform superior quality. All the Pipes are stamped with the Trade Mark, "**Granitic Stoneware**," as above.

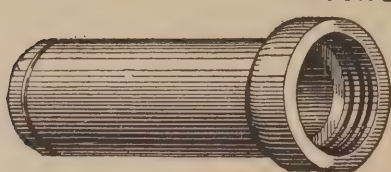
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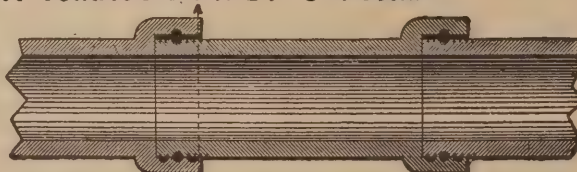


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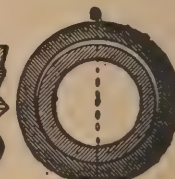
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LONGITUDINAL SECTION THROUGH C



SECTION THROUGH

Sound Portland Cement Joints to stand any test. True alignment of the Invert and Firm Rest. No obstructive ledges at Invert as with ordinary Socket Pipes. Free Flow. No Stoppage. Full Capacity of Sewers and Drains maintained.

CHEAPEST IN FIRST COST AND MAINTENANCE.

The **Patent Paragon Pipes** are superseding the **Ordinary Socket Pipes**. They are being specified for important Sewerage and Drainage Work in all parts for Government, Corporations and Sanitary Authorities. They have been used for the new Drainage of Smedley's Hydropathic Establishment, Matlock, Derbyshire, and the Royal Opera House, Covent Garden, London, &c.

To meet the requirements of **Sewerage and Drainage** according to circumstances, the **Patent Paragon Pipes** are made in **three** forms:—(A) With ordinary depth of Socket for Surface Water Drains, &c.; (B) With **deep** Sockets for **Sewers and House Drainage** and (C) With **extra deep** Sockets for the Best Class of Work.

When **specifying**, the Name should always be given in full, as **Patent Paragon Pipes A, B, C**, according to the kind required.

SYKES' PATENT JOINT PIPES.

THE MOST RELIABLE
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IN WATER-LOGGED
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WATERTIGHT JOINTS
MADE WITH THESE
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An Architectural Causerie.

Church Restoration in Norfolk.

OUR recent article embodying the fact that Worstead must be restored suggests some remarks which will be found to relate not so much to this one church as to parish churches in general; those of Norfolk particularly. A church which would accommodate per-

haps two or three thousand people is only resorted to now by as many as can be spared from amongst the inhabitants of a village (no longer a town of importance), the actual population of which is set down in the Cyclists' Companion as only 800. One enters the church to see the interior rearranged to meet the case of a congregation reduced to something exceedingly small; the whole of the nave deserted, and a pulpit set up against the north wall in the east, so that the pastor confronts a very compact little audience, and the present extent of his church is only the width of the chancel. This having been duly noted, our attention was drawn to the usual appeal for money to be devoted to restoring the building. The architect's report on its state is appended to the appeal, and as it is carefully drawn it should be attentively studied. It is thought that £2000 more or less will suffice for the present. If only to ensure its stability, a good deal must be spent at once, and this to a generation that looketh so greedily for outward and visible

signs may seem to be wilfully wasteful, whereas it *must* be done first, and is of the utmost importance, for what is there but absolute folly in lavishing ornament on anything less than perdurable? The architect puts this consideration before any other, and proceedeth to say 'twill be better to do the thing gradually, the ultimate object being to restore to the church as a whole the semblance at least of its splendour. The laudator of the remote may have noticed, stuck up in the belfry, an announcement strangely anachronous of a cyclist's gymkana to be organised there very shortly, and may have sighed as he buttoned his pockets. The above, we believe, is a fairly correct statement of how matters stand at the moment. The county of Norfolk, once the richest in England, has perhaps more churches requiring attention than any, and those of the largest size. Its flint-built perpendicular churches, with their great commanding towers, are its most familiar features. They may be said, speaking roughly, to be much of one date; and, excepting the few that are sheltered, about equally miserable in outward appearance.



AN OLD INN AT NORTON ST. PHILLIP, SOMERSET. SKETCHED BY MISS MILDRED R. BENNETT.

The exterior may be redeemed as at Worstead, by the handsomest courses of ornament wrought in shaped stone; the façade by its beautiful panelling, but their awaits us within a visitation of sadness which, as long as one stays in Norfolk, will be repeated only too often. There is not even gloom to exalt us, for there are windows of vast extent, admitting nothing but colourless light, and flooding some acres of what may have been whitewash once on a time. The comparative poverty of mouldings, which "incline to the chamfer plane," and provide no lurking places for shadows, has probably something to do with it, but, whatever the reason, the impression remains. As Worstead is one of the finest churches, and its congregation, having regard to its size, is certainly one of the smallest—it may be regarded as typical, and the question which vexes one is, what are we to do with them all? The most obvious need is of a missionary, possessed of the zeal of a Wesley or, if it liketh you better, a Savonarola—a Loyala—whose object shall be to restore, not the church, but the congregation. Supposing this could be done, there remains little doubt in our mind that the money required would come, but for a change so complete we must wait, and meanwhile the clergy are begging. There is a growing disposition to think that the interest of churches as objects of beauty, apart from their purpose or use, is sufficiently great to allow of the charge for their maintenance being borne by the people at large, and there was presented to us only lately the report of a meeting held in the House—the Duke of Westminster presiding—which had as its object the union into one body of several societies, which endeavour, each in its way, to preserve what is worth preserving, and to obtain for this body when formed the recognition of Parliament; but the members of all these together represent not a tithe of the voters, and it remains to be seen how long it will be before the hyperæsthetic idea of maintaining our churches merely because they are beautiful will be favourably entertained by Mr. John Bull. We have already in England the spectacle of a nation consisting largely of abstainers from Sabbath observances, and nonconformers for different reasons, whose components contribute perforce to the maintenance of the Establishment, and now the suggestion is that the whole cost of maintaining the buildings themselves shall be drawn from the rates. There is comfort perhaps in the thought that funds so obtained would be administered by our own officers; but there are still two sides to the question, and it is thought that consideration of the greatest happiness of the greatest number should enter largely into the question. A great deal of what could be said of these churches, their empty windows especially, must be withheld for the present. It may be thought that an Anglo-American completion fund is just as much needed as the one we propose to devote to the maintenance of the same buildings, for how many square miles of mere window space have yet to be filled with stained glass. The Perpendicular style was evolved, it would seem, to make work for the Christopher Whall of the day. As examples of what was actually done we may point to the windows of Fairford, St. Margaret's, Westminster, the chapel of King's College, Cambridge, and perhaps a few others; but these are the exceptions, and there is nothing more hopelessly incomplete, to our mind, than the buildings above described; but to do or attempt to do what we suggest would, of course, be worse than absurd until we have recovered the worshippers. One feels in these gaunt parish churches as many have felt in Rome, where you may prowl throughout the long day within the circumference of the original city, and recall what you can of her past.

E. R.

ON REFLECTION.

Vandalism in Florence.

A writer in *The Academy* calls attention to the policy of modernity which, under the discretion of the municipal council of the city, has, during the last few years led to the destruction of many ancient Florentine buildings. "A few years ago," says the writer, "the beautiful Mercato Vecchio was turned into a bran-new Piazza Vittorio Emanuele," but this is not all, for it is rumoured that there is an intention to dismantle the Ponte Vecchio and the Palazzo Guicciardini in favour of a tram line along the Via Guicciardini to the Pitti. The Academy writer points out that if a tramway to the Pitti were needed, which it is not, it might run over the Ponte S. Trinità and along the Via Maggio, without doing any positive harm. It seems incredible, however, that it can really be proposed to modernise the old Ponte Vecchio, which, with its goldsmith stalls, is one of the most characteristic and individual features of mediæval Florence. The reason which is said to prompt the authorities to favour this scheme is a strange satire on the tastes and appreciative faculties of the foreign visitor; for the tram line, and the dismantled bridge and Piazza have been conceived as a concession to their wishes. It is considered that facilities of cheap locomotion and gayer streets would further attract the tourist and enrich the citizens; and as the Ponte Vecchio is not one of those historical monuments to which the guide-books grant many paragraphs, it may well be spared. However, a Society for the Preservation of Ancient Florence has already been formed in Florence itself, and it is hoped that with the co-operation of an expression of English and American opinion the municipal authorities may be persuaded that it was to their interest to preserve these ancient buildings. A memorial is already in circulation, and a copy of it will lie at the offices of the BUILDERS' JOURNAL for signature until the 10th inst. It may be pointed out that this is no instance of unwarranted interference, as the memorial in question is of Italian origin.

Statues for London.

WE have noticed with gratification that under its new General Powers' Bill the London County Council is about to consider a proposal that statues of Chaucer and Milton should be placed upon the site which will become available under the Strand Improvement Scheme by the removal of the Holywell Street block of houses. We think this idea, which we believe is to be attributed to Mr. Palmer, a most admirable one, and it has recommendations that should appeal to everyone. Neither Chaucer nor Milton have been made subjects for public statues in London, although Milton is one of the three figures which grace the disconsolate-looking fountain in Hamilton Place, and he is prominent in the bass-reliefs about the Albert Memorial; yet both he and Chaucer, and Spenser also for that matter, were Londoners. By a graceful coincident also, the year 1900 sees the fifth centenary of Chaucer's death. The site, too, apart from the æsthetic possibilities it suggests, has a further fitness and significance, for the spot will be within the circle which has been the chief scene of the literary history of England. The proposal for a statue of Milton in Cripplegate churchyard, which was mooted a short time ago, is, we think, a futility. The sentiment is false; it is the memory of Milton we would celebrate, not his hidden tomb. Wherever the suggested statues are placed, however, we hope and trust that they will be adequate, and that they will be 'distinguished above other modern

London statues by an appreciation of the grand possibilities such works afford, to beautify the city. To this end the statue must not be placed where casual expediency may indicate, but must be central and symmetrical with its surroundings. It should be the focus to which the eye is instinctively led. In consummation of this idea the statue must not merely show the poet frozen to white stone, standing solitary in the rain; but should be a composition which is a panegyric on the personality and nationality of the poet, and a trophy to his achievements; somewhat let us say, in the spirit, though not in the letter, of modern French memorial sculptures. The actuality of General Gordon in the public mind might perhaps palliate, though it could never excuse, the crude, bald realism of the otherwise true and pathetic statue in Trafalgar Square, which is year by year losing all meaning; but any such qualities would be wholly intolerable in a monument to Milton raised now.

Our Cathedrals.

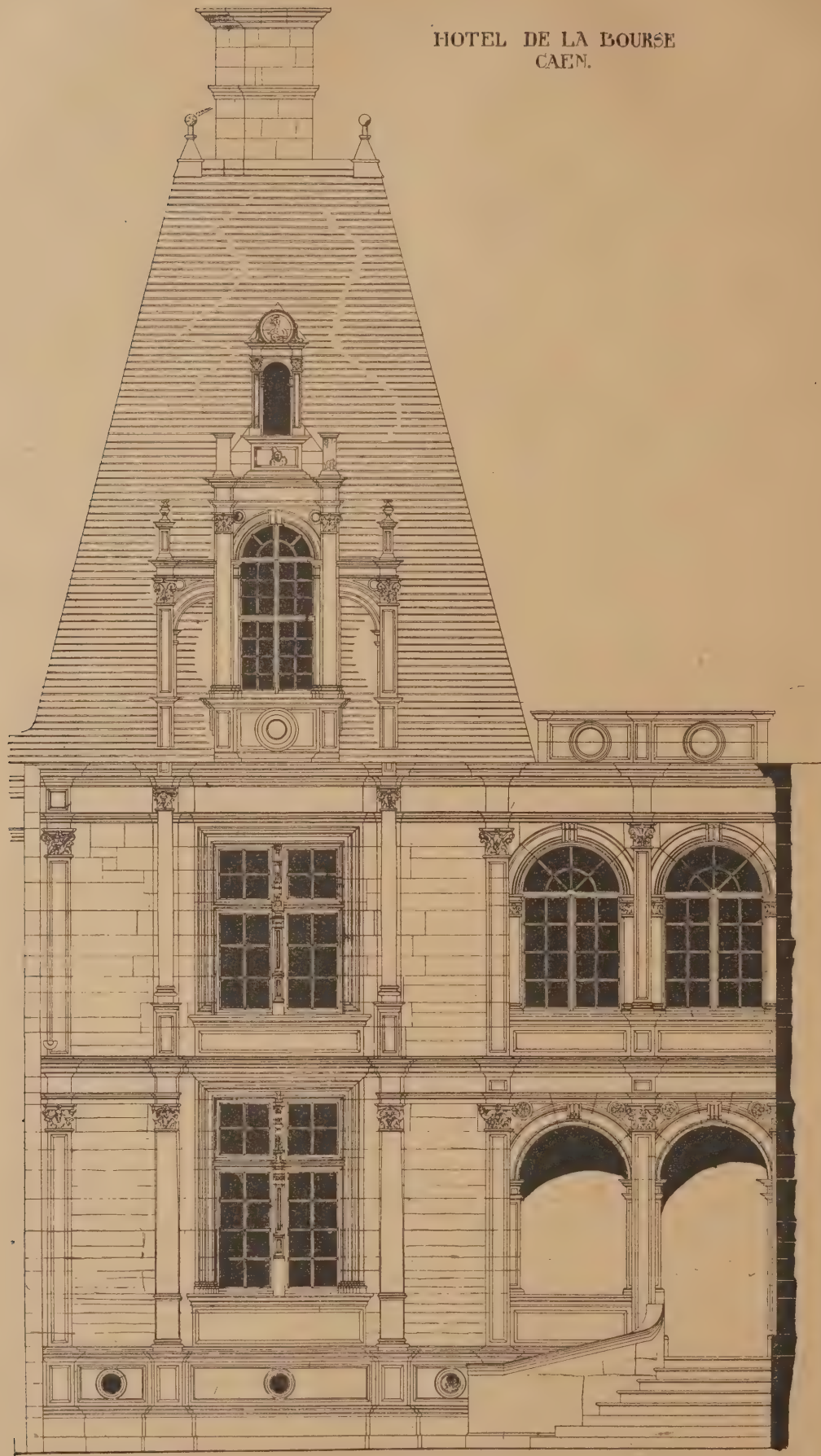
WE probably never fully realise what vast sums are subscribed by the public towards the restoration and maintenance of our cathedrals. In the ten years following 1883, £32,000 was collected to cover the expenses of the restorations at Peterborough, and since 1894 nearly £10,000 more has been given, while yet another £10,000 is asked for the completion of the western towers and minor repairs, of which sum £500 was promised at a meeting lately convened on behalf of the fund. At Canterbury, Dean Farrar is raising a fund of £20,000 for purposes of replacing the decaying portions of the cathedral fabric, and, as lately described in this column, £27,000 has been subscribed to meet the expense of building the nave of Truro Cathedral, the work being arranged to commence next year. In Dublin also, the expediency of speedy restoration of the eastern chapels of St. Patrick's Cathedral is being urged, and in Belfast, the munificence of the late Countess of Shaftesbury, who bequeathed £7000 to the project, has enabled a sum of nearly £15,000 to be raised for the building of the proposed Belfast Cathedral, which, according to the plan and estimate of the architect, Mr. Drew, is to cost nearly £50,000. We have no doubt that there are other works of the same kind in progress elsewhere to which our attention has not been called. The restoration of these old buildings, if carried out in a properly reverential spirit, is a costly matter, but the money is well spent that preserves to us some of the noblest Art relics of antiquity, and may be considered to be invested at a sort of compound interest for the benefit of posterity, for every year that passes lends its aid to the enrichment and preciousness of these inimitable links with the past.

INN AT NORTON ST. PHILLIP.

THE old coaching inn at Norton St. Phillip, Somerset, a drawing of which we illustrate on our front page, is situate about six miles from Frome, on the Old Bath Road. It was built early in the fifteenth century, and is said to be the oldest licensed house in England. Some authorities say it was formerly the Grange of the Prior of the Carthusian Abbey at Hinton. In old days, Norton St. Phillip was noted for its large cloth and wool fair, which was held in the large upper room of the "George." The Duke of Monmouth slept there on the night of June 26th, 1685. The following day the rebels won a skirmish against the king's troops under Feversham, and were able to make their entrance into Frome. While at the inn, a man fired at the duke while he stood in the window, hoping to get the reward offered for his life.

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HOTEL DE LA BOURSE
CAEN.

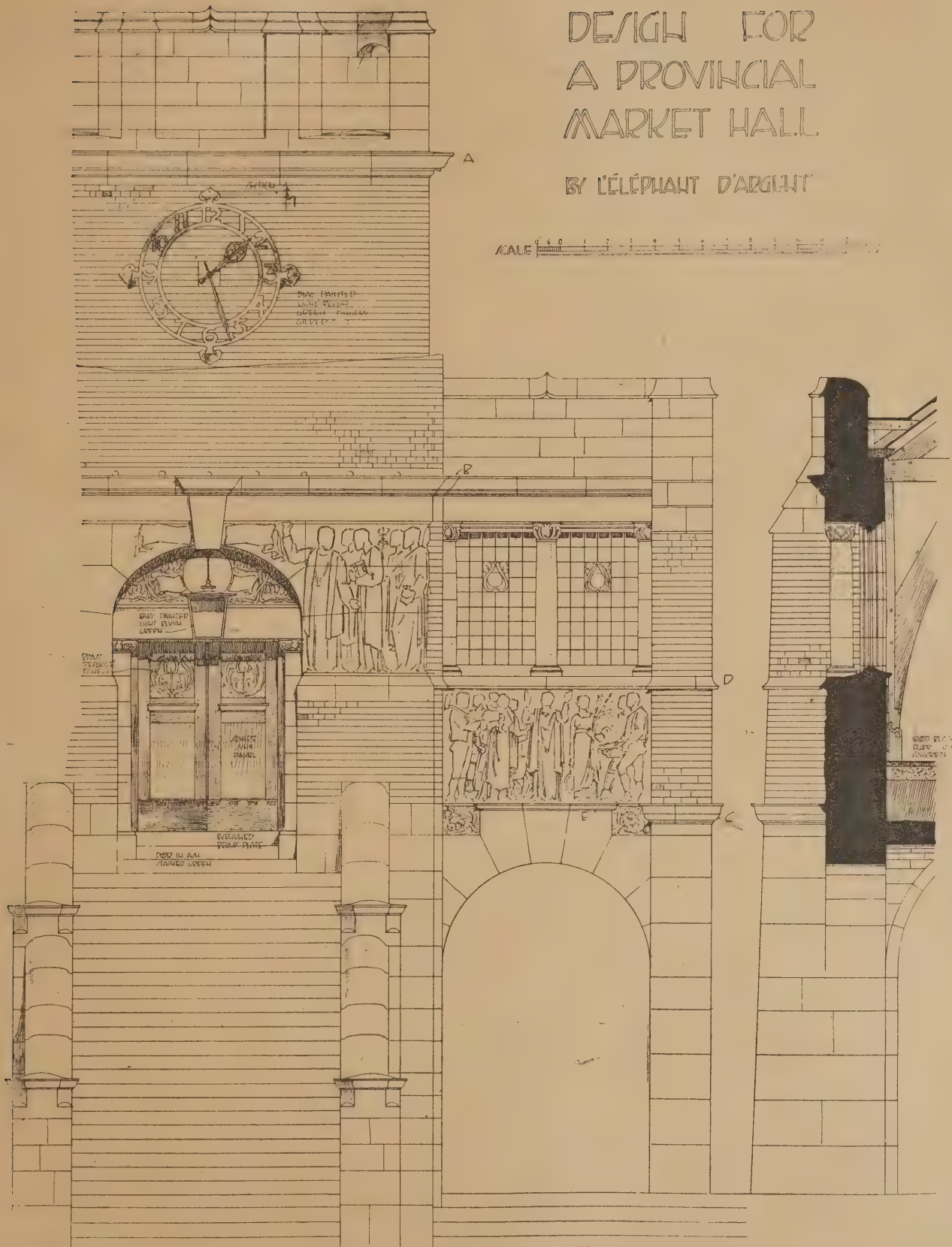


HOTEL DE LA BOURSE, CAEN. DRAWN BY J. EDWIN FORBES.
Vide ARCHITECTURAL IMPRESSIONS IN FRANCE.

DESIGN FOR
A PROVINCIAL
MARKET HALL

BY L'ÉLÉPHANT D'ARGENT

SCALE 1" = 10'



DETAIL OF
TOWER :

ELEVATION
OF ONE BAY

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ARCHITECTURAL IMPRESSIONS IN FRANCE.*

NOTES ON A HOLIDAY TOUR.

BY J. EDWIN FORBES.

II.

WE left Caen for the seat of French Renaissance—the Loire district. In passing Paris—the fairest of all cities—I can only advise those who have not yet been there to go and study it—its Street Architecture, its churches, its museums, its theatres. I am not going to attempt to describe Paris, not even to touch on, but only to draw your attention to what Gwilt has to say about its Street Architecture. The most beautiful Street Architecture in Europe is to be found in Paris; and so great in that respect do we consider that city that we are certain the education of an architect is far from complete if he be not intimately acquainted with the examples it affords.

We caught the Spanish mail train from Paris to Blois. The first building that really attracted our attention was the Château. I never saw it look so grand as it did that moonlight night of our arrival, towering high above us, looking the emblem of strength and beauty.

The town is fairly interesting and very well situated, the main street being in a valley, and running at right angles to the river, while on either side the ground rises, crowned on the one by the Château de Blois, while on the other is the Cathedral with its classic tower.

Let us begin with the Château. It is well worthy of a brief description. The plan is, roughly speaking, an irregular four-sided figure, with a break in the south-east side. It has been built, added to, and reconstructed at various times. It divides itself into three wings. The François I. wing, the Gaston wing, the remainder Louis XII. wing. The most interesting by far is the François I. wing, in the centre of which is a magnificent open staircase. The rooms inside are all very spacious, each with its stone chimney-piece, all rather heavy in design. The ceilings have wooden rafters, the underside of same is generally decorated in colour. The walls are all painted in some large design, a warm red with blue being the favourite, but most of the colour decoration has been restored. The floors are oak parquetry, and beautifully polished. There are no lobbies—the one room leading out of the other, and so on. There are only two rooms in the whole Château which are panelled—the one is the Queen's study, which has 250 carved oak panels, all different, and very elegant in design, picked out with gold leaf; the room next it, and of the same size, having only the designs stencilled on the panelling—not carved. The effect is brilliant. The Gaston Wing dates from the time of Gaston d'Orleans, and is the most unattractive piece of work imaginable. The creature took into his head to reconstruct the Château, but either haply died or was persuaded to stop after completing a side and a quarter.

The remainder belonging to Louis XII. time is a side and a half, and is very harmless to the outside, and rather picturesque to the courtyard. It is executed in red brick, with yellow stone dressings, giving a nice piece of colour, and is in a similar style to François I. Wing.

A three days' trip we took to Château Chambord was the most interesting part in the whole of our holiday.

It is a pleasant run of fifteen miles on the steam tramway to Bracieux, from whence it is a four-and-half miles walk through the forest to the Château.

The Château Chambord is uniquely situated in the centre of a deer forest twenty miles square. As all the roads radiate in a straight line to the Château one can see its towers and pinnacles, its great circular roofs glistening in the sunshine for miles. Here it stands alone in its majesty, away from everything, the

only thing to take up one's attention. It grows on one and seems part of one's being. The grouping above the main cornice of its dormers, turrets and huge chimney stalks, is beautiful. It has 440 apartments and the stalls accommodate 1100 horses. Let me give you Fergusson's short description; he says: "This Château was commenced by François I. in 1526, immediately on his return from his Spanish captivity. The design is so essentially French that although its details are generally classical, they are kept so subdued and subordinate



HOUSE IN RUE DU TABOUR, ORLEANS.
SKETCHED BY J. EDWIN FORBES.

to the whole that they scarcely interfere with the effect.

The Château itself consists of a cubical mass measuring 220ft. each way, from outside to outside of the four great towers that adorn its angles. These are situated on one side of a court surrounded by buildings. These are the same height as the central mass on that side which

it occupies; on the greater part of the other three sides, only one story in height; and at each angle there is, or rather was, intended to be a great circular tower similar to those attached to the main building. Measuring over these, the dimensions of the building were 520ft. by 390ft. The whole was surrounded by a terrace overhanging a broad and deep moat.

The central building was divided into three equal stories in height, but by cornices so subdued as to be little more than string courses, and the upper one projected so as to carry a balcony all round the main building. It is divided vertically into an infinite number of equal panels by pilasters of the Corinthian order, an arrangement which would have been singularly monotonous in most cases, but which in this instance is entirely relieved by the very varied outline of the building, and, more than that, by the different way in which they were treated, many being left blank, some filled in with arcades, and many with square-headed windows, so that few buildings possess more of that unity with variety which is so charming when properly employed in architectural composition.

The most singular and most characteristic part of the whole design is the roof, which rises in a cone surmounted by a cupola, over each of the towers and in square masses over the rest. The whole is relieved by dormer windows in very elegant design and chimneys which are more ornamented than is almost any building erected either before or since. The whole is crowned by a central tower of domical form but wholly of open work containing a richly ornamental spiral staircase.

If we attempt to judge this building by the loftiest canons of architectural criticism, it would be easy to find many faults in it; but taking it for what it is—a Château in a flat country meant to be seen over and group with a park of ancient trees.

As a hunting seat of a gay court unconscious of any very lofty aims it conveys an impression of truthfulness, combined with elegance, which we look for in vain in many works of more pretension of later times.

Here we had to content ourselves with sketching, as one needs a pass from the Board of Works at Paris to measure. This was the first and last place we found any difficulty in being allowed to measure.

Orleans, which was our last resting-place, is an hour and half by train from Blois. The old work, when one does find it, is very Italian. It shows "the French phase of Italian Renaissance" to perfection. It is a jolly town to wander through, one always coming upon some refined old building, generally in rather a dilapidated condition, with the shutters up. It is a very nice custom the French have in a town of about this size of turning their old buildings into museums, the result being that they are pretty much scattered over the town.

The building which took up most of our time measuring was Agnes Sorel's house in the Rue de Taffur, now made into a musée. The plan is three sides of an oblong, and the elevation to the courtyard is most interesting. The elevation is simply for ornamentation, and might have been added at a later period. All the windows in it on each floor light a long passage, which runs from end to end, the other side of which is really the working wall.

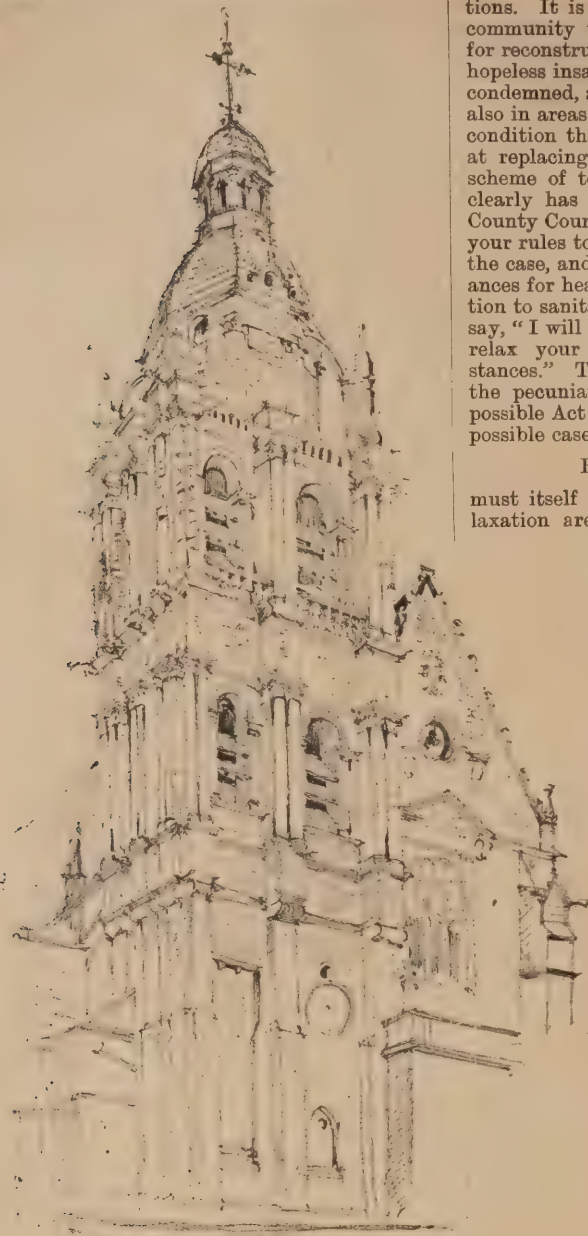
The Hotel de Ville is more picturesque than beautiful. All the details are elegant, and combine many of the beauties of both Classic and Gothic, but, neither being used appropriately, the result is rather confusing.

The huge Church Ste. Croix looks well at a distance, but on close inspection is very disappointing in detail, although magnificent in conception. It dates from the seventeenth century to this century, and has a very nice central modern spire.

I may mention that every facility is given to architectural students all over France to sketch and measure, and, if the slightest difficulty, a pass from the Mayor of the town one happens to be in puts things all right.

We found the card which the A.R.I.B.A. issues very useful, it being printed in five different languages, and is given on application to probati ners.

*A paper read before the Edinburgh Architectural Society.



BLOIS CATHEDRAL. SKETCHED BY J. EDWIN FORBES.

BUILDING REGULATIONS.

MR. EUSTACE BALFOUR, M.A., F.R.I.B.A., is the newest controversialist in the Building Regulations discussion in *The Times*. Mr. Balfour says:—Dr. Longstaff's letter on this subject is very interesting, especially considering the fact that the hand of the London County Council was to some extent forced during the Committee stage of the Building Act of 1894, when I was representing the Associated Landowners of the Metropolis. The Act, as originally introduced, was almost hopelessly unworkable from a practical point of view, and is now far from perfect. It is to the architects that the modifications which make it partially workable are chiefly due. We insisted on the regulations being capable of modification to meet local circumstances. Had that not been authorised, and had not the County Council (as far as my experience goes) met this condition in a fair spirit, the Act would have had to have been repealed almost as soon as passed. It should be realised that there are

TWO DISTINCT CLASSES OF CASES

were to be dealt with in the erection of groups of buildings within the jurisdiction of the London County Council. The first class consists of those which are to be built over areas previously covered by existing habita-

tions. It is evidently to the interest of the community that in such cases every facility for reconstruction should be given. Of course, hopeless insanitary groups of buildings can be condemned, and rightly condemned. But it is also in areas of groups in a "half-and-half" condition that the administration should aim at replacing existing buildings by a sanitary scheme of tenements. Now here the owner clearly has an option. He may say to the County Council, "Give me some relaxation in your rules to fit the special circumstances of the case, and I will rebuild with all the appliances for health, and with a general conformation to sanitary requirements." Or he might say, "I will not rebuild because you will not relax your rules to fit my special circumstances." The latter course would be often to the pecuniary advantage of the owner. No possible Act of Parliament can anticipate every possible case.

RELAXATION OF RULES

must itself be the rule. Wide powers of relaxation are essential to sanitation in the highest sense of the word. The second class of cases is that in which new buildings are to be erected over areas previously uncovered. Here I at once admit that the rules to be enforced should be more strict than in the case of sites on which houses already exist. It is most undesirable that old evils should be perpetuated on new ground. There are, however, some clauses in the existing Act, notably those preventing streets being formed, which do not have through communication with existing streets, which, unless relaxed, will result adversely to health. No clauses which the wit of man can invent can be so drafted as to prevent a speculative builder (I do not use the term in any offensive sense) from evading them. But such evasion will be invariably in the direction of putting more bricks and mortar on to the ground than would have been put under permission for a reasonable relaxation of those clauses.

A BRASS eagle Lectern is to be added to the parish church of Haverthwaite in memory of the late Canon Kirby.

A NEW Wesleyan chapel has been erected at Elmswell. Messrs. Eade and Johns, of Ipswich, were the architects, and Messrs. R. Hogg and Son, of Coney Weston, were the builders.

It is intended to apply for parliamentary powers for the demolition of the parish church of All Saints, Cardiff, on the ground of its remoteness from the population and its inaccessibility. With the proceeds of the sale of the site it is proposed to erect a new church in a more convenient part of the parish.

PLANS have been prepared for a new Baptist chapel in Carlisle Road, Bradford. The site has cost £2000, and about £12,000 is to be expended on the buildings, which will comprise chapel, schools, and caretaker's house. Accommodation will be provided for 800 in the chapel, and for 530 in the school.

THE plans for the rebuilding of the new Sessions House are to be submitted to outside competition. The members of the City Lands Committee, at a recent meeting at the Guildhall, gave instructions for the appointment of an assessor. The competition will, of course, be limited.

STRANGE buildings are row and then converted into mission premises. A curious example is reported from Middlesbrough. A building, formerly known as the Prince of Wales' Theatre, was purchased during 1897, for the purposes of church work, for £3000. The building has been reconstructed in two stories, forming a church above and a club and parish room below.

HUMOURS OF BUILDING.

I.—A LITTLE BREEZE.

BY BULKELEY CRESWELL.

Characters: "Uncle" Walker: a country builder; Bill Todd: his foreman; Bolter: a clerk of works; Mr. Bates: an architect. Bricklayers, plasterers, &c., &c.

Scene: A building in course of construction. BOLTER and "UNCLE" WALKER, both portly men, discovered together and meeting them BILL TODD, a small bandy-legged man loaded with dust and with blobs of plaster sitting round the rim of his hat.

TODD (to BOLTER): Is that there a cement wall back o' the gable?

WALKER (sharply): Where's your specification? I sent you down another copy yesterday.

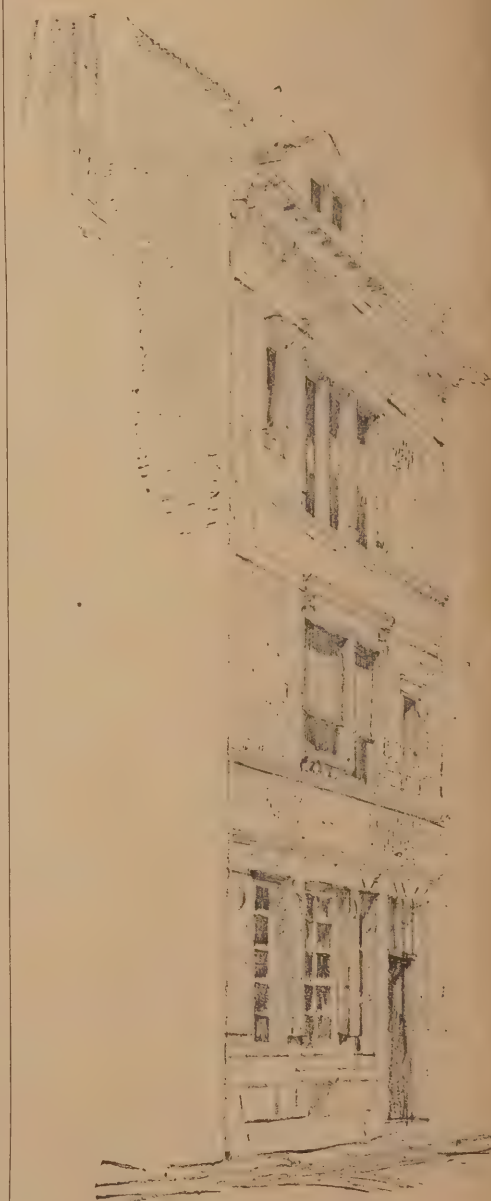
TODD: I can't find it. It's blowed away agin or summat.

BOLTER: What again?

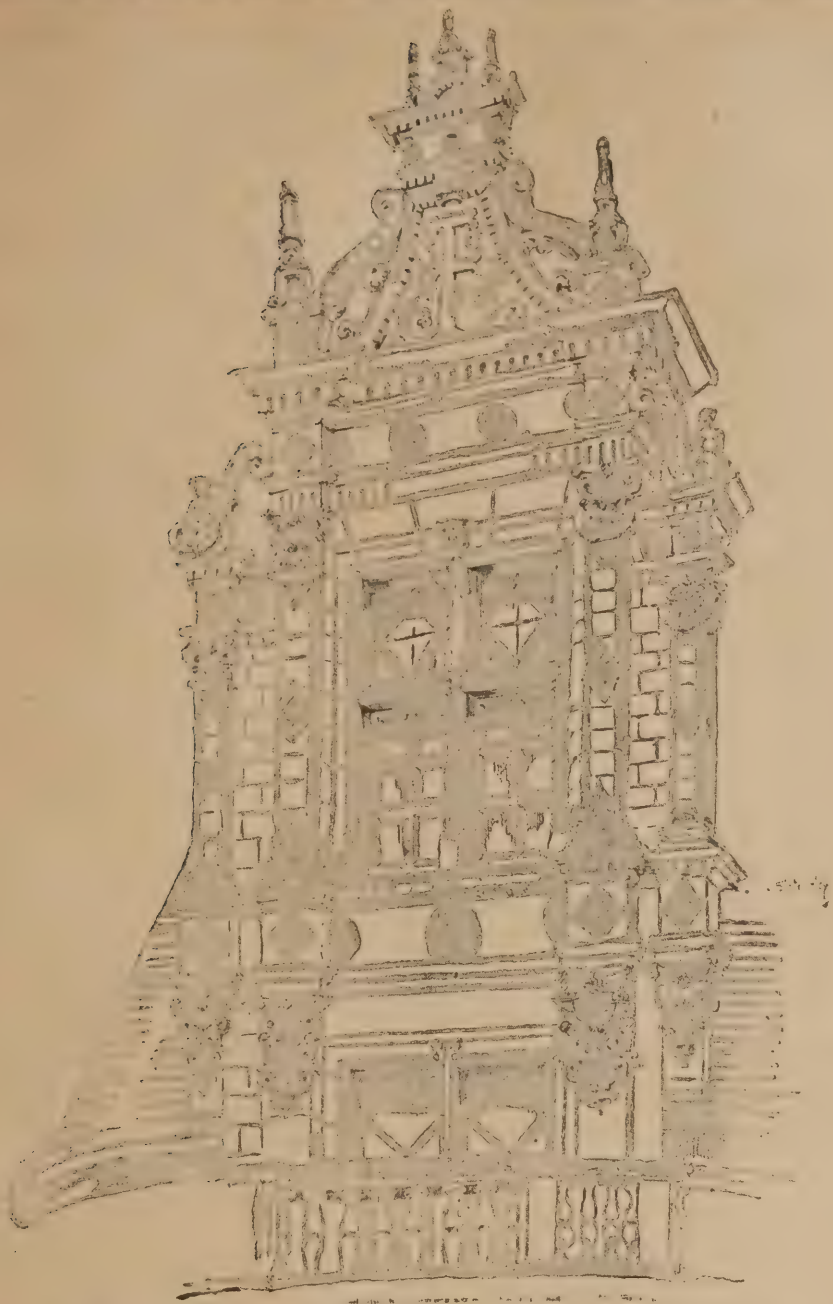
WALKER: Blown away again has it? What's that you've got in your hand?

TODD (holding out a few torn and crumpled sheets): This 'ere's some of it, but that there new plasterer found it and 'ad 'is dinner off of it.

BOLTER (grinning): Well, Uncle, you'll have to send down another copy.



HOUSE IN RUE BOURGOGNE, ORLEANS. SKETCHED BY J. EDWIN FORBES.



CHATEAU CHAMBORD: DORMER WINDOWS. SKETCHED BY J. EDWIN FORBES.

WALKER (*much ruffled*): It's not in my contract; if the men have their dinners on specifications they'll have to provide them. I won't.

TODD (*aggrieved*): Well stop the wind a-blowing then. 'Tain't my fault. I'll take and leave the job if yer like. How can I 'elp the blamey wind?

BOLTER: Never mind, Bill, there's a copy in my office. Go and look at that. (*Hands him a key.*)

(*Todd goes out.*)

H'm. (*Aside.*) I feel like a bottle of stout and some oysters. (*He moves to a newly built window and calls.*) You haven't done anything about these sills, I see, Uncle. I told you the governor would probably have them out again if I told him they were only American oak.

WALKER (*frowning*): Oh, well; they're not American oak; they're all right, you couldn't tell the difference. Come and have a pot of beer.

BOLTER (*dubiously*): Well, I'm ready for a drink, Uncle, but I ought not, strictly speaking, to approve these sills when—

WALKER: Oh, they're all right, bless you. I never saw a better lot of sills in my life; come along round and have a pork chop and a pint of porter; I've felt ready this half hour. (*Pulling him away.*)

BOLTER (*hesitating*): Yes, Uncle, I should like

a snack—some oysters, perhaps, but I'm not at all sure—

WALKER: Well, come along and have a dozen and a bottle of stout.

(*They hurry out. Half-an-hour later they return, meeting Mr. BATES, who has just arrived to view the work.*)

BATES: Just let me see the Specification, Mr. Walker. (*WALKER is embarrassed, and BOLTER interposes.*)

BOLTER (*grimly*): An unfortunate misunderstanding on the part of an inexperienced workman, sir. The Specification blew away at about 11.30 yesterday morning, and was found about one o'clock by an enterprising plasterer, who, I am informed, dined on it.

BATES: What! Ate the Specification?

WALKER (*affronted*): Ate it? No, not on my building. I can tell you sir, I pay better wages—

BATES (*irritably*): Well, Bolter, let me see yours. Quick, please.

BOLTER (*calling*): Bill. Bring me that Specification.

WALKER (*indignantly to BATES*): Sir, I take a pride in my men, and sooner than have it thought they were starving with hunger, I—

BATES (*testily*): Yes, Yes, Yes, Yes, Mr. Walker.

(*BILL TODD enters with a lump of white plaster, and looks on.*)

WALKER: Well, sir, I want you clearly to understand that if I knew there was any man on my building so hungry he couldn't keep his teeth out of the Specification—

TODD: He wouldn't get 'em fur into this one. (*Holds out lump of plaster in which is embodied the Specification.*)

BOLTER (*grimly to BATES, taking the lump of plaster from TODD and holding it at arm's length*): Another unfortunate misunderstanding on the part of an inexperienced workman, sir. About half an hour ago I lent my Specification to the foreman here, and it seems—

TODD: Soon as iver I turned my back it blowed away agin. 'Tain't my fault. (*Walks off.*)

BOLTER: The plasterer found it, and, having had injunctions not to have his meals off it, sacrificed it in the interests of the Profession. It's hard set now.

BATES: You must make it good Mr. Walker, that's all.

WALKER (*aggressively*): I want you, sir, to—

BATES (*emphatically*): There is nothing more to be said, Mr. Walker. I can't hear you.

WALKER (*doggedly as before*): Just so; just so; but what I mean to say is that if I thought that plasterer hadn't vittles enough to get a proper catch on his stomach—

BATES (*sharply*): Mr. Walker, the matter is ended.

WALKER (*growing loud and indignant*): Sir, it ain't ended, by leave, if you'll excuse me. Sir, I'm an honest man I tell you, as has been a member of the council of this town, sitting on the open drain down by the quay, just as my father was four-and-thirty years ago, and if you don't believe me—

BOLTER: Draw it mild, Uncle.

BATES: Mr. Walker, I insist—I say I insist—

WALKER (*flushed and noisy*): And I say if you don't believe me, there's my wife's uncle has got a testimonial given to him by my father, who went to church regular same as I do, in a golding frame, sure as I'm standing here, an honest builder of this town, as Bolter knows, and will tell you if you ask him, that when prices is good I do my work as cheap as anyone, and when prices is bad, I expect to be paid for the very superior material which I always supply, and you can.

BATES (*angry*): Mr. Walker, I will not listen. (*Strides off.*)

WALKER (*looking round baffled*): Where is he? Where's he gone?

BOLTER (*in a pacifying tone*): Oh, cheese it, Uncle; cheese it, Whew! (*Aside.*) I think I could do with a bottle of champagne after that. (*He moves to window and taps on sill with his finger.*) Uncle, touching the matter of these sills now?

WALKER (*bristling*): Now look a-here, you let them sills be, will you. You've had beer out of 'em, you've had champagne out of 'em, pork chops you've had, and stout and oysters over and over again. I won't stand another half-pint on 'em. There! Now then!

BOLTER (*placidly*): Very well, Uncle; they ain't what they should be, but they're not a bad lot of sills on the whole as you say. Now what I have particularly to object to is that last lot of milled lead. It is not 7lb. lead, Uncle, and your plumber is cutting the gutters from it.

WALKER: Well, now all the years I've been a builder I never heard the like of that. I've never used heavier than 6lb. lead to a gutter—never. I stake my professional reputation—

BOLTER: Yes, Uncle, I know; but the Specification says—

WALKER: Oh, well, I'll see to that very soon. I feel like a glass of sherry and biscuit; what do you say? (*They move off.*)

BOLTER: Never mind the biscuit, Uncle, and we can have fizz.

MESRS. FRANCIS W. BEDFORD, A.R.I.B.A., and Sydney D. Kitson, M.A., have removed their business premises from 12, East Parade, to Greek Street Chambers, Leeds.



HOUSE IN RUE CONDORSEN, LISIEUX. DRAWN BY J. EDWIN FORBES.

ORIEL AND BAY WINDOWS.

THE discussion on Mr. Paul Waterhouse's paper, read at the last meeting of the Architectural Association, was opened by Mr. Leonard Stokes. Mr. Stokes said he felt slightly annoyed at Mr. Waterhouse's justification of the jerry builder's bay, which he appeared to think an economical method of gaining floor space. Mr. Stokes rather doubted this, as he thought the size of the house could be increased more cheaply without the use of the bay. He had passed along a street that day in which there were fifty-five bays exactly alike, in a row; such bays were useless. There was one form of bay Mr. Waterhouse had not execrated as much as he might, and that was in the form of a gulf rather than a bay. It was generally seen bulging out at the corner of a villa, and was, both internally and externally, a most objectionable feature. He strongly advised that no one should attempt an angle bay of any kind. Of course such a bay could be placed near an angle, for although architects of the past used angle bays more or less successfully, the problem was a most difficult one, and seldom quite satisfactory. He would go a step beyond Mr. Waterhouse's statement that it was not absolutely necessary to use a 45 deg. set-square when designing a bay on plan, and say *never* use the 45 deg. set-square thus, although it could sometimes be done successfully. He agreed that if they

could satisfactorily design that difficult feature, a bay, they could design anything; and if they could not design a bay they had better give up Architecture altogether. Simplicity and proportion were the foundations of all design, and if the bay was designed in good proportion, without much ornament, it would be satisfactory, but if not in good proportion, no amount of ornament would make it look well. Mr. Stokes proposed a vote of thanks to Mr. Waterhouse.

Mr. F. T. Baggallay, in seconding the vote of thanks, said he thought it would be a good service to have the derivations of "oriel" and "bay" definitely defined, and useful if architects could agree to limit the meaning of oriel to a bay that did not go right down to the ground. He thought it was safest to carry a bay up; if not the whole height, at least two or three floors, and if possible to repeat it. In regard to the roof of a bay rising above the normal level of the roof of a building, he thought it was a most dangerous thing to attempt. With a roof of a comparatively small feature such as a bay, rising above the normal level of a roof, it would attract the whole attention, and dwarf the general composition.

Mr. H. H. Statham, in supporting the vote of thanks, said he thought bay windows were introduced, not so much to obtain a larger floor space, as to make the tenant think he had got it. If the bay windows were taken away the front wall could be advanced a little, and the floor, too, but without the bay the tenant would not think he had such a large and commodious room. He had always understood the word "oriel" to mean the class of bays which did not come down to the ground. As to the question of angular

or segmental bays, he was in sympathy with Mr. Waterhouse's affection for the segmental bay, and he thought, during the reading of the paper, of a house at Eastbourne, near the east end of the sea-front, which had a large, wide bay window of a rather small segment of a circle, giving at once a look of distinction to the house; it was not the ordinary commonplace canted bay window. Sometimes a very shallow segmental bay would give that sort of distinction to a house, without taking up inconvenient room. Of this, there was rather a good example in Walbrook. With regard to the canted bay, it was an important question as to the little return joining the main wall, always seen in the builder's bay. There was often a better effect in carrying the canted side right into the main wall without a break.

Mr. Alexander Payne expressed the opinion that the reason why many bays would be used in London in the future lay in the provisions of the London Building Act, whereby if in a new street one builder established a line of frontage, another requiring larger rooms, would place bays out beyond the frontage line to obtain his object.

Mr. Thomas Blashill said he had hoped Mr. Waterhouse would have told them exactly what an oriel and a bay were, for when a case came before a magistrate it would have been useful to turn to the paper for a reliable definition. The section of the Building Act of 1894 relating to bays was inserted with the idea that some variety would be introduced into the streets of London as a result. It was thought that the houses in the streets were too flat, and as application was constantly being made to the London County Council for permission to put in a harmless bay window, it was thought best to put a provision in the Act, so that people could get the bay window running up from the ground, which was what the Act meant by "bay," and the oriel. There was the aesthetic reason for the bay in improving the appearance of a row of houses, but there was a practical side in obtaining a convenient space in small houses for placing the inevitable table and family bible, &c. He was very much in favour of bay windows if employed properly, notwithstanding what had been said. The bay window broke the line of front and enabled the occupants to look up and down the street.

Mr. Arthur S. Flower said he had hoped that the lecturer would have told them a little more about the intervals between supports in the case of segmental bays, because blunders were so often made about that. He also wished that more had been said about rectangular corner bays; for his part, he wished they had been prohibited by the Building Act.

Mr. H. A. Satchell was of the opinion that the redeeming feature of a builder's bay was the change of prospect and aspect afforded to the occupants. It was a great advantage in a house facing due south to be able to look east and west. He would rather live in a house with a bay than in one without.

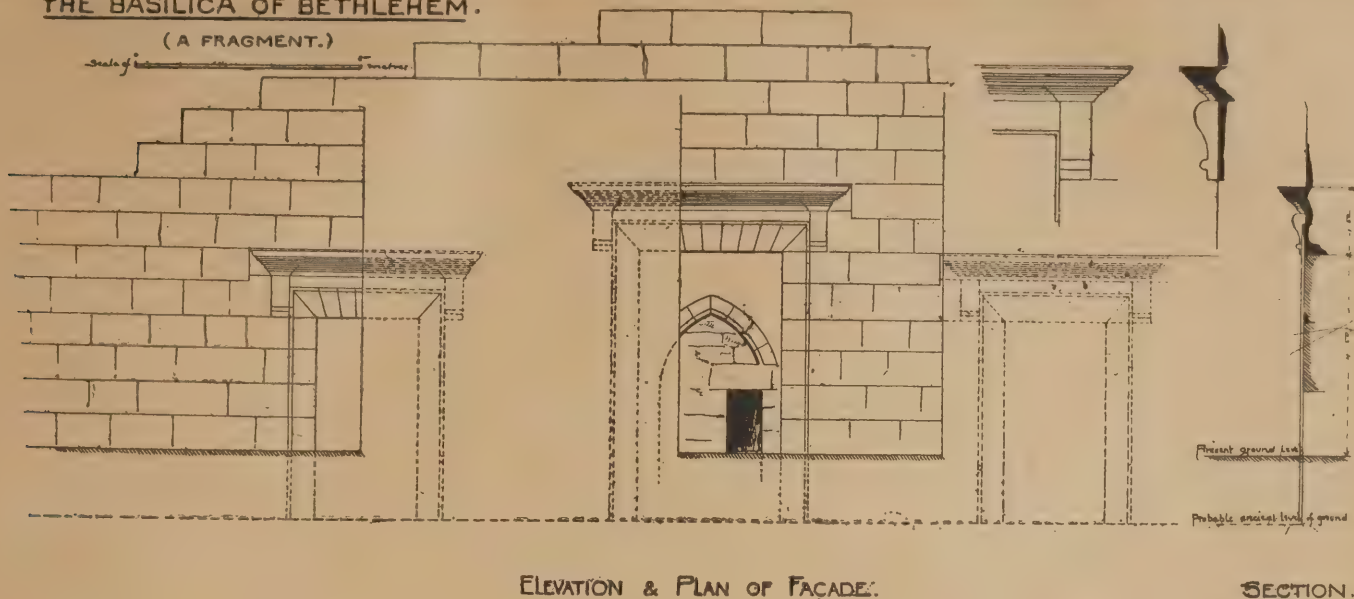
Mr. G. H. Fellowes Prynne, the President, agreed with the last speaker in the advantage of bay windows in houses facing south. He could not agree that an angle bay should never be used. In an angle bay, three sides of the ground could be viewed, and with an octagon bay at an angle, a very pleasant prospect could be obtained.

The vote of thanks to Mr. Waterhouse was passed.—Mr. Waterhouse, in replying, agreed with Mr. Stokes that the 45 deg. set-square was often unfortunate.

At a recent meeting in aid of the fund for the restoration of Peterborough Cathedral, a resolution was passed pledging the meeting to support the efforts of the Dean and Chapter to complete the work before the close of the century. The Dean announced that during the past sixteen years a sum of £42,705 had been spent on the cathedral, in addition to gifts for the interior to the value of £28,000. They still required £10,000, and towards this £1000 was already in hand.

THE BASILICA OF BETHLEHEM.

(A FRAGMENT.)



A FRAGMENT OF THE BASILICA OF BETHLEHEM. DRAWN BY GEORGE JEFFERY.

THE BASILICA OF BETHLEHEM.

BY GEORGE JEFFERY.

THE Basilica of Bethlehem remains rather an architectural puzzle. A tradition exists that the church, as we now see it, was built in the fourth century. The question is how far such a tradition is borne out by facts. The building appears to be planned nearly east and west, with the altar at the east end. Such a plan is, I believe, unknown in the basilican buildings of the early centuries. Certainly an altar placed at the east end of a church would have been quite exceptional in the city of Rome, or its immediate dependencies, in the fourth century. Even the later churches of St. Clement point westward. Was it, then, a custom of the Oriental Christians to build their churches pointing eastwards. I can find no very early examples. The Basilica erected at Jerusalem, of which the remains of the east front are still in existence, certainly did not. The circular church on the Mount of Olives, of this same period, is hardly sufficiently known at present for us to be sure about the position of the altar. Nothing seems to be known of the Basilica of Antioch, built by Constantine and Constantins. The same may be said of so many other examples of early churches, known to us now only by name. But in the case of the Cathedral of Tyre, so carefully described by Eusebius in his celebrated sermon, we again have an example of early church arrangement with the altar always at the west end according to the prevalent Roman model. Although this question of ritual arrangement may not be conclusive in fixing the date of a building, still I think there is very much in the case of the Basilica of Bethlehem to suggest that it is a building of much later date than the fourth century. The extreme classicism of its details must then be accounted for by the consideration that at a time when Europeans were building the Romanesque churches of France and the Rhine, or the elaborately inlaid marble buildings of Lombardy and Tuscany, there survived in Syria, a style closely copied from the recognised classic, even after the introduction of

the Byzantine style. In the case of the the fragment of a west front to the basilica, of which I have made careful drawings, the survival of classical design is remarkable, much more so than in the interior of the building, which although retaining regular "Corinthian" columns for the double nave colonnades, of ordinary classical proportions and detail, is singularly like a northern Roman basilica of ninth or tenth century date.

I have only been able to trace the lower portion of the basilica front with its three doorways. The upper part of the wall rises to about 12ft. or 14ft. above the cornice of principal door. These upper courses of stonework may be, as they appear, in their original position. In that case the colonnaded cloister which is supposed to have formed an atrium in front of the church can hardly have run in front of the entrance wall, it may have been merely a three-sided colonnade like the famous atrium of the Church of the Sepulchre at Jerusalem. Of this supposed atrium I have not been able to see any traces, but the ground of the piazza in front of the Basilica has been so much raised with accumulated rubbish and graves that it would be necessary to excavate to find any traces of such western buildings.

The whole of the front, like the rest of the church, is built of the local hard red and white limestone, and both it and the church are evidently of the same age.

The documentary evidence as to antiquity of the Bethlehem Basilica is scanty. The first reliable date in its history seems to be A.D. 1101, when Baldwin I. was crowned within its walls. In 1158 the mosaics, still visible in a ruined state, were put up by the Greeks and Latins conjointly. In 1213 there seems to have been some sort of restoration of the building. In 1447 the church was repaired by Philip of Bar, and again, in 1478, an architect was sent for the same purpose by Pope Pius II., at which time the Latin entrance into the crypt seems to have been constructed. In 1628 Philip IV. of Spain sent 30,000 ducats for repairs, and finally, in 1719, the roof over the whole building was reconstructed by the Franciscans. As a consequence, there is very little remaining of so ancient a date as the first Crusades except the plan of the building, its colonnaded aisles, this fragment of a west front, and the few scraps of mosaics. The three apses at the east end seem to me of the same date as the rest of the building,

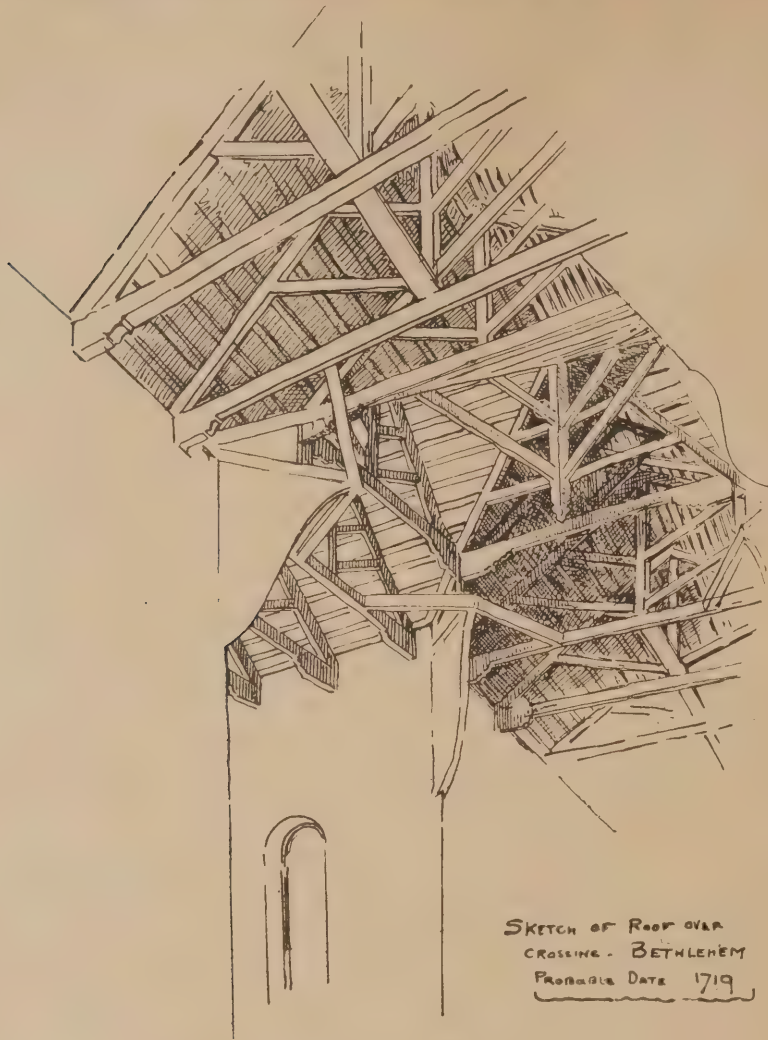
although as all the doorways and windows have been very much transmogrified in recent ages, one finds it rather difficult to form an opinion under the circumstances.

The dilapidated stone font seems to be a Gothic feature. It is hewn out of a single block of the hard red limestone of the district. Like all the buildings of the Palestine hill district, these remains at Bethlehem betray the miserable method of construction which seems to have prevailed in all ages. Mortar, as understood in Europe, can hardly be said to exist. Lime is plentiful enough, but as there is only limestone mud to mix with it, there is nothing permanent about such building. The wonder is that any vestiges of monumental building remain from so ancient a date as the Crusades. The few remains of a supposed earlier date carry but a doubtful reputation, when we consider these facts.

From the foregoing it would seem probable that the Basilica of Bethlehem may be claimed as a monument of at least the ninth century. Several examples may be found in Italy, such as the Basilica of St. Cecilia and St. Maria in Dominica, and SS. Apostoli, Florence. Is it not probable that this church with so strongly marked a character of Roman work about it, may have been built in that period of contention between Greeks and Latins immediately preceding the Crusades, as a protest against Byzantine ideas. As a fact there seems to be no documentary or monumental evidence to settle the question, we can only judge by comparison with other buildings in such a case.

THE consecration of St. Edward's Church, Birmingham, has recently taken place. The church and schools were bought from the Presbyterians for £1700, and given to the Church of England by the Rev. Stanley Gordon Collier, now vicar of Burrington. The rebuilding and refurnishing cost upwards of £1300.

THE portion of Sir William Richmond's scheme of mosaics presented to St. Paul's Cathedral by the Merchant Taylors' Company has been unveiled in the presence of the Dean and Chapter and many members of the Company. The space utilised is one of the four concave quarter domes over the lectern in the north-west part of the dome, and represents Christ reigning from the tree.



SKETCH OF ROOF OVER
CROSSING - BETHLEHEM
PROBABLE DATE 1719

THE BUILDING TRADES CONTROVERSY.

To the Editor of THE BUILDERS' JOURNAL.

SIR,—Builders have themselves to thank for the dearth of skilled labour. They have for years past systematically shirked their responsibilities to their contemporaries and successors in the matter of training up young workmen, refusing to be "bothered" with apprentices, and substituting machinery for the more unskilled parts, compelling the old trained workman to finish parts that did not pay to "machine." Architects have assisted in this short-sighted policy by inserting clauses to the effect that no boys, improvers, or under-priced labour shall be employed upon their buildings, thus ensuring that no lad should get practical acquaintance with his trade. The statement that it costs more to build than formerly is disproved by the fact that almost anyone, from the small shop-keeper upwards, can afford to purchase a house, and where there is a parallel increase in cost, it will be found due rather to the numerous conveniences and luxuries now introduced, and to the advance in the prices of material (bricks nearly 50 per cent.) than to the prime cost of labour. Foremen who are competent craftsmen will enjoy the respect, and have no difficulty in enforcing the obedience of the average workman, but foremen are too often selected, not for their knowledge and experience, but for an imposing presence or a propensity for bullying, euphemistically termed "getting the work

done cheaply." There are scores of these incompetents in responsible positions in London, making shift to delude their employers by employing "deputies" to do the work that they are supposed to carry out, and oftentimes bringing bankruptcy upon their employers, and discredit upon the workmen, who have to carry out their orders. Workmen, knowing that they will be made the scapegoats for all the errors and mismanagement of those above them, not unnaturally are mutinous or independent when they find a bully or duffer set over them, and are either "insolent" or turn up their jobs, if trade is brisk, seeking fresh fields and pastures new.

Yours, etc., X.

A DECAYED WELSH CHURCH.

THE late Professor Freeman spoke of the buildings of Llantwit Major as among the most striking in the kingdom. "Through a succession of civil and domestic structures of the sixteenth and seventeenth centuries," he added, "the traveller gradually approaches the grand group composed of the church and the buildings attached to it." Its church has been well described as "a most remarkable accumulation of distinct buildings." The work includes specimens dating from any time within the last ten centuries. There are the ancient Celtic crosses of Howell, Iltyd, and Samson. Portions of the tower supports are Norman, and the ancient font, with its external fish scale ornamentation, is of the same date. The church itself is thirteenth century, and

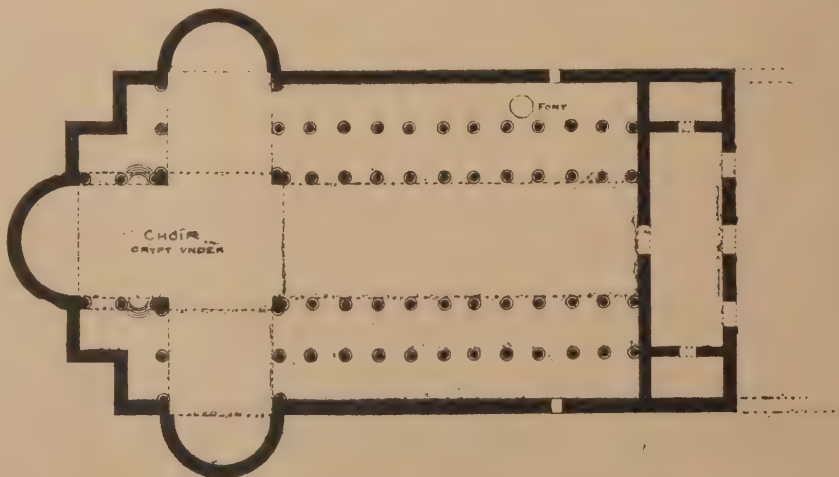
A WONDERFULLY ELONGATED PILE

it is, being no less than 202ft. from end to end. The extreme eastern portion of the edifice was formerly the monastic church. It is now divided from the western or parochial church by the central tower, while still further to the west is what may be called the third church, now in ruins, which was formerly the Lady Chapel, built in the fourteenth century. It is to repair the western portion of the fabric that the vicar is now endeavouring to raise the sum of £1000. The restoration will be carried out under the supervision of Mr. G. E. Halliday, F.R.I.B.A., who had charge of the restoration work of Margam Abbey Church. The church and churchyard abound with ancient relics. In the eastern part of the church are

TRACES OF OLD FRESCOS.

Outside, opposite the south porch, is a fine cross from which the head has long been missing. In this respect it has shared the fate of Porthkerry, Gilston, Pyle, and many other Glamorganshire crosses. In the fifth century St. Iltyd went to Llantwit, and in company with Germanus reorganised a college, to which the sons of the nobility came as students. It was Iltyd who gave his name to the parish, for Llantwit is none other than a corruption of Llan Iltyd, or the Church of Iltyd. With such a past it would be a disgrace were the present generation to allow the old building to fall into decay, and it is to be hoped that the appeal of the vicar will meet with the ready response that it deserves.

At a meeting of the Court of Common Council, at the Guildhall, attention was called to the dangers of Ludgate Hill Station, and the question referred to the Streets Committee, with power to communicate with the Board of Trade. The station was built many years ago, of wood, and is quite unfitted to meet the demands of the passenger traffic, which has enormously increased of late years. Owing to the lack of proper accommodation, the staircases are frequently blocked with passengers. Ludgate Hill Station is stated to be the worst in the wide world.



PLAN OF THE BASILICA.

FIREPROOF CONSTRUCTION IN AMERICA.*

By R. W. GIBSON (New York).

MR. GIBSON'S paper commenced with a brief sketch of the development of fireproof construction in the United States, showing that the first efforts had been disappointing through lack of perception of the difference between incombustible materials and fireproof material. The exposed iron systems had failed signally, collapsing to the heat of burning fittings, furniture, and stored goods. The modern system had developed from these experiences upon an ancient pattern of floors composed of wooden beams buried in masonry, using steel and iron instead of wood, and

PERFECTING AND SYSTEMATISING FIREPROOF PROTECTION.

The latest phase was the entire elimination of the combustible materials hitherto used for doors, floors, architraves, &c.; the selection of materials fire-resisting as well as incombustible, and the use of these to protect others which must not be used unless so protected. Materials most available were steel or iron for strain-bearing purposes, and brick or terra-cotta and plaster to clothe and protect the metal. Masonry materials required careful selection, some granites and marbles being liable to destruction at the earliest blasts of a severe fire. Fireproofing must be such that, when the fire occurs, it will not be washed off by the heavy torrents of water thrown upon it by the modern fire engine. Of the several classes of fireproofing accumulated experience pointed to the infinite superiority of fire-resisting terra-cotta, which had always performed the duty required of it. Probably 95 per cent. of existing fire-proof work was of terra-cotta construction.

THE STRUCTURAL IRON WORK

might be divided into three classes, suited to as many types of fireproof buildings. First, the building of ten stories or less, erected by the old methods of supporting walls and superimposed columns carrying floors and roof, and with only small beams and girders or occasional independent trusses. Secondly, the building of more than ten stories, which accumulated such strains upon its walls that they must be reinforced by posts to carry the girder loads, and in which the walls required such mass in their lower parts to support their own upper parts that the metal first introduced to support the floor girders was reinforced and called upon to support the upper walls. This was the so-called skeleton construction. At a height exceeding twelve stories, or when exposure to wind and other strains was great even at this height, the ordinary attachment of columns and girders was abandoned, and horizontal stability supplied by

RIGID RIVETING OF ALL CONNECTIONS OF POSTS

one upon the other, and of girders to posts and beams to girders, and by the addition of bracing in ties and struts and gusset brackets, thus developing the so-called cage construction, wherein the steel receives and transmits all loads to the foundations; and the walls have become mere panels, not only without vertical loads, but without transverse bracing strains. Thirdly, an intermediate type of building where all the internal structure and all the floor loads were supported upon columns, some being placed in the outside walls, the outside walls being made of self-supporting thicknesses in cases where architectural treatment demanded sufficient mass for the purpose, and where the foundation presented no difficulty. In buildings of the third type, erected

in many stories and let for business purposes, almost perfect fireproof qualities had been achieved. In such buildings there was no danger to life from fire, or of the fire spreading from the room where it first occurred. This type had become systematised by custom and experience, so that its structure was uniform throughout the country. The floor loads are supported upon columns of rectangular shapes of rolled steel, the outer columns being

SET IN THE OUTER WALLS IN GROOVES,

close-fitting but without bond, so as to permit of unequal movements and settlements and contraction. Girders are of rolled steel, built and riveted for large sizes, and of I-beams for smaller (24in. and under); they are all riveted to the side columns, so that these may be continued right through the height of the building in practically one length. Bracing is done with gusset plates and angles. Beams supporting the floors are small (8in. or 9in.) rolled steel I-beams, laid 4ft. apart. The size of the beam and spacing arise from the use of the terra-cotta arch, of from 8in. to 10in. in thickness. These arches, which are very economical, very adaptable, and elastic in their application, are made of hollow terra-cotta blocks, with joints inclined at a fixed angle. The blocks are of three patterns—viz., the springer, which rests on the flanges of the floor-beam; the intermediate blocks, which are all cut to the same inclination; and the key-block, with the sloped joint on both sides. The work is set upon a centering consisting of simple scaffold boards hung 1½in. below the soffits of the iron beams; upon this centering the arch-blocks are laid, and then jointed and flushed in cement. When the work is set the centering is removed to a new panel, so the work goes on continually. Upon the arches

A LAYER OF CINDER CONCRETE

is deposited, and upon this the finished floor, consisting of paving or tiling, or a composition of a concrete nature, or sleepers and wooden floor. For buildings having floors weighing from 75lb. to 95lb. dead load per foot, and supporting live loads from 75lb. to 150lb., the distance between the main girders would be between 14ft. and 18ft., which being a convenient size for a single office is also taken as the unit of room width and the space allotted in the outer walls to a pair of windows. The roof is constructed with arches, the same as the floors, except that sometimes the steel beams are laid to the necessary pitch of about half an inch to the foot, so as to avoid the weight and expense of filling, which would be necessitated by level beams and arches. The thickness of the walls is about two-thirds that required for walls supporting the floor loads, and they are secured to the metal framework so as to receive its assistance in resisting horizontal wind pressure. Thicknesses of walls for buildings of varying height and construction were quoted. The thickness necessary to resist the weather is found to be 12in. at least of brickwork, with terra-cotta interior furring. The furrings are hollow terra-cotta slabs or tiles 2in. thick, and 16in. by 8in., or other convenient sizes, built up against the inside face of the wall and secured with iron where necessary. The

INTERIOR OF THE STEEL FRAME

is protected over all its exposed surfaces by 2in. of terra-cotta furring. The girders are protected by slabs of terra-cotta, secured with hooks and bars and wiring, and usually getting their outer form by means of metal lath upon light iron bracketing to receive the finished plastering. The lower portion of walls and columns are frequently finished with marble slabs 1in. thick, or with tiling. Those methods are preferable which place the fireproofing material close to the metal, and preserve numerous and frequently broken air spaces in their own substances. A greatly improved and considerably cheaper column protection can be made by using one coat of metal lath and cement in contact with the column, and a second coat furred out from the first upon metal lath upon light iron bars, so as to preserve an air space between the two thicknesses of cement. This protection is finished with hard plaster, proof against the fire-hose.

Partitions are built after the structural steel is protected. The best are of terra-cotta blocks, 4in. thick for average heights, 3in. for moderate heights, and 6in. for great heights of story. They may be stiffened

WITH ANGLE IRON FRAMING,

but show extraordinary strength when well set in Portland cement. Minor partitions, and sometimes all the partitions except those next corridors, are frequently built by using light angle iron posts or quarters covered with metal lath, and plastered either like the old-fashioned wood plastered partitions, or sometimes with very thin posts and one sheet of metal lathing only, so as to make a solid plastered partition about 2½in. thick. Three-inch tile partitions dry quicker and cost only a little more. So far the building has nothing combustible in its construction, and the tendency is to more and more reduce the amount of woodwork admitted after this stage. Wooden floors are permitted, but doors and architraves should be of sheet metal, wooden cores being tolerated. Window architraves and jambs should be of hard plaster, and window frames and sashes of chemically-treated fireproof wood or of metal. Windows, in internal partitions and doors should have wired glass. Office furniture should be non-combustible, e.g. metallic book-shelving, desks, cabinets, letter files, &c. In ordinary fireproof buildings, halls, stairs, corridors, and elevator shafts are

ENTIRELY INCOMBUSTIBLE.

The author next discussed the principal sources of fire, and the manner in which it spreads—the latter a point but little understood, except by firemen; the effect of heat upon metal; an alternative system of steel construction; various forms of floors in use, and the merits of porous terra-cotta, a material preferred by many experts. In conclusion the Paper dealt at considerable length with the principles to be applied in calculating the strength of beams, girders, columns, and foundations in proportion to the loads required to be borne, quoting the building regulations respecting the matter in New York and Chicago, and the differences of opinion and practice existing among architects there in regard to column and foundation loads. The author's own calculations for a first-class bank and office building designed by him and recently erected in Syracuse were given as follows:—

Load on all beams	= total dead load + 70 lbs. per ft. live load.
Load on all girders	= total dead load + 60 lbs. per ft. live load.
Load on columns of three upper stories	= total dead load + 60 lbs. per ft. live load.
Load on columns of remaining stories	= total dead load + 40 lbs. per ft. live load.
Load on foundations	= total dead load + 20 lbs. per ft. live load.

Among a large number of illustrations to the paper were a set of working drawings and specifications and strain and load diagrams of the Syracuse bank designed by Mr. Gibson, which afforded an interesting example of this class of practice in the United States. Photographs showing the building in course of erection at various stages were shown by the lantern. These were followed by a series of lantern slides reproducing details of construction of a thirty-story building, and photographs of the bank at Syracuse, and three columns after fire tests, the latter being lent by Mr. E. O. Sachs.

Miss Ethel Mary Charles (Probationer, 1893; Student, 1895; Qualified, 1898), of York Street Chambers, W., has been elected an Associate of the Royal Institute of British Architects. The election was made at a business meeting which preceded the general meeting on Monday night. Considerable interest was evinced in the question, and the attendance of members was exceptionally large. The Council of the Institute favoured Miss Charles' election, and a large clique of members who object to the Profession of Architecture being opened to women competitors opposed it. Miss Charles, however, being fully qualified as an Associate of the Institute, the opposition failed to defend the position.

* A paper, entitled "Fireproof Construction of Buildings in the United States," read before the Royal Institute of British Architects, on Monday, December 5th, 1898.

THE CÆDMON CROSS.

THE Memorial Cross, of which we give two illustrations, is that recently unveiled at Whitby by the Poet Laureate, in honour of Cædmon, the father of English sacred poetry.

"There was," said the Venerable Bede, "in the Abbey of Hild, a certain brother who had an extraordinary gift, and whose name was Cædmon. Sweet and humble was his poetry; no trivial or vain song came from his lips. Others after him strove to compose religious poems, but none could vie with him, for he learned the art of poetry not from man, nor of men, but from God."

John Richard Green, the historian, after speaking of Cædmon's work as "the first great song that English singers had wrought since our fathers came to Britain," adds "the memory that endears Whitby to us is not that of Hild, or of the scholars and priests who gathered round her, the name which really throws glory over Whitby is the name neither of king nor bishop, but of a cowherd of the house."

This poor cowherd was inspired to be not only a poet, but a great missionary to the people of Northumbria, for his Bible paraphrase in verse helped to evangelise the people, and he may be said to have sung the Gospel into the hearts of pagan Anglia.

Though his name is attached to a large number of poems, it is believed that only nine lines of his original authorship remain to us at this time. They are found in manuscript on a flyleaf of the Moore Bæda at Cambridge, and they are very precious, because they are the opening lines of Cædmon's first poem, his "Praise of Created Things."

Canon Rawnsley, to whom literary England is indebted for the idea of doing honour to the first Christian Anglo-Saxon poet, at the place of his inspiration, life and death, gives us the following account of the cross:—

"It stands," he says, "at the most beautiful point of view in the old churchyard of St. Mary's, Whitby, close to the top of the steps that lead to the parish church. It is seen far and wide.

"It is hewn out of the hardest fine-grained sandstone that could be found in Northumberland; stone which the Romans used for the building of Chotterford Bridge, near the Roman Wall.

"Its height is 19ft. 6in.; it is a Monolith as far as the shaft goes, and is of the ancient Anglian type, based in design and proportion upon the four great memorial crosses erected in Cædmon's time, which are extant to-day—viz., the Ruthwell, Bewcastle, Rothbury and Hexham crosses."

Mr. Charles Hodges, of Hexham, who has spent his life in the study of Anglo-Saxon stones, was the designer, working at Canon Rawnsley's suggestion with consummate care and determination not to slavishly copy but to produce a nineteenth century work of Art with true Anglian feeling. Mr. Robert Beall, of Newcastle-on-Tyne, was the sculptor.

On the eastern side of the cross are four panels—Christ in the act of blessing, David playing the harp, the Abbess Hild, and Cædmon near the stable, inspired to sing his first song. Beneath runs the inscription, "To the glory of God, and in memory of Cædmon, father of English sacred song. Fell asleep hard by A.D. 680."

On the west side is carved a double vine, symbolical of Christ, and in the loops are found figures of the four great scholars trained at Whitby in Cædmon's time, under Abbess Hild, namely, Bosa, Aetla, Offfor, and John. Beneath are inscribed the first nine lines of Cædmon's Hymn of the Creation, as preserved to us on the fly-leaf of the Moore Bæda in the Cambridge Museum. These have been carefully rendered into English by the Anglo-Saxon professors at Oxford and Cambridge, and run as follow:—

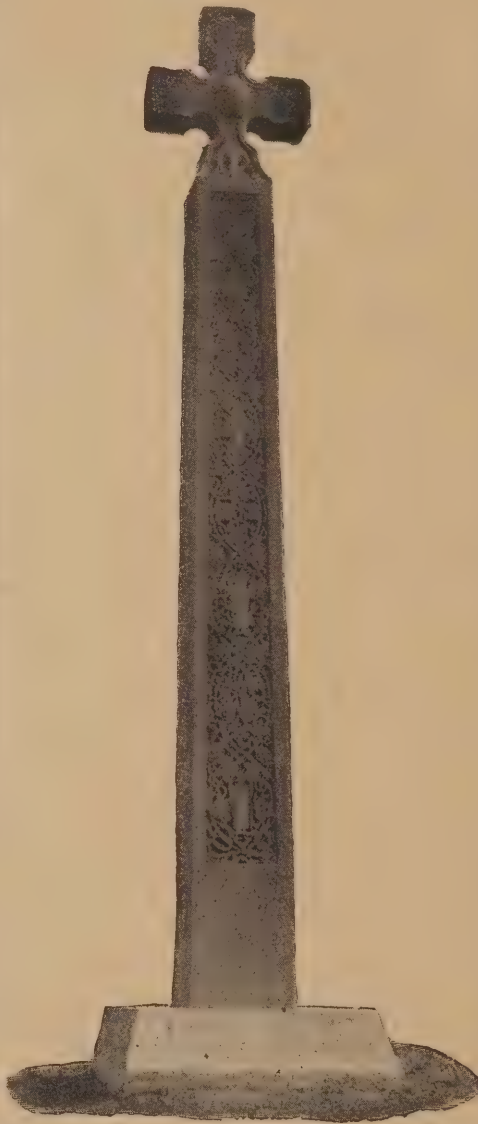
Now must we praise
The Warder of Heaven's realm,
The Creator's might,
And His mind's thought:—
The works of the glorious Father,
How of every wonder,
He, the Lord eternal,
Ordained the beginning;

He first shaped
For the sons of men
Heaven as their roof,
The Holy Creator;
Then the middle world He,
Mankind's Warder,
Eternal Lord,
Afterwards prepared,
The earth for men,
Lord Almighty.

That was the first song Cædmon sang.

The runes of the same nine lines are also carved upon the border of one of the sides of the cross, as is the case at Ruthwell, and the same inscription appears in Saxon minuscule on the border of the opposite side.

The two sides of the cross contain, respectively, a conventionalised English wild rose with birds and animals, and an apple tree, emblematical of Eden, conventionalised also with other birds and animals—somewhat after



THE CÆDMON CROSS AT WHITBY.

the manner of the treatment of the sides of the Bewcastle and Ruthwell Crosses.

The symbolism of these sides is intended to teach that all gentle life under the protection of the Cross of Christ should abound and be happy. A harp is seen at the foot of the Tree of Life as emblematical of the harmony which Christ restored, and as suggestive of the immortality of Christian song, and the wild roses, the badge of St. George, spring from an old Iona cross, typifying that the life of the Christian Church ran on and bore fruit and flower at Whitby.

The head of the cross contains the Agnus Dei, and the symbols of the four evangelists on one side; on the other side, bosses and knot work; whilst the Dove is represented as descending, emblematical of the Holy Ghost, the Inspirer.

The total cost of the monument was £260.

ARTESIAN WELLS.

THE deepest and most productive artesian-bored tube well ever sunk in London has just been completed for a large and important printing works in Clapham Road. The well is 425ft. deep, and is producing 840,000 gallons of water per day, and during the boring operations some most interesting discoveries were made showing the various strata which underlie that part of London. This achievement, says the Daily Mail, is all the more unique because the water is raised by compressed air, entirely dispensing with all pumping and complicated machinery. The well was sunk by Messrs. C. Isler and Co., consulting engineers, Bear Lane, Southwark. Their explorations into

THE DEEP UNDERLYING SOILS OF LONDON

consequently exceed those of any scientific association. There is no doubt that the old-fashioned sunk shafts and dry wells have had their day. The old-fashioned wells only drew upon the surface supply, and were always breeders of contagion and disease. Some of the more successful wells in London are those of Messrs. J. Shoolbred and Co., at Tottenham House and Gower Mews, which produce 10,000 gallons a day; of Mr. E. T. Pink, Bermondsey, where wells 250ft. and 300ft. deep produce an equally large flow; and the Islington Vestry wells at Hornsey Baths will soon yield from 20,000 to 25,000 gallons per hour. The whole theory of Artesian Wells is based on the natural law that water will seek its own level. Geologists say London is a great basin. The bottom of the basin is hard chalk, a hundred or more feet in thickness. If you will imagine a great bowl, reaching from Richmond Terrace to Greenwich, with a beautiful white chalk bottom, you will realise exactly what this London water basin is. Water percolates through the upper strata of sand and clay until it strikes this impervious chalk. That holds it. This chalk stratum varies in depth from Westminster, where it is 240ft. beneath the surface, to New Cross, Old Kent Road, where it crops out above the surface. The deeper it is the larger is the amount of water obtainable. Wherever you tap that chalk bottom you get water, and that water will

RISE IN THE TUBE

to the level. All that the well sinkers do is to force it the remainder of the distance to the surface. In the case of this new well, and the one being sunk in Hyde Park Court, compressed air is used instead of a pump. This is done by sinking one tube inside another. There is a vent at the bottom of each, so that the air pressure of 100lb. an inch forces the water in a magnificent flow to the surface. A well near the National Gallery, in Trafalgar Square, supplies all the public buildings in Parliament Street and the Houses of Parliament. The new one in Hyde Park Court will supply all the mansions about Sloane Square. The Marquis of Salisbury presented a well, 300ft. deep, to the Corporation of Hatfield as a Jubilee gift. It supplies the town with 7200 gallons an hour. The Manchester, Grosvenor, and Langham Hotels now have their own wells, and many other hotels are preparing to follow their example. The artesian well experts say that there is enough water in the chalk basins from Purfleet to Grays, along Essex Ridge, to supply the whole East End of London, and do away with all fear of water famines. The Colne Valley would supply all the rest of London. As the cost of pumping by artesian process is only 1½d. per 1000 gallons, against the water company's charges of from 4d. to 6d. per 1000, the value of these wells is apparent, but of course, the initial expense of sinking the well must be taken into account.

THE Bower Schools, Norton Malton, are being warmed and ventilated by means of Shorland's patent Manchester Grates, which were supplied by Messrs. E. H. Shorland and Brother, of Manchester.

Bricks and Mortar.

EFFINGHAM HOUSE, ARUNDEL STREET,

December 7th, 1898.

"I know what it is to live in a cottage with a deal floor and roof, and a hearth of mica slats; and I know it to be in many respects healthier and happier than living between a Turkey carpet and a gilded ceiling, beside a steel grate and a polished fender. I do not say that such things have not their place and propriety; but I say this, emphatically, that the tenth part of the expense which is sacrificed in domestic vanities, if not absolutely and meaninglessly lost in domestic discomforts and incumbrances, would, if collectively offered and wisely employed, build a marble church for every town in England; such a church as it should be a joy and a blessing ever to pass near in our daily ways and walks, as it would bring the light into the eyes to see from afar, lifting its fair height above the purple crowd of humble roofs."—JOHN RUSKIN.

CONSIDERABLE damage has been caused by the recent gales to the foundations of the old castle at Sandgate, and it has been found necessary to support by baulks of timber that portion of the structure which faces the sea. The castle stands on the sea-shore, and is a fabric of great antiquity, which was first mentioned in the reign of Richard II., when that monarch directed the keeper of the castle to admit Henry of Lancaster (afterwards Henry IV.), with his family, to "tarry there six weeks." When Queen Elizabeth visited this coast in 1588 she was entertained and lodged in the castle. The building is an object of considerable interest and attraction in the town.

PROFESSOR CHURCH's new method of cleaning the paintings in the Palace of Westminster is very ingenious, and withal simple. It is believed to be thoroughly effective, but its efficacy will be put to the test when the cleaning of the beautiful frescoes in the corridors leading to the two Houses is undertaken. An elementary form of the invention was recently tried in the Royal Gallery, but it did not then prove satisfactory. It was sent back to the maker, that certain suggested improvements might be made in it, but even with these it did not come up to the expectations or wishes of the professor. It was sent back once more, and it is this latest form of the apparatus which will be set to work upon the Westminster frescoes. The old traditional bread-crumbs are still the basis of the idea. They are, however, applied by a manual air compressor, from which a jet of air charged with the crumbs is directed against the picture. It is still, however, in the stage of uncertainty.

FACTORIES exist in certain towns in Europe for the manufacture of all kinds of works of art that are likely to attract the collector. Modern articles of china are stamped with old marks so cleverly that even experts have been deceived. Arms and armour are treated with acids which eat away the metal, thus producing the same effect as the ravages of time. Carved ivories are stained with oils to make them yellow, and are subjected to heat to make them crack. Pieces of furniture have holes drilled to represent the worm holes, and so on, until there will in time be very little in the way of curios which are in themselves really curious. Paris is one of the greatest strongholds of this class of forgers. Forgeries in all works of art very rarely get into the dealer's hands. As a rule they are sent to auction rooms. Many amateurs have an idea that they may pick up a priceless work of art or curio for a mere song. That is the chance for the forgers. They know all this and work accordingly, and thus the amateur is deceived. The

spurious curio makers haunt out-of-the-way auction rooms, where amateurs look in with the idea that nobody but themselves can know of the room in question. The sale takes place, and they come away with a gem, so they think, and are perfectly happy until undeceived.

A COLLECTION of pictures and door decorations by Fragonard is now being exhibited at Messrs. Agnew's Gallery in Bond Street. These canvasses were originally executed by commission of one of the most celebrated courtesans of the world-history; they were so refined that, it is alleged, she would have none of them; wherefore the painter preferred to keep them himself. And as they stand now—they are a triumphant vindication of the reputation of the greatest of the "petits-maitres" of the last century. When a supremely beautiful picture, or collection of pictures, is brought suddenly to one's notice, enthusiasm dims all possible faults. These exquisite masterpieces of Fragonard have the vice of artificiality and a certain pseudo-classical insincerity. But they are altogether charming. And charm redeems a great deal of insincerity. He labelled them, not altogether mystically, under the title of the "Romance of Love and Youth:" a monarch and his unworthy mistress. But this does not matter at all; the pictures are in many ways incomparable. Fragonard had of all his contemporaries, the art of expressing sentiment in the highest and noblest sense. Greuze thought he had it, and he was frequently prurient, the worst form of pru-

riency—uttered under disguise, and yet obviously expressed. Watteau, dainty, delicate, eighteenth century. But Fragonard (of whose work Mr. Phillips reminds us we have no example in our national collections) had a better motive, a purer and surer instinct. Perhaps he was more than a "petit-maitre." Perhaps he was a great master.

ANOTHER serious subsidence has occurred in London Road, Northwich. The sinkage is generally admitted to be the worst that has happened in this Cheshire salt town for many years. The subsidence nearest approaching to the present occurred on May 19th, 1892, when the offices of a solicitor collapsed, and a large area was affected by the depression. On that occasion, although the building was almost turned topsy-turvy, scarcely a pane of glass was broken, the offices being erected on the composite principle. The rottenness of the present has been known for a long period, and several years ago a foundation of timber decking was provided. This has given way, the result being that the roadway sank for a distance of forty yards by six yards. The chasm is of a zig-zag character, and reminds one somewhat of a switchback railway. A much larger area, however, is affected, a circumference measuring sixty square yards showing cracks. The deepest part of the depression was fully a dozen feet, and on a level with the bed of the River Weaver running close by. The premises occupied by Messrs. P. Taylor and Son, contractors, and tenanted by Mr. Pickering, suffered so that



THE CADMON CROSS.

the front wall came fully 4ft. out of the perpendicular. A public-house called the Bridge Inn adjoining was also so seriously affected that it was considered advisable to remove the furniture and close the house. The walls in every room were cracked to the extent of several inches, while the fireplaces throughout the house were displaced. Some loose boxes on the opposite side of the road were in a measure broken up and wrecked.

THE Borough Polytechnic, which was formally opened only eight years ago, has been steadily increasing in size and importance, and the number of students is now over 3000. For some time the trade classes, which have been started to meet the demand made by artisans and apprentices, have been carried on under considerable difficulties through insufficient space; indeed, all the work of the institute has been hampered by the want of class-rooms and workshops. A new and very extensive addition has now been made to the buildings previously existing. The new buildings include an excellent carpenters' and wheelwrights' workshop, fitted with all the necessary appliances, while next door is the boot and shoe workshop. But the Polytechnic is particularly proud of its new machine bakery, to which a laboratory is attached for research work in fermentation. This is the first practical bread and confectionery school organised in connection with a public institution, and the experiment has met with great success. Above the workshops a fine gymnasium has been built.

THE Coronet Theatre—which has the very great advantage of being within a stone's throw of Notting Hill Gate Station—has now opened its doors. The Coronet is London's latest theatre. It is one of the best examples of the modern playhouse. It stands on a corner site in the busy High Street of Notting Hill, a position which has allowed of the building being completely isolated. The decorations by Waring afford one more illustration of the vitality of the later Renaissance types. The charming interior shows what can be done by artistic ability and taste, even in dealing with such a hackneyed style as that of Louis XVI. Columns have been used with particularly happy effect to accentuate the vertical lines. The cultivated eye will also notice the repose obtained by the judicious use of one dominant colour—in this instance, a rich deeply-toned yellow which, by the way, harmonises very well with the tapestry drop curtain and hangings. Altogether the effect must be pronounced very artistic and agreeable. The ceiling has been painted by Mr. A. W. Black—whose mural decorations at Her Majesty's Theatre form so prominent a feature in its beauties—with designs representing "The Four Seasons." Stalls and pit occupy the floor space, the dress and upper circles the tier above, and above these again a gallery of noble proportions capable of taking a round thousand persons to its seats. The full accommodation of the building is for 2500 spectators, and there are no columns to obstruct the view of anyone in the auditorium. The private boxes are ten in number. Ample room has been provided on the stage, which is 40ft. wide and 70ft. deep. The electric light is of course installed throughout. Mr. W. G. R. Sprague, the architect, has everywhere given convenience of entry and exit, and the greatest safeguards from fire and the results of panic.

THE second of the great blocks of administrative buildings at the back of the old Admiralty is now being roofed in, and it will probably be ready for occupation in eight or nine months. That was to have been the practical completion of the work of providing increased accommodation. What remained was to have been chiefly of an ornamental character. On the corner of the old building adjoining the Horse Guards the plans provide for a dome corresponding to that on the opposite new building, and a handsome covered colonnade was to have run along the north side of the parade and joined the old Admiralty to the new. It appears, however, that the increase of the Navy since these works were planned has been found to demand such an increase in

the Admiralty staff that the block now nearly finished will prove insufficient, and yet another pile is under consideration. It is, we understand, not yet decided on, but the probability is that across that side of the quadrangle where the colonnade was to have been a third new block will be raised, and the quadrangle quite shut in.

A CORRESPONDENT writing to the Times from Rome makes an announcement which will horrify every lover of the "Eternal City"—a description, by the way, which is hardly appropriate now that the authorities of the city are never happy unless they are destroying it. Their next piece of vandalism, it seems, is to be to remove the graves from the foreigners' cemetery by the Porta San Paolo, to cut down the well-known group of pines and cypresses, and to throw the space thus gained into a new straight street. The Porta San Paolo, the red walls and towers, the Pyramid of Caius Cestius, and this group of pines form one of the finest and most familiar features of Rome. It is melancholy to think of the amount of destruction—often not merely unnecessary, but disastrous, which the modern Municipio has wrought upon the city committed to its charge.

A MUSEUM of antiquities and curios formed by the late Dr. Paterson, Fernfield, Bridge of Allan, was sold by auction in Dowell's Rooms, Edinburgh, last week. The following are some of the best prices:—Small antique chest, with hammered metal mounts, belonged to Mary Queen of Scots, £3 10s.; carved oak high-backed chair, in stamped crimson plush, £4 15s.; rare old Scottish carved oak arm chair, £16; carved oak high-back chair, stuffed seat in sewed work, £6 10s.; old oak coffer with carved and inlaid front panels, £5.

THE fortieth annual general meeting of the Society for the Encouragement of the Fine Arts was held in the Conduit Galleries, Conduit Street, on Thursday week. Mr. P. H. Newman, hon. secretary and treasurer, presented the report and balance-sheet, which showed a deficiency of about £27. The meetings of the past season had been very successful, and an interesting and attractive programme of lectures on various branches of the fine Arts had been arranged for the coming season. The council had to deplore several serious personal losses to the Society during the present year. The most recent was that of their distinguished president, the Earl of Lathom, and they had also to express their great regret at the death of two of their colleagues—Lieut.-Colonel Hartley and Mr. J. Edmeston, F.R.I.B.A., both old members of the Society.

WE are suffering from a severe epidemic of improvements in London just now. In almost all parts of the capital historic places are being ruthlessly demolished to make way for wider streets and improved sanitation. New Inn is shortly to be sacrificed. It is a venerable and sequestered nook at the back of Wych Street, and it boasts of numerous historic associations. It is mentioned in most of the old chronicles, and was a noted resort in the fifteenth century. A most interesting fact in connection with the inn is that here the old custom of calling the hours of the night has not been suspended.

NOVEMBER 26th was the anniversary of the death of a man whose name has passed into the common currency of our language. Although his contemporary, Telford, is almost forgotten, those who have not the slightest knowledge of the history of road making are familiar with the name of Macadam. Born in Scotland six years after the middle of the eighteenth century, he began to make experiments in the construction of roads about 1810, and so enthusiastic did he become that, at a cost of something like £5000, he is said to have travelled over 30,000 miles—no trifling accomplishment in the early years of this century—in quest of experience. The Bristol Turnpike Trust appointed him its surveyor in 1816, three years before his method of roadmaking formed the subject of a Select Committee of the

House of Commons. Unlike Telford, Macadam did not approve of an artificial foundation; indeed, even on boggy ground sufficiently firm only for a man to walk on the surface, he would at once lay his pieces of angular stone. It will be recalled that, impoverished through his labours, Macadam petitioned Parliament for his expenses and something by way of reward; and finally, in 1827, £10,000 was voted to him, and he was appointed Surveyor General of the Metropolitan area. The value of his labours, in particular as they affected the mail coach communication before railway days, can hardly be over-estimated.

PROFESSOR G. FORBES read before the Society of Arts in London, on Wednesday week, a paper on the long-distance transmission of electric power, overhead wires being supposed. Professor Forbes has lately been engaged in considering the utilisation of the Nile Cataracts, and he finds that the electric lighting of Cairo could be done cheaper by power generated at the First Cataract than by steam engines at Cairo, although the distance is 400 miles. Before long the cataracts would be harnessed and forced to assist in developing not only Egypt proper, but also the Soudan, and especially the Dongola province up to the Fourth Cataract. The matter of long-distance transmission appears to have been first brought to Professor Forbes's notice by an inquiry which reached him as to the possibility of transmitting power from the Victoria Falls on the Zambesi to the gold mines of Rhodesia. On working the matter out he was astonished to find that the scheme would be financially and electrically a sound one, and his conclusion was that anyone undertaking it would not want the enormous capital hitherto thought necessary.

THE death is announced of Sir John Fowler, the engineer. His achievements included railway, dock, and bridge construction. The undertaking which added most lustre to his career was the erection of the Forth Bridge, of which he was the chief engineer in association with Sir Benjamin Baker. The work was begun in January, 1883, and the first train crossed the gigantic structure just seven years after. The cost, which was first estimated at £1,600,000, was actually about two-and-a-half millions sterling. The greatest number of men employed at one time was 5000, and, despite the greatest precautions, fifty-six lives were lost during the progress of the work.

SOME time ago, the Museums and Galleries Sub-Committee of the Glasgow Corporation resolved to hold in the People's Palace during the month of December a special exhibition of wood carving and of the ornamental treatment of wood generally, and to offer in connection therewith money prizes and awards of merit for the best examples of carving sent in for competition. This is a new departure on the part of the Art section of the Corporation, and it promises to be as successful as it is novel. Wide interest in the competition has been displayed all over the kingdom, and already a large number of excellent panels and other objects have been received. To the Loan Department also important contributions have been promised, among the lenders being the Science and Art Department, South Kensington; the School of Art Wood Carving, Imperial Institute; Messrs. J. and J. Gibson, of Edinburgh; and Mr. M. Carthew-Yorston, of Canobie.

THE governors of the Memorial Picture Gallery at Stratford-on-Avon have just received as a gift an interesting old portrait of King Richard II. The picture was formerly in the possession of the Earl of Shrewsbury and Talbot, and was sold at the famous sale at Alton Towers. It has been presented to the Memorial by Mr. J. R. Furness, of Plas-Manor, Conway. The portrait is undoubtedly some centuries old, but is in excellent preservation, and the King is represented in his State robes, with crown and jewelled collar. The picture is chiefly interesting on account of its being the portrait of the hero of one of Shakespeare's

historical plays. Several persons have declared it to be a contemporary likeness to the King.

It is almost an invariable rule for a public body when considering tenders to accept the one that is the lowest. Just the reverse policy has, however, been adopted by the London County Council in connection with the supply of certain gas engines. Six firms competed, and the commission has been placed with the one submitting the highest tender, although in consequence the cost to the ratepayers will be ten per cent. in excess of what it would otherwise have been. The reason is that the firm who are thus successful have on several occasions done good work, and in the opinion of the engineer the highest tender will prove the lowest in the long run. The incident is worth commenting upon, if only because of the effect it must have in checking the cutting of prices that too often is noticeable in connection with public contracts. When it is seen that the price is not regarded as the essence of the competition we may be sure that firms will not show an undue desire to obtain contracts by means of "starving."

A CORRESPONDENT writes:—"Is it not time that something was done by the authorities to check the growing obstructions of the City streets? Apparently any kind of advertising device, no matter how cumbersome, heavy, or dangerous, may be moved erratically about, or planted anywhere off the footpath in the streets for an indefinite period, to the inconvenience of the community at large. If a horse be left untended, or a lorry is kept standing beyond a prescribed time, the police very properly interfere, but unnecessary devices seem to have the freedom of the streets to an extent that calls for the attention of the Watch Committee."

THE "Villa dei Cedri," at the Bagno a Ripoli, near Florence, in which the Duke and Duchess of Connaught will reside during the winter, is an old mansion, the history of which dates back some centuries. It stands about three miles to the east of Florence, on the left bank of the Arno, in the midst of a very rich and cultivated country, where fruit trees, vines and olives grow in abundance. On three sides of the villa are gardens, beyond which are large and fertile "poderi." It contains a large salon, on the walls of which are some good frescoes. In the fifteenth century the villa belonged to the Laroni family (related to the Bardi), from whom it passed to the Nasi family, an offshoot of the Counts Guidi Signori del Casentino. In 1678 Zutorzo Nasi left the villa as a legacy to the Jesuits, who kept possession of it till 1773, at which period the Jesuits were suppressed. In 1775 the Marchesi Corsi bought the villa from the Grand Duchess of Tuscany. The family of the Corsi afterwards sold it in 1834 to Captain Samuel Charters, a Scotchman and military man, who in his turn sold it in 1841 to Mrs. Light, whose heirs are still in possession of it.

OVERLOOKING Reigate stands Colley Hill, rising to the height of 550ft., and the remarkable discovery has just been made that deep down in the sandstone formation lies a lake of considerable dimensions. In the neighbourhood of the Horseshoe stories have been current for a long time of mysterious subterranean caverns extending beneath the hill, and still more ancient tradition accredits one of these caves with having been the meeting-place of the Barons when preparing Magna Charta. It was certainly believed that extensive galleries had been formed by the quarrying of the sandstone used in the building of St. Paul's Cathedral and Windsor Castle. It has been found that there are some caves consisting of a series of chambers, about 24ft. by 20ft., and that each chamber had a door communicating with the next. On the floor of the cave broken into washed sand lay to the depth of 4in., showing that running water had been at work, and further search proved the existence at the far end of a spring of water. This spring, coming from the hill above, would, in a normal season, yield a large

supply, and had evidently done so, for on digging a few feet under the floor of the cave the explorers found a real lake of pure soft water.

ONE feature of the new London Central Railway will, we understand, be a new departure in the method of displaying station names. The directors of the construction company have been giving special attention to the matter, and will endeavour to effect an improvement on any system yet adopted, so far as the stations themselves are concerned. The extremely ingenious and satisfactory device for giving the name of the station the train is approaching inside the carriages, as in some of the District trains, is not contemplated, as we are informed. Next to this the best thing is a clear and adequate display of names on station walls. The usual plan is to make some very good tablets, and then to exercise the utmost possible ingenuity in concealing them among advertisements of pickles and cigarettes, mustards and dog biscuits, boots and bedsteads.

PUVIS DE CHAVANNES left about a thousand drawings and studies, which will be distributed according to an arrangement made by the painter's family. All the studies made for the decoration of the Hotel de Ville will go to the Paris Municipality. The studies relating to the mural paintings in Amiens, Lyons, Marseilles, and Poitiers will go to the museums of those towns; and those made for the Sorbonne and the Pantheon to the Luxembourg. The remainder are destined for the Academy of Macon, the artist's native place.

THE Bishop of Liverpool, the rector and churchwardens, have issued an appeal for assistance towards completing the repairs at St. Peter's Cathedral and Parish Church, Liverpool. "It seems a pity," they state, "that the work should have to be abandoned for lack of funds, and at the risk of having the church closed now, when not only is the expensive scaffolding 'in situ,' but the contractors have got together an intelligent gang of skilled workmen who thoroughly understand the work. Surely we shall not appeal in vain to our fellow-citizens to save their venerable parish church, with its associations, hallowed to so many generations of Liverpool people, from falling into ruin."

MESSES. HARRY HEMS AND SONS, of Exeter, have just placed in the newly-built church of St. Andrew, Paignton, a fine old Norman font which for many centuries must have done duty in the baptism of thousands of young Devonians born in the neighbourhood of Torbay. At the beginning of this century, however, the font was rudely cast out from the church and went through various adventures, being ultimately found doing duty as a flower-pot in the garden of a peasant. It was cracked, and the lower portions had been used for the making of concrete. Through the generosity of a lady resident the font has been restored, all the whitewash and other "improvements" having been removed, and the handsome original patterns of the sculpture exposed. The restored font is mounted on a sumptuous base of Devonshire variegated marble, with a supporting cluster of eight columns of Purbeck marble. The font itself is of Paignton red sandstone.

A FACSIMILE reproduction in bronze of the celebrated old fountain, called "The Gooseman," in the market-place of Nuremberg (executed in the sixteenth or seventeenth century by Lobenwolf), has been lately erected in Fitzwilliam Square, Dublin, by the Commissioners. It stands in a handsome basin of grey Aberdeen granite, also copied from the original fountain (omitting the ironwork), at the south-east corner of the enclosure, where it has been much admired. The bronze figure was supplied by Vandam and Co., of Victoria Street, Westminster, and Nuremberg. The only other copy known to them of this remarkable work exposed in public is erected over the celebrated Elizabeth Fountain at Homburg.

VERY shortly will be issued by Mr. Quaritch, and to subscribers only, Mr. Henry Wallis's new work on "Egyptian Ceramic Art." This comely quarto contains, besides Mr. Wallis's text, thirty plates in colours and nearly two hundred cuts printed with the type. All of them are reproduced from the author's own drawings, and under his superintendence, from examples examined by him in the principal museums of Egyptian Art, such as the British Museum, at Berlin, the Louvre, at Ghizeh, and at Athens, as well as in private collections.

THE prints which Mr. Rupert Bunny entitles "Oil Drawings" are produced by the following process:—The required design is painted in oil-colours upon a copper plate; from this a single impression only is taken upon plate paper. Thus, unlike any other known process of printing, this one of Mr. Bunny's does not multiply the designs it produces. The advantages of it are not apparent in description; but, when one comes face to face with the artist's work in it, one realises that very charming effect, scarcely otherwise attainable, can be produced by its means. Oil-painting upon paper would not produce anything like the qualities that Mr. Bunny arrives at; and though watercolour would come nearer to rendering the effect, scarcely could the same texture be arrived at in that material. The general effect produced by Mr. Bunny's oil-drawings is something of that which mezzotints would have if they could be printed in several colours at the same time.

IF they are wise the Plumbers' Company will carefully consider the suggestions made with reference to the Registration Bill at the meeting that was held on Saturday week at Carpenters' Hall. In the past a reluctance to concede a single point has been shown, and in consequence the measure has failed to receive the sanction of the legislature. If the same policy is followed a like untoward fate, it is certain, will attend the measure, and the time and the money of the Company will alike be wasted. Not much is asked. All that is desired is that the Company shall accept the co-operation of those who by experience are aware what is called for.

MR. ROBERT VIGERS, president of the Surveyors' Institution, sat at the Medical Examination-hall, Embankment, last week, as arbitrator in the case of "Peareth v. The Great Central Railway Company," a claim for compensation in respect of twelve acres of land acquired by the railway company in crossing the Thorpe Mandeville estate, near Banbury, Northamptonshire, for the purposes of a connection with the Great Western Railway. It appeared that the Thorpe Mandeville estate comprised about 490 acres and a house, which had been specially arranged for the use of hunting tenants. It had, until the construction of the new line, been some distance from a railway, and had commanded a rental of from £350 to £500 a year, furnished. It was submitted that the value of the agricultural portion of the property was seriously diminished notwithstanding the construction of accommodation works, such as bridges, at an expense to the railway company of over £3450. Mr. Percival Fox Tuckett (Tuckett and Son), Mr. Howard Martin (Thurgood and Martin), and Mr. Charles Bidwell (Ely), gave evidence in support of the claimant's case, their estimates of the total compensation payable averaging £2700, inclusive of an allowance of 25 per cent. for compulsory sale. On behalf of the railway company, Mr. Edward Boyle, Q.C., submitted that 10 per cent. should be the *maximum* allowance, and that a sum of about £1500 would amply compensate the claimant. The principal experts for the railway company were Mr. Daniel Watney (past president of the Surveyors' Institution), Mr. J. H. Oakley (Daniel, Smith, Son, and Oakley), Mr. Alexander Stenning, Mr. H. R. Goddard (Bedford), and Mr. Lightfoot (Dunlop, Lightfoot, and Wallis). The award was reserved.

A NEW theatre has been erected at Luton at a cost of £19,000.

Professional Items.

ABERFELDY.—A large new distillery has been erected at Aberfeldy by Messrs. John Dewar and Sons, Limited. It is situated on the banks of the Tay, about a quarter of a mile from the Aberfeldy Station. With its beautiful position, this new distillery attains pretensions to which the majority of Scotch distilleries can lay no claim. Mr. C. C. Doig, of Elgin, is the architect.

BLACKMORE.—St. Lawrence Church, Blackmore, has just been reopened, after alterations and repairs. It is estimated that the work will cost about £1500. The north arcade, which was some twelve inches out of the perpendicular, has been completely re-built, the old stones being put back in their former positions and new ones introduced. The roof of the nave has been reframed with new oak rafters, the old wood being employed where sound. It has also been sealed, the old bosses and shields being replaced, with the addition of a few fresh ones inserted at the east end to take the place of plaster. The Norman arch and part of the west end of the north aisle have been opened up by the removal of the heating apparatus, which has been replaced by a new one. The floor at the east end of the church has been re-arranged, and new carved oak choir stalls have been provided. The contractors are Messrs. Letch and Bowtle, of Braintree.

BLACKPOOL.—A new Liberal Club has been erected at Blackpool. The design is by Mr. Herbert Wade. The elevation is of Nelson dressed stone, with three shops in Victoria Street, and three at the back. The entrance is at the westerly end of the buildings. A wide staircase is lighted with leaded windows. On the first floor are a reading room, smoke room, secretary's room, assembly room, and steward's store room, all large and well-appointed apartments. The billiard room and card room are on the top story. The site the club occupies is one of 56ft. square, and the total cost has been about £8000. The general contractors were S. Butterworth and Sons, and the sub-contractors:—Joinery, T. Lawson and Co.; plumbing and painting, S. Walsh; brickwork, G. Sparrow; plastering and slating, W. Walker; electric lighting, R. Wilkinson; heating and ventilating, Dawson and Company, Stalybridge.

BRYNMAWR.—The Brynmawr Intermediate Schools have just been opened. The schools are designed to accommodate forty-four boys and twenty-seven girls, and are arranged so as to be capable of enlargement for an additional sixty scholars or more. The buildings are of Blue Pennant stone with Ebbw Vale buff brick dressings. The central block contains the class rooms, surmounted by a turret containing a powerful ventilator. Right and left are lower portions comprising cloak rooms, private rooms for master and mistress, &c., while at each extremity are receding wings containing laboratory, cookery room, and the future laundry. The girls' side, beside the usual class rooms, contains a cookery room, with gallery for the students and scullery attached. It also contains one large room destined as a laundry, and there is a music room, cloak room, private room for the mistress, &c. The boys' side is a counterpart, but instead of a cookery room contains a chemical laboratory. The contract for the work, amounting to £1883, was carried out by Mr. John Jenkins, Brynmawr, from the designs of Messrs. J. H. Phillips (Cardiff) and F. Baldwin (Brecon).

CARDIFF.—A new Wesleyan chapel has been opened at Albany Road, Cardiff. The building is of unusual shape, resultant upon the peculiar site. The massive tower rises to a height of about 100ft., and forms a landmark in this part of Cardiff. The principal entrance is through a lobby in the tower, and gives access, in addition to the chapel, to a large parlour and class room and vestry on the ground floor, with parlour and other class rooms on the

floors above. One of the principal features noticeable upon entering the chapel is the pulpit, which is, as in most chapels, placed in the centre of the building. The general arrangements of the chapel are nave, transepts and side aisles, with a large choir, organ-chamber, and galleries. The building generally has a very light appearance, with plenty of window space, filled in with tinted cathedral glass. The building has been constructed with Newbridge stone facings, and Bath stone dressings. The cost of the building is £6800. The contractors are Messrs. E. Turner and Sons, of Cardiff, and the architects Messrs. J. F. Jones, Richards, and Budgen.

DOLPHINHOLME.—The work of rebuilding the new church is now approaching completion. The nave floor is being laid with wood blocks, and the chancel with coloured tiles. The heating apparatus is completed, and it is hoped all the work will be finished in a few days. The new church occupies the site of the former one, and has a commanding aspect, being of fourteenth century design, with central tower, chancel and nave. The interior will have a warm and pleasant appearance, the inner walls being lined with the local red sandstone of the old fabric. The east window is a five-light traceried design, and it is proposed later on to insert stained glass. The old font is proposed to be re-used for the present, being a monolith of singular design.

KENSINGTON.—Sir John T. Brunner, Bart, M.P., has recently presented to this Essex Church a very handsome case for the organ. The work has been designed in the style of the fourteenth century screen work, and has been carried out in oak left in its natural colour. The organ is placed in the south-east angle of south aisle, and shows on two sides of the church, which are divided into bays with open and cusped arcading, surmounted with a carved cornice. This forms the main stage of the organ case, all the spaces being filled in with burnished metal speaking pipes. The upper portion above cornice is arranged into gables with traceried panels and corbelled portions carrying a further tier of speaking pipes, and finishing in panelled pinnacles and crockets, the whole forming a pleasing feature to the interior of the church. The work has been designed by Mr. Howard Chatfield Clarke, and has been carried out by the builder of the organ, Mr. Alfred Kirkland, of Upper Holloway.

PENTYRCH.—The new schools for Pentyrch School Board have just been opened. The architect of the building is Mr. Bruce Vaughan, F.R.I.B.A., of Cardiff. The schools, which have involved an outlay of £2100, will accommodate 214 children.

SALFORD.—The memorial-stone of the school that is in course of erection by the Salford School Board in Langworthy Road, Pendleton, was laid last week. The school will contain three departments, accommodating respectively 376 boys, 376 girls, and 442 infants. The boys' and girls' departments will each contain a schoolroom and four classrooms divided by movable partitions, together with the necessary cloakrooms and rooms for teachers. The infants' school is being built on the central hall system, a large assembly hall being provided into which seven classrooms open, each accommodating from fifty to sixty children. Special provision is being made for instruction in cookery and laundry work for girls, and in manual instruction for boys. A caretaker's house is also being erected at one corner of the site. The architects were Messrs. Potts, Son, and Hennings, of Manchester. The contract for the main building is being carried out by Messrs. Storrs, Sons, and Co. Limited, Stalybridge; the iron and steel work by Messrs. Dunkerley and Co., Manchester; and the concreting and asphaltting by Messrs. Davies and Co., Manchester. The cost of the site, including the paving of the surrounding streets and legal charges, was £3680, and it is estimated that the building, including the furnishing, caretaker's house, and all other expenses, will cost £13,000.

Under Discussion.

AN ARCHITECT ABROAD.

"A Cruise in the Eastern Mediterranean" was the title of an address given by Mr. John Tweedale, F.R.I.B.A., before the members of the Leeds and Yorkshire Architectural Society at their last meeting. The lecture, which was illustrated with lantern slides, dealt with life and scenery in Greece, Palestine, and Egypt.

THE USE OF STEEL IN BUILDINGS.

At a recent meeting of the Manchester Association of Engineers, Mr. Edward Wood read a paper on "The Use of Steel in Buildings." Mr. H. Webb, President of the Association, occupied the chair. In the course of his paper Mr. Wood said that, in the opinion of many persons, the English were behind the Americans in the use of steel for buildings. In America the high buildings were constructed almost entirely of steel, with the walls and floors filled in afterwards. English architects and engineers were now falling into line, and the American system was being largely adopted. The difference in the practice of steel construction between the American and the English system was accounted for to a large extent by the differences in the conditions. The architects in each country were bound by the respective building laws, and whereas what were considered fireproof buildings in England would not very likely be passed in America, it was almost certain that the authorities would not allow buildings to be erected in Manchester of twenty or thirty stories, or, as they were called, "sky-scrapers." Mr. Wood proceeded to adduce reasons showing why steel was the best material for use in the constructional parts of warehouses, manufacturing, engineering works, and similar buildings, and also described the most recent adaptation of steel as applied by some of the leading architects and engineers of the day.

Enquiry Department.

COTTAGE ARCHITECTURE.

To the Editor of THE BUILDERS' JOURNAL.

SIR,—I shall be much obliged if you can tell me of a good book on Cottage Architecture (ornamental). Your journals, of course, give many good sketches, but I want something more compact. J. M. S.

Tonbridge.

We recommend you to obtain a copy of Mr. Norman Shaw's book on Cottage Design, published by B. T. Batsford. The work is now out of print, however, and you may have some difficulty in securing a copy.

ROOF TIMBERING.

To the Editor of THE BUILDERS' JOURNAL.

DEAR SIR,—Will you kindly give me a simple formula for calculating the sizes of timbers for principals for corrugated galvanised iron roofs (see Fig. 1). This is the usual form of roofing out here, and iron is the only covering not rendered impracticable by the cost, and in warehouses, etc., it is often necessary to cover large spans without intermediate supports (up to 50ft. or 60ft., say). It should be borne in mind that the lighter the principals are the better, consistent with strength, and that all our common scantlings are cut from 9in. by 3in. deals, for example: 4½in. by 1½in., 4½in. by 3in., 9in. by 1½in., 3in. by 2½in., etc. There are no common rafters, boarding, felt, and slate or tiles. Simply the principals (never more than 6ft. apart), purlins, and corrugated iron in 6ft. to 10ft. lengths, which is in itself a means of stiffness. Would it not be possible to construct curved principals somewhat on the lines of De Lormé's, but of course much lighter?

Any suggestions you can make will be carefully considered, and received with thanks.—
Yours faithfully,
P. J. J.

Kimberley, South Africa.

Probably the forms of roof which would suit our correspondent best are those for light and temporary structures, in common use in France and Belgium, of which a few forms and types are illustrated herewith, and which are constructed of thin boards, single or double, as the construction necessitates, bolted or pinned together at the joints. The roofs of the buildings for the Rouen Exhibition were of this character, and models of others for different spans were shown at the Antwerp Exhibition a few years previously.

A DEFECTIVE DRAINAGE SCHEME.

To the Editor of THE BUILDERS' JOURNAL.

DEAR SIR,—I am taking the liberty of sending you enclosed plan (Fig. 1) and particulars of a new building and drainage scheme, together with the by-laws, the said plan having just been passed by the local authorities of Clacton, and shall esteem it a favour if you will give me your opinion upon the drainage system through your paper this week.

My own opinion as a Surveyor is that the drainage system is entirely wrong, and not according to the afore-mentioned by-laws."

However, I will leave the matter for your general remarks, which I trust we may see in your next issue.—Yours faithfully,

November 21st, 1898. J. W. MARTIN.

We have, fortunately, been able to see a copy of the current issue of the Walton News and Coast Times, and so to obtain much fuller information than is contained in our correspondent's necessarily brief letter. So far as we can see an attempt has been made, and has to some extent been allowed, by the passing of the plan by the local authority, to convert an old private drain into a sewer, repairable by the authority at the ratepayers' expense, by the simple expedient of running a new drain into it, so as to make it convey sewage from

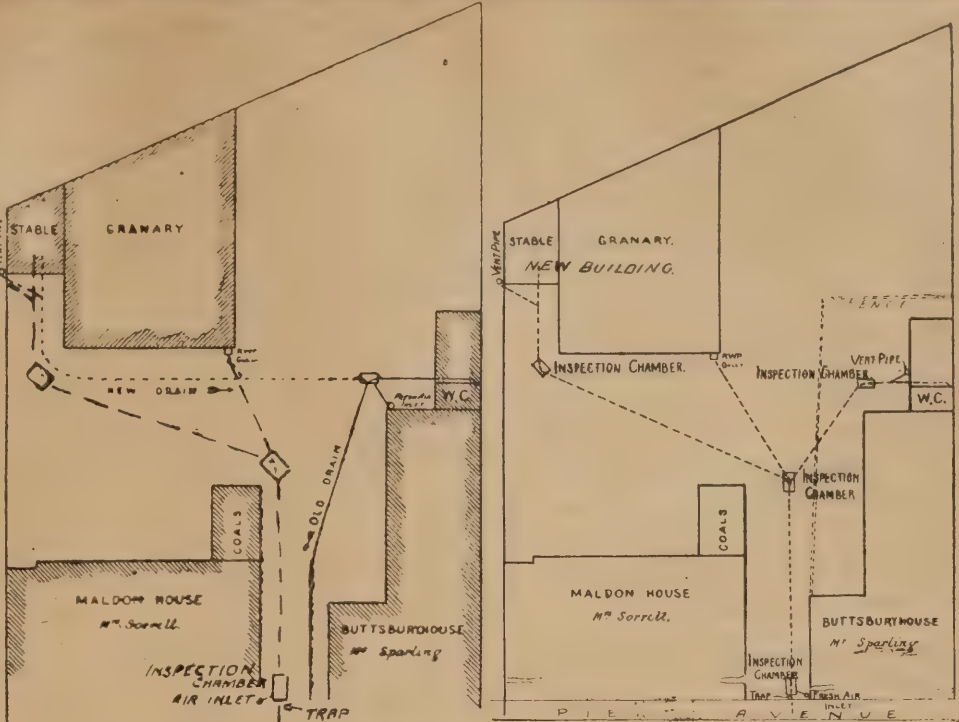
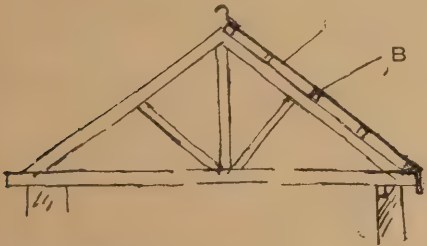


FIG. 1. A DEFECTIVE DRAINAGE SCHEME. FIG. 2.

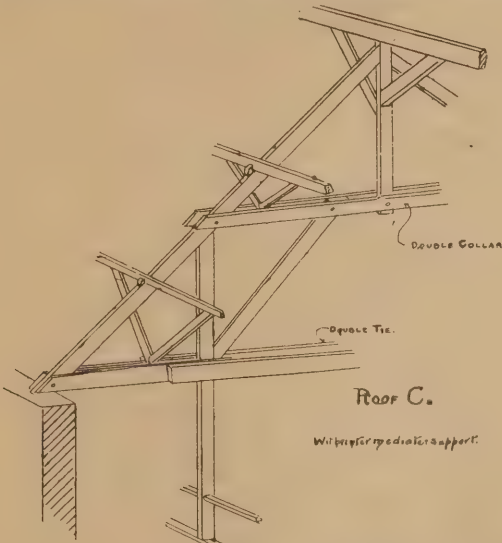
two distinct premises. But under Sections 61 and 63 of the by-laws the new drain must discharge into a "sewer into which such drain may lawfully empty." This stipulation cannot be complied with by discharging into an old "drain;" but the new drain must be distinct, discharging separately into the existing "sewer." The proper way of doing this is shown on the accompanying sketch (Fig. 2) in a series of strokes, with inspection chambers at each change of direction, so as to allow of easy clearing by means of rods in case of stoppages.

These inspection chambers do not appear to be insisted upon under the Clacton by-laws, as they would be in most urban districts, but they are essential to good work; and it may be mentioned that, where they are used in conjunction with half channel through pipes and three-quarter round bends, connections can be made from branches flowing in at right angles, and even sharper, to the main, with perfect safety, and without introducing what is technically a right-angled junction, as described in Section 64.

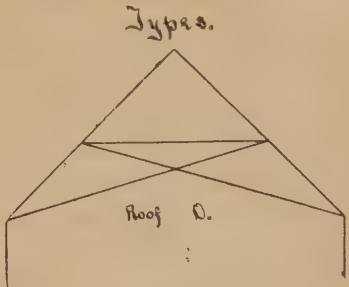


A. Corrugated Iron.
B. The purlins are 3in. by 2½in. and the principals spaced 6ft. centre to centre.

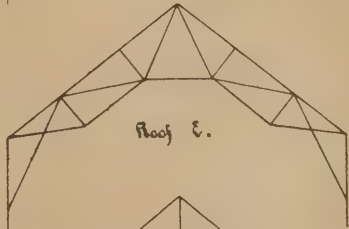
FIG. 1.



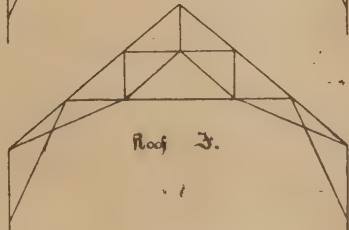
Roof C.
With interrupted interior support.



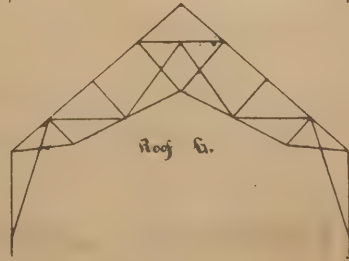
Roof D.



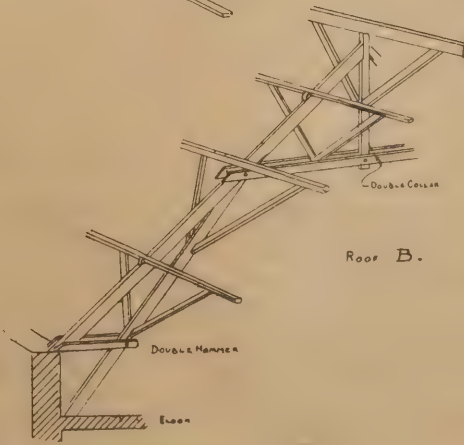
Roof E.



Roof F.



Roof G.



Roof B.

Roof A

ROOF TIMBERING.

TENDERS.

Information from accredited sources should be sent to "The Editor." No results of tenders can be accepted unless they contain the name of the Architect or Surveyor for the Work.

ABERTILLERY.—For making a road (2 miles) to Aberbeeg, and for widening the main road from Aberbeeg to Crumlin (24 miles), for the Urban District Council. Mr. J. McBeen, engineer, 1, King-street, Abertillery. Quantities by engineer:—

Preece	£18,849 4 11	Noel Bagley	£14,347 18 5
Wm. Brown	17,467 7 3	Howells	14,275 0 2
Meredith	16,158 1 9	Lewis	13,713 8 8
Mainwaring and Davis	15,687 2 0	Monks & Parfitt, Newport, Mon.*	12,313 19 10
Willis	15,438 16 3		*Accepted.

BRIDLINGTON QUAY.—For erecting a chalet and pair of villas, for Messrs. Whitaker Bros., Bridlington Quay. Mr. W. S. Walker, architect, Bridlington Quay:—

Chalet.		Pair of villas.	
E. Corner	£1,360		
T. Blackburn	£879 5		1,200
S. Booth			1,140
W. Barnes			1,105
J. Taylor	796 16		1,025

CARDIFF.—For the erection of a fish market, &c. The Hayes, for the Corporation. Mr. W. Harpur, Borough Engineer, Town Hall, Cardiff:—

Geo. Griffiths	£15,058 19 8	Shepton & Sons	£13,941 13 0
H. Gibbon	14,937 12 10	W. Thomas & Co.	13,786 0 0
Hubb and Co.	14,598 4 9	Evans Bros.	13,739 15 10
J. Thomas	14,313 0 0	James Allan	13,696 13 9
Powell & Mansfield	14,325 4 6	W. T. Symonds	13,454 0 0
Latty and Co.	14,140 0 0	Rees & Thomas	13,285 0 0
		Turner & Sons*	12,988 0 0

[All of Cardiff.]
*Accepted.

DOVER.—For the supply of 1,520 tons Guernsey granite, for the Town Council. Mr. E. Wollaston Knockor, surveyor, Castle Hill House, Dover:—

At per ton.		At per lineal foot.	
Broken Granite		Radiated Chan-	Radiated
Siftings.		Kerb. nelling.	Chan-
		nelling.	
s.d. s.d. s.d. s.d.		s.d. s.d. s.d. s.d.	

ELGIN.—For the erection of a church, Rothies. Mr. G. utherland, architect, 51, High-street, Elgin:—

Masonry.—D. Forsyth Elgin	
Carpentry.—A. Robb, Rothies	
Plastering.—Logie and Green, Fochabers	
Plumbing.—Ross Bros., Dufftown	£2,100
Slating.—J. Wilson, Dufftown	
Painting.—J. James, Elgin	
Heating.—R. Tyndall, Aberdeen	

HITCHIN.—For the erection of a Town Hall, &c. for the Urban District Council. Messrs. Mountford and G. Lucas, architects, 17, Buckingham-street, Strand, London, W.C.:—

Howard	£6,998 0 0	Willmott l.	£6,487 0 0
Warren	6,920 0 0	Menides	6,364 0 0
French	6,874 16 11	Foster	6,150 0 0
Coleman	6,543 0 0	Redhouse*	5,814 0 0

*Accepted subject to reductions.

LEOMINSTER.—For the erection of cottage hospital in South-street, for the Hospital Trustees. Mr. Ernest G. Davies, architect, 6, St. John's-street, Hereford. Quantities by the architect:—

Page and Son	£1,825	T. Holland	£1,412
J. J. Davies	1,769	J. Watkins*	1,395
J. Morgan	1,698	C. Edwards	1,350
W. C. Taylor	1,494		

*Accepted subject to slight alterations—reduced to £1,300.

LISS (Hants).—For the erection of a residence in the Forest. Mr. H. T. Keates, architect, Petersfield:—

A. Etherington	£2,750 10	Pocock Bros.	£1,336 0
W. Mould	1,427 0	W. Jenkins, Liss*	1,300 0

*Accepted.

"ROOFING" and other FELTS

In Rolls 25yds. Long, 32in. Wide. Any quantity sent off at a moment's notice.

ANDREW POTTER, MANUFACTURER, MELBOURNE WORKS, WOLVERHAMPTON.

Specifications Free.

LONDON.—For additions to factory, 175 to 189, Hackney-road, N.E., for Messrs. Masters Bros. Mr. Alfred J. Martin, architect, 386, Old-street, E.C. Quantities supplied:—

Brown and Harris	£2,395	Todd and Co.	£1,627
Woodward and Co.	1,783	Goodall	1,625
Kilby and Gayford	1,764	Jarvis and Sons	1,466
Chessum and Sons	1,729		

LONDON.—For decorations and sanitary work at Mountgrove, Greenhill-road, Hampstead, N.W., for the Rev. A. J. Harvey. Mr. Harvey Dyball, architect, 35, Bucklersbury, E.C.:—

Howard & Son	£2,151 4 9	R. A. Lowe	£1,727 0 0
Whitby, Slater, & Whitby	1,760 0 0	Lole & Lightfoot	1,669 0 0
Burford and Son	1,755 0 0	H. Hanks	1,471 10 0

LONDON.—For alterations to the sanitary arrangements at the Renfrew-road Workhouse, S.E., for the Lambeth Guardians, under the superintendence of Mr. G. Crowder, Clerk of Works:—

Rice and Son	£887 0 0	Foreman Bros.	£724 10 6
Wanser & Walker	899 0 0	Allen and Stanley	723 0 0
Doulton and Co.	827 0 0	J. Knight	714 16 11
Mills	818 10 0	E. Wall	712 11 1
G. Davis	800 0 0	Finch and Co.	675 0 0
James	753 18 0	Turner	670 0 0
Vigor	740 0 0	F. W. Harris	649 0 0
Bowie and Petres	727 15 0	R. F. Seed*	630 0 0

*Accepted.

LONDON.—For the rebuilding of house and shop at Nos. 251 and 253, Old-street, for Messrs. Kruzin Bros. Messrs. William Eve and Sons, architects:—

Perry	£857	Carmichael	£756
Salt	820	J. H. Johnson	747
Kilby and Gayford	792	Chessman	729
W. Harris	856	E. Houghton and Son*	624

*Accepted.

MIDDLESBROUGH.—For additions to mineral water manufactory, Grange-street, for Mr. J. Bruton. Mr. W. G. Roberts, architect, 61, Albert-road, Middlesbrough:—

J. Johnson	£185 0 0	D. Doughty, Mid-	
W. Pounder	169 15 0	dlesbrough*	£131 15 0
J. Coates	131 15 0		

MIDDLESBROUGH.—For additions to mineral water manufactory, Grange-street, for Mr. J. Bruton. Mr. W. G. Roberts, architect, 61, Albert-road, Middlesbrough:—

R. Sweeting	210 9 0	H. R. Carter, Mid-	
R. Bell	205 10 0	dlesbrough*	181 0 0

MIDDLESBROUGH.—For additions to mineral water manufactory, Grange-street, for Mr. J. Bruton. Mr. W. G. Roberts, architect, 61, Albert-road, Middlesbrough:—

Baker Bros., Mid-	23 0 0	Curtis & Bowman	22 13 0
dlesbrough*		R. Ripley	19 17 2

MIDDLESBROUGH.—For additions to mineral water manufactory, Grange-street, for Mr. J. Bruton. Mr. W. G. Roberts, architect, 61, Albert-road, Middlesbrough:—

J. and R. Mascall	57 15 0	J. Harrison	56 13 0
Middlesbrough*		W. B. Robinson	55 0 0
W. Tryeman	57 4 0		

MIDDLESBROUGH.—For additions to mineral water manufactory, Grange-street, for Mr. J. Bruton. Mr. W. G. Roberts, architect, 61, Albert-road, Middlesbrough:—

Brick, Stone, Joinery, and Girders.		Allison Bros.	£425
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*Accepted.

MIDDLESBROUGH.—For additions to mineral water manufactory, Grange-street, for Mr. J. Bruton. Mr. W. G. Roberts, architect, 61, Albert-road, Middlesbrough:—

NEW BUSHEY.		For additions to the New Bushey Board Schools. Mr. W. H. Syme, architect, Watford:—	
General Builders,		J. Darvill	£3,000
Limited	£3,200	W. Judge	2,971
Andrews and Sons	3,150	T. Turner, Limited	2,956
W. B. Neal	3,120	G. Wiggs	2,939
F. Dupont	3,098	Coulson and Lofts	2,367
G. and J. Waterman	3,058	H. B. Watkins	2,795
Webster and Cannon	3,055	C. Eames, Watford*	2,644
C. Brightman	3,027		

*Provisionally accepted.

MIDDLESBROUGH.—For additions to mineral water manufactory, Grange-street, for Mr. J. Bruton. Mr. W. G. Roberts, architect, 61, Albert-road, Middlesbrough:—

PITLOCHRY (N.B.).		For the erection of a public hall. Messrs. J. Bruce and Son, architects, Dundee. Quantities by Mr. William Campbell, North Methven-street, Perth:—	
Masonry.—Stewart, Jamieson, & Forbes,			
Pitlochry	£1,374 12 8		
Joinery.—Sim, Moulin	689 8 4		
Plumbing.—A. Menzies, Pitlochry	186 0 0		
Slating.—A. R. Butchart, Pitlochry	113 10 0		
Plastering.—J. Veitch, Pitlochry	138 2 2		
Glazing.—Chas. Alexander, Perth	15 14 0		

MIDDLESBROUGH.—For additions to mineral water manufactory, Grange-street, for Mr. J. Bruton. Mr. W. G. Roberts, architect, 61, Albert-road, Middlesbrough:—

RYDE (I.W.).		For the execution of road works, &c., Woodlands Vale Estate, for Lieut. General Hon. S. Gough-Calthorpe. Mr. J. T. Barton, C.E., 1, St. Thomas-street, Ryde:—	
E. James	£1,987	W. L. Meredith, Glou-	
S. Kavanagh	1,848	cester*	£1,738
J. Barton	1,788	W. Gosden†	1,215
S. Dredge	1,775		*Accepted. †Withdrawn.

MIDDLESBROUGH.—For additions to mineral water manufactory, Grange-street, for Mr. J. Bruton. Mr. W. G. Roberts, architect, 61, Albert-road, Middlesbrough:—

THAMES DITTON.		For three pairs of villas at Thames Ditton. Mr. A. J. Hardwick, architect:—	
Shockwood	£5,769	Tomkinson	£5,500
Kelsey	5,761	Maeers	5,300
Oldridge	5,739	Wells	5,300

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Plans may be seen, and quantities obtained, on and after DECEMBER 14th prox., by application to the Architect to the Council, Mr. W. E. BRYDEN, F.R.I.B.A., of 1, George-street, Buxton, on deposit of One Guinea, which will be returned upon receipt of a bona-fide Tender.

Sealed Tenders must be addressed to Mr. JOSIAH TAYLOR, Clerk to the Council.

It is to be understood that the said Council do not pledge themselves to accept the lowest or any Tender.

JOSIAH TAYLOR,
Clerk to the Council.
Town Hall, Buxton,
November 26th, 1898.

EDMONTON SCHOOL BOARD.

TENDERS are invited for the ERECTION of a NEW INFANTS' SCHOOL at Eldon-road, Lower Edmonton.

Persons desirous of Tendering must send in their names to the undersigned not later than NOON, SATURDAY, DECEMBER 10th, 1898, accompanied by a £5 Bank of England note, which will be returned on the receipt of a bona-fide Tender.

The plans and specification, prepared by H. W. DOBB, Esq., of 110, London-wall, E.C., may be seen at his Office during the usual office hours, and copies of the bill of quantities, by Messrs. YOUNG and BROWN, 7, Southampton-street, Bloomsbury-square, W.C., will be forwarded on or before DECEMBER 13th, 1898.

The contract will contain the ordinary Trades Union clause as to hours and wages.

Sealed Tenders, endorsed "Eldon-road Infants' School," are to be delivered to the undersigned not later than NOON, TUESDAY, DECEMBER 20th, 1898.

The Board do not bind themselves to accept the lowest or any Tender.

JOHN MOULE,
Clerk to the Board.
School Board Offices,
Upper Edmonton.

TO BUILDERS AND CONTRACTORS.

BURGHILL ASYLUM, HEREFORD.

The Visiting Committee invite TENDERS for the ERECTION of TWO NEW BLOCKS and other ADDITIONS at the Hereford County and City Asylum at Burghill.

Quantities can be obtained, and specification and drawings inspected at the Offices of the Architects, Messrs. GILES, GOUGH, and TROLLOPE, 28, Craven-street, Charing Cross, London, on payment of a deposit of Three Guineas, which will be returned on receipt of a bona-fide Tender.

For the convenience of local contractors the specifications and drawings will be deposited at the Offices of the County Council, at the Shire Hall, Hereford, on certain days, particulars of which can be obtained from the Architect.

Sealed Tenders, to be delivered on forms provided, addressed to the Clerk to the Committee, Burghill Asylum, not later than TEN a.m. on WEDNESDAY, DECEMBER 25th.

The Committee do not bind themselves to accept the lowest or any Tender.

Burghill Asylum,
Hereford.
H. E. MORGAN,
Clerk to the Visiting Committee.

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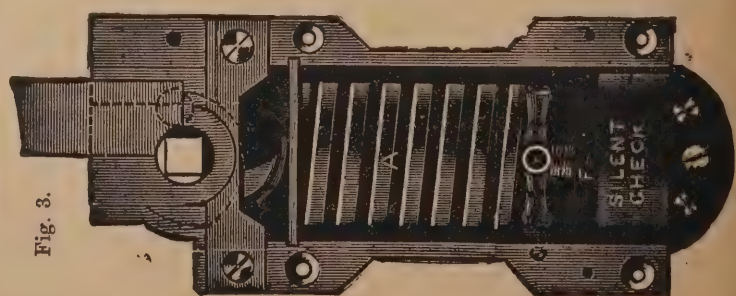
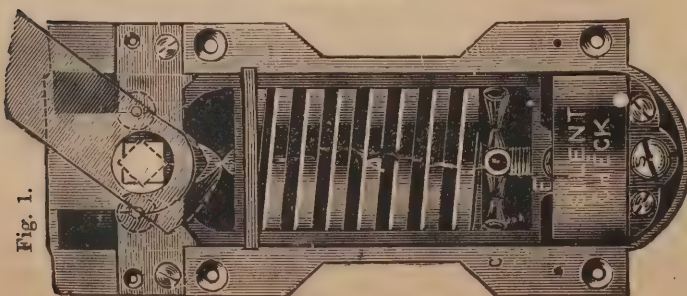
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of 135°.

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See Large Advertisement, Back Page, Monthly.

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THE CONSTRUCTION OF HOSPITALS For Consumption and other Infectious Diseases.*

BY DR. JOHN W. HAYWARD.

(Continued from page cxxvi.)

By the foregoing arrangements the whole hospital and every individual ward will be efficiently ventilated all the year round, with cool air in summer and warm in winter, almost automatically; and without labour or cost, except for the warming furnaces; and with both ventilation and warming completely under control.

That efficient hospital ventilation can ever be automatic and costless may, perhaps, appear really absurd; it is, however, not so absurd as it may appear. This will be evident by reference to the natural laws of atmospheric pressure and of its expansion by heat. In fact, the idea that the atmosphere cannot be caused to pass through a hospital or other building at a rate of emptying and replenishing every twenty minutes, by having the inside warm and the outside cold, with sufficient openings at the bottom and top, is itself absurd to anyone familiar with dynamics. The real questions are: (1) Can its passage be controlled and regulated to the average of twenty minutes? (2) Can it be so warmed that the occupants will not feel it as an unpleasant current or draught? Both these questions may be answered in the affirmative. In the scheme here propounded, indeed, the automatic and nearly costless character, and its appropriateness to hospitals, follow of necessity from advantage being taken of the laws of atmospheric pressure, and providing openings and flues and means of warming and cooling so as to meet the requirements of the laws. Here is the pivot, the cause of success, in particular the openings and flues and the means of warming the incoming air. Without these, the arrangement would not act efficiently; with them it is an unequivocal and unqualified success; the air inside the hospital being warm and light, and that outside being cool and relatively heavy; the heavy air entering at the basement and the light air escaping at the roof, the outside air presses in through the inlets and the inside air presses out through the outlets at a speed determined by the difference in weight; that is, in winter, a difference between air averaging about 35deg. F. or lower and about 65deg. F. or higher. Now, according to the laws of atmospheric pressure, this difference produces a speed of at least 8ft. per second, in ordinary flues or chimneys. (See Blue Book, p. 6, and Health and Comfort, p. 26; also p. 106, where illustrations are given.)† In the hospital flues the speed will be increased by the vacuum produced by the Boyles' abstractors fixed on their terminal ends, and would be further increased by a gas light in their lower ends, perhaps together to 12ft. or 16ft. per second; that is, if the air had to pass only through flues; it has however to pass through the hospital:—entering at the basement inlets, it has to pass up between the warming pipes and through the gratings in the corridor floors; the obstruction offered by these impediments will reduce the speed perhaps one third; but even if it reduced it one half; that is, to only 6ft. per second, this would be an excessive and dangerous current, because with

this speed the air would be passed into and through the wards at a rate to replenish them every four minutes. This would of course be too rapid movement of the air through the wards, and would be felt as a draught; it would therefore have to be checked by partially closing the ward inlets, or preferably the outlets, so as to reduce the speed at least one half, because the wards ought not to be emptied and replenished oftener than every twenty minutes. An outlet flue, equal to 8in. square, even if reduced to 4in. at its terminal end, would be quite enough to give passage in twenty minutes to all the air of a ward of 1000 cubic feet area; that is of a single-bed ward.

If therefore the inlets and outlets be properly proportioned and open, and there be free passage for the air up through the hospital, the ordinary atmospheric pressure will carry on the ventilation quite efficiently, and the whole hospital will be kept fresh and comfortable by the natural forces alone. There is no fear that the speed will not be enough to keep up efficient ventilation; it is more likely to be too great; but there need be no fear of its being too great, because it is completely under control, and can be regulated to any rate desired, by the valves at the ward inlets and outlets; or be arrested altogether by the shutters at the primary and secondary inlets. In order to ensure this ample ventilation, however, both inlets and outlets must be open; if the inlets be closed the heavy outside air will press its way through the outlets, and there will be down-draught, at any rate if fires are causing draught up the chimneys. If the outlets be closed the air will have difficulty in entering at the inlets, even though these be wide open, because if the air cannot get out, it will not come in. In either case there will be stagnation, discomfort, and unhealthiness; that is, unless there are fires to prevent these untoward results, which in summer there will not be, nor will there be in winter either, if the wards are warmed by heated pipes. In spring and autumn the difference in weight may average not more than between air at 45deg. and 65deg. F., but this will produce a speed of about 6ft. per second, and with it an 8in. square outlet will be capable of giving passage to all the air of a single bed ward in nine minutes, which is still too rapid; but, in this instance, as in the others, it can be diminished to the required twenty minutes by the valves and shutters, the regulation of which will be a matter of very little trouble, not more than the opening and closing of windows.

The plan here sketched-out is, in its main features, natural or "spontaneous" ventilation. Natural ventilation is certainly much to be preferred to any and every artificial system, whether on the plenum or vacuum principle, and it is, of course, much less complicated. It is, indeed, comparative simplicity itself—merely arranging openings and warming the air, and, as shown above, it acts more than efficiently. It also involves very little original outlay, and comparatively no permanent cost for maintenance. Whereas all artificial systems involve costly original plant of machinery, as well as heavy permanent expense for maintenance in engines, engineers, fuel, &c., and with all they cannot be made as efficient or nearly so pleasant and healthy in operation.*

warmer air ascending and the colder and heavier descending; the greater the difference of temperature the greater being the difference of weight and of the rapidity of interchange. . . . A cubic foot of air—
at 30deg. F., weighs 569.2 grains.
at 70deg. F., weighs 526.2 grains.

making a difference of 43.0 grains.

for the 40deg. under the same atmospheric pressure, viz. 30 miles of mercury." (Blue Book, pp. 5, 6.) This difference in weight produces a speed of at least 10ft. per second, in ordinary flues or chimneys. (For demonstration see Health and Comfort, p. 107, et seq.)

* Of course, I am well aware that it is generally maintained that mechanical power is required for efficient hospital ventilation, that the necessary movement of the air cannot be procured without artificial means. But, it may be asked, have the natural forces been properly utilised in the experiment? Have the necessary conditions been provided? Have the requisite openings and flues and free passage for the air through the hospital been provided with the necessary means for warming and cooling the air? Have the arrangements been

Of course, the air passing through the hospital at the rate of emptying and replenishing every twenty minutes will be in a state of movement through the wards, and the patients will feel it as a draught; that is, unless it is sufficiently warm—if the temperature be at all below 65deg. F. Ventilation should never be attempted with cold air; all attempts to ventilate with air below 60deg. F. are both cruel and futile—cruel, because such ventilation is productive of discomfort, pain, and risk to the occupants; and futile, because it will be sure to be shut off on every possible occasion, and perhaps just when most needed. "Cold draughts," say the commissioners, "are so inconvenient that every endeavour is practised to obstruct the inlet. . . . It should be borne in mind that the occupants of a room will feel comfortable in a temperature of 60deg. to 62deg. in an undisturbed atmosphere, but will not feel warm at a much higher temperature if the air be at all in motion"—(Blue Book, pp. 64, 120). It will, indeed, be felt as a draught even at a higher temperature than 65deg. F. if the speed be considerable. "The air," says the writer in the "Encyclopædia," "cannot be changed oftener than three times in the hour; in no part of the ward should there be a greater speed than 1½ft. per second, except at the point of entrance where it should not exceed 5ft. per second, and at the outlet where it may be somewhat higher" (*loc. cit.*). In winter, when the ventilation has to be principally through the basement, the inrush of cold air through the primary inlets may sometimes be so great that it will be necessary to control it by the shutters—with a strong south-east or south-west wind, for instance. These primary openings should always bear a proportion to the heat communicated by the warming apparatus, to the number of patients in the hospital, and as to whether fires are burning in the wards or not.*

adjusted to the different seasons of the year? Has it been borne in mind that a difference of 40deg. in temperature between the outside and inside of ordinary flues or chimneys produces a speed of about 10ft. per second, that a difference of 30deg. produces a speed of 8ft., and of 15deg. 4ft.? Have these states been produced and used under the necessary conditions? And have arrangements been provided for making these speeds available? I am not aware that they have; in fact, they have not. The only attempt that I am aware of was made in the Liverpool Hahnemann Hospital; but there it has been hampered by the introduction of a foul-air chamber, and long, uncleanable outlet flues.

Now it will, I think, be admitted by all who are familiar with dynamics, that when the external temperature is below 30deg. F., and the interior of the hospital is above 60deg. F.,—which difference produces a speed of about 8ft. per second—by letting in the outer air at the basement and giving it free passage up through the hospital and out through the ceilings of the wards, the movement of the air through the wards will be quite rapid enough to ensure efficient ventilation, without mechanical help of any kind; that indeed it will be too rapid, notwithstanding the obstruction by inevitable friction during its passage through the hospital. During some days in spring and autumn, and generally in summer, the actual difference between the outside and inside air may not be more than 20deg. or 15deg., but even then the speed will be over 4ft. per second. Even in the hot sultry days of summer, when the atmosphere is comparatively still, the bodies and respiration of the patients, being over 98deg. F., will raise the temperature of the air surrounding them sufficiently to cause it to rise and move upwards away from them, and more so if air at a lower temperature is at the same time moving into the ward to take its place, consequently, if the outside air entering at the basement and being there cooled by ice, is passing up through the corridors and into and through the wards, more movement of the air of the wards—that is, more ventilation will be effected in the hot days of summer without open windows than with them (see "Health and Comfort," pp. 19, 20), because open windows themselves, even on both sides of the ward, cannot cause "ventilation" in the proper sense of the word; that is, cannot cause the air to move either into or out of the ward. Some better provision than open windows is necessary for ventilation when the outer air is motionless, some provision that will cause a difference in the temperature, and therefore in the weight of the outside and inside air, and so cause it to move. For these—in this country—rare occasions ice placed near the primary inlet is much preferable to the original outlay and the permanent cost of motive power by fans.

* I am, of course, well aware that some medical practitioners do recommend hospitals to be ventilated only by open windows on both sides of large wards, even in winter in this climate, and maintain that there is neither risk nor discomfort in doing so. They do not themselves, however, submit to such ventilation; that is, they do not themselves sit in their study, or have their families to sit in the morning room or sleep in bedrooms with windows to the east open all the winter through! And it is only bounce for matrons and nurses to acquiesce in such an arrangement and uphold it; they are themselves not confined to beds underneath open windows, but are moving about in and out

AUTHORITIES:—

NOTE.—ENCYCLOPEDIA BRITANNICA, 9th Edition, 1891. Article: "Hospitals."

BLUE BOOK: "Report of the Commissioners appointed by Government to inquire into the best means of warming and ventilating apartments of dwelling-houses and barracks." Printed by order of the House of Commons, 1857.

HEALTH AND COMFORT IN HOUSE BUILDING, 3rd Edition, 1890.—E. and F. N. Spon, 125, Strand, London.

* A paper read before the Liverpool Architectural Society on Nov. 7th, 1898.

† "The ventilation of rooms and buildings," say the Government Commissioners, "depends in a great measure upon the ascending and descending currents of air caused by the difference in temperature, the

On each story of each pavilion there should be a nurse's room; a ward kitchen, with food-lift, and fitted up with enamelled slate—no woodwork; a urine testing and sputum examining and destroying room, also fitted up with enamelled slate; and a bathroom and water-closet: the bathroom should be large and comfortable, because baths are of great importance. Perhaps the most suitable locality for the nurse's room—which should be ventilated and warmed along with the wards—and for the ward kitchen, with food-lift, &c., will be the north-east end of the pavilion; and for which increase of space may be gained by a little extension eastwards; and for the testing room—which should be convenient for the nurse, because she generally has the testing to do—the north-west end. (See plans B, C, D.) The water-closet and bathroom, with cold shower, should be outside; and perhaps the best place for them will be midway between the pavilions, approached by a vestibule with swing doors (see plan D); or perhaps they might be in the north-east corner, approached through the testing room with swing door at each end. But the architect will arrange all such matters as these.

In anticipation of an infectious fever being accidentally introduced, there should be one or two wards set apart, also separated from the hospital by a vestibule with swing doors; these should be ventilated and warmed in the same way as the other wards.

To be in readiness for accidents, an operating theatre, with glass-lined instrument cupboard, should be provided; it should be well lighted, and should be ventilated and warmed on the same plan as the wards, but with proportionately larger fresh air supply and extra warming power, so that the temperature may be raised to 80° F. if necessary.

There should also be provided a small bacteriological laboratory, ventilated and warmed on the same plan.

The foregoing plan of construction, ventilation, and warming meets all requirements of the writer in the "Encyclopædia Britannica," and most of those of the Government Commissioners and of the authors of "Health and Comfort in House Building;" and it is easy to perceive that it will act as well at night as in the daytime, and in winter as in summer; that it is equally applicable to few wards or many, to large hospitals and small, and to general hospitals as well as special; also that ample currents of cold air may be rushed through the whole hospital or through separate stories or individual wards by the windows alone, and yet be completely under control;—regulated or stopped at pleasure; and that the same may be accomplished from the bottom upwards to the top by the special inlets and outlets alone, and in this case also it can be regulated and controlled, or arrested altogether: also that in cold weather the same may be accomplished with air warmed by the warming apparatus, and this also completely under control; also that in winter the incoming air may be warmed to almost any degree by the warming apparatus; and in summer cooled to almost any degree by ice being placed in the fresh air chambers; also that the air, as well as being dried and filtered, may be disinfected, medicated or perfumed at pleasure, before passing into the hospital; also that the patients may have all the available sunshine all the year round—in the eastern wards, during the forepart of the day, and in the western wards during the after part of the day; and that this also can be

of the wards. Nor do they submit to it in their own rooms during cold easterly windy days and nights. The helpless patients scarcely dare complain or even admit that they feel a draught if the nurse says they do not. Nor perhaps do they suffer very greatly from it whilst tucked up in blankets, except in pulmonary ailments; but what about when they have to sit up or get out of bed at night under an open window at Christmas? For consumptive patients this would be both distressing and dangerous; in this country they are not in hospital to be "dosed" but for comfort and protection, and for the treatment of complications. Some doctors are, however, beginning to treat consumptives with open windows at all times, night as well as day and winter as well as summer; and in all weathers, frost and snow and wind and storm too, that is, "fresh air" at all risks. This will perhaps afford them a better chance than do foul unventilated apartments, whether private or hospital, but it is "kill or cure" treatment.

effectually regulated and controlled by blinds that will thoroughly darken, so as to exclude the sunshine when necessary, as in brain affections, sleeplessness, and such like states. That indeed altogether little is left to be desired as to the ventilation, warming or sunlight—three of the great essentials of health and comfort in hospitals, as they are in private houses.

For such a hospital as the one herein supposed the central corridors should not be less than 6ft. wide, they may be lighted by having a large window at the end; this should be constructed on the same plan as the ward windows. The wards on each side of the corridors may be as many or as few as required by the size of the hospital to be erected, the size of the land, and other considerations. The single bed wards need not be larger than 12ft. wide, 12ft. long, and 13ft. in height.*

Inasmuch as in hospitals for consumption the patients do not spend the greater part of their time in the wards, but in the convalescent rooms, these should be quite a feature of the hospital, and should be as large and comfortable and as much open to the sunshine as possible. The best position for them is the southern end of the pavilions, at the south-west corners, with large bay window at the end, so that the patients may have all the available sunshine of the day (see Plans B, C, D), one on each story of each pavilion. When desirable, the sunshine can easily be excluded by darkening blinds, but of course it could not be obtained in any way or at any time in rooms or wards to the north-east, however much desired. They may be warmed by Pidgeon Teale grates. Having the wards only along the south side of the corridors, allows the corridors to be utilised as the convalescent rooms; but this not only involves more ground space and requires more warming power, but it deprives the convalescent rooms of all sunshine, which is a fatal objection.

For fine weather there should be an open air recreation ground, as large as possible, and as open as possible to the whole day's sunshine, with seats and provision for games, such as croquet, bowls, tennis, &c. It is the possibility to bask all day in dry open-air sunshine that makes Grand Canary, South Africa, New Zealand, Egypt and California, of so great advantage to consumptive and other invalids.

Also, if it can be afforded, a small farm out in the country at a high elevation, where

* "There is," says the writer in the Encyclopædia, "little to be gained by raising the ceiling higher than 13ft.; indeed, 12ft. is practically high enough. Above 12ft. there is little or no movement of the air except towards the ventilators. The space above is, therefore, of little value as ventilation . . . increase of height adds to the cost of construction, increases the expense of warming, and makes cleaning more difficult, and to a great extent hampers ventilation" (loc. cit.). "In barracks," say the Government Commissioners, "the soldiers' rooms are about 12ft. in height; with good ventilation this might be reduced to 11ft., or even 10ft. without disadvantage. The continuous removal of impure air as it rises is of very much greater importance than the cubical contents of air in a room."—Blue Book, p. 92. Nevertheless, the more air space the better if the warming and ventilation be in proportion.

These three authorities (to which reference is here made) may be considered the best on the subjects on which they treat, but they leave some important points incompletely worked out:—

Though the writer in the Encyclopædia insists strongly on the necessity of efficient ventilation and warming he does not attempt to grapple with the difficulties involved in satisfactorily providing these. In the way of ventilation he suggests little else than open windows; and for warming he merely mentions open fires and hot water pipes; he says nothing whatever about adaptation to the different seasons of the year, just as if the same provisions would serve for all alike!

The Government Commissioners enter very fully and elaborately into the necessities for ventilation and warming, and into the causes of the failure of the ordinary methods, especially those by open fires. They insist that the inlets shall let in only warmed air, and only at the lowest part of the room; and that the outlets shall give exit to the foul air at the highest part; but the methods they suggest are not either very practicable or successful; and they do not insist upon control of the inlets, or provision against down-draught through the outlets, either by shutters at the mouths or abstractors on their terminal ends.

The authors of "Health and Comfort in House Building" are very specific and satisfactory on both ventilation and warming; but the outlets they recommend are not suitable for hospitals, being long, tortuous, and insusceptible of being easily cleaned; they are therefore liable to harbour dust and germs, which down-draught might drive back into the wards.

patients, in the early stage of the disease, can be kept in active exertion in the open air the greater part of the twenty-four hours. It would also be well if vigorous mountain climbing could be enforced daily in the very early stage of the disease.

The larder and the principal kitchen should of course, be at the north-east corner of the building, for the sake of coolness to the butter, milk, flesh meat, &c., and so as not to intercept the sunshine to the wards and corridors. Placing the larder and kitchens to the sunshine—to the south, south-east, or south-west—is a mistake that should never be perpetrated, nor be tolerated under any circumstances whatever. And on no account should the hospital be so placed that the wards are not towards the midday sunshine.

The out-patient department and the dispensary should, of course, be easy of approach from out of doors and of access from the in-patient department, and yet so cut off from the latter as to prevent air passing from one to the other. They should be ventilated and warmed on the same plan as the rest of the hospital, but it is not necessary they should face the sunshine; their position, size, and general construction will have to be subordinated to the general arrangement of the hospital. The waiting-room should be as large and well lighted as possible, and very thoroughly ventilated. It should also be well washed throughout and air flushed, and the floor (if of wood) well rubbed with bees' wax and turpentine every day, and should always be under the influence of some strong disinfectant when not occupied.

The foregoing is but a small part of the work and responsibility involved in the erection of a hospital. The rest, however, comes more within the province of the architect than of the medical man.

THE London County Council, at its meeting last week, decided to suspend a certain standing order, so that it might itself erect working-class dwellings on the Ann Street, Poplar, area. It was considered that on this particular site it would be impossible to erect dwellings which should comply with the standing order that such undertakings should be self-supporting; and the effect of the decision is to waive this condition. The new buildings, which will be commenced forthwith, are to accommodate 180 persons.

THE Parliamentary notices for the coming session contain a most important project for dealing with the rapidly increasing suburban traffic to and from the northern districts of London. Under the auspices of the Great Northern Railway Company a new company has been formed for the construction of a deep-level electric line from Wood Green to the Strand. It is proposed that the line shall be deposited in four sections. The first two—from Wood Green to Finsbury Park, and from Finsbury Park to King's Cross—will run practically the whole way under property of the Great Northern Railway Company. From King's Cross the line will run under the Metropolitan Railway, and so via Judd Street, Russell Square, and Southampton Street, to Holborn, this being what is called the third section. Section No. 4 extends from Holborn to the Strand, running beneath the projected new street of the London County Council, and the terminus is to be at the end of this new thoroughfare, in the vicinity of Somerset House. The stations for the underground route—so far as concerns that portion of it under the existing Great Northern line—will follow the sites of the present stations of that Company. There is to be an exchange station at Finsbury Park, underneath the existing station—and a station at King's Cross beneath the present terminus. It is probable that another station will be constructed at Russell Square, and in all likelihood arrangements will be made for an interchange of traffic at Holborn with the Central London Railway. The new line, which, if sanctioned by Parliament, may be made within five years, practically gives a direct route to the West End from the whole of the Great Northern suburban district.

VENTILATION.

By W. N. TWELVETREES, M.I.M.E., M.S.I.

(Continued from page xcii.)

IV.

It is well that a clear understanding should be obtained as to the value of sufficient space per head in any apartment or building. For this purpose the building may be assumed to be hermetically closed and without ventilation. The time required for vitiation by respiration may then be readily calculated to any given degree. It has already been shown (Fig. 9) that respired air contains four parts per cent. of CO_2 , and that the volume of air expelled at each respiration by an adult varies from 30 to 40 cubic inches. The average 35, multiplied by the number of respirations per minute, gives the total of 560 cubic inches, which may be safely taken as the largest quantity likely to be met with under any ordinary circumstances.

As 4 per cent. represents the proportion of CO_2 , the quantity produced per minute is $4 \div (560 \div 1728)$, or $4 \times .324 \times 1.296$. For the purpose of simplifying calculation this may be stated as 1.3, and the time occupied by the process of vitiation will be thus found:—

$$T = C \times (a - b) \div 1.3$$

Here, T is the time; C, capacity of the room in cubic feet; a, percentage of CO_2 in vitiated air; b, percentage of CO_2 in original air.

Taking a room of 500 cubic feet capacity, the time required for vitiation to the extent of 1 per cent. CO_2 will be found to be:— $500 \times (1 - .04) \div 1.3 (= 500 \times .06 \div 1.3) = 23.07$ minutes. Table X. has been calculated in this manner, the co-efficient 1.3 being multiplied by 2 in the case of a paraffin lamp, and by 4 for an ordinary gas burner. In ordinary practice no room is capable of being hermetically closed, because windows, doors, and walls all permit the passage of air to a limited degree. Nevertheless, the figures prove conclusively the necessity for proper means of ventilation, and furnish a striking condemnation of the grave defects evidenced in the construction of many dwelling-houses and offices. In such the only means provided for the admission of fresh air consist of windows and doors, and, when these are tightly closed in cold or draughty weather, the unfortunate inmate, whilst deriving temporary comfort, so far as warmth is concerned, runs the risk of permanent injury to his constitution and vital power. When gas or oil stoves are used, the evil is, of course, materially increased.

Coming now to figures of positive rather than of negative character, such as the above, it may be demonstrated what will be the actual effect produced upon the atmosphere of a room by the admission of varying quantities of air per head. The tables and diagrams previously given and based upon theoretical and other data afford no indication as to the standard of purity maintained. This may be ascertained by calculation in the following manner:—

$$S = b + (1.3 \div C),$$

where S is the standard of purity as gauged by the percentage of CO_2 ; b, the percentage of CO_2 in original air; C, the cubic feet of air admitted per minute; and 1.3 is the co-efficient of vitiation, as before.

Supposing it is desired to ascertain the standard of purity which may be obtained in a room where 20 cubic feet of fresh air are admitted per head per minute, the rule will be thus expressed:—

$$.04 + (1.3 \div 20) = .105.$$

Conversely, it is easy to determine what volume of air will be required to maintain any given standard of purity in a room, by reversing the rule as follows:

$$C = 1.3 \div (S - b)$$

Table XI. has been calculated by the former of these two rules, and shows conclusively that where it is desired to ensure an entirely wholesome atmosphere, considerably larger

quantities of air must be admitted than those prescribed by some of the text-books which have been relied upon in the past. When gas lights or lamps are used it will be necessary as before to make due allowance for their powers of vitiation.

Apart from its undoubted capability for the production of carbonic acid, coal gas is calculated to produce prejudicial effects when escaping into air breathed. A consideration of its constituent parts (Table XII.) are sufficient to convince the most sceptical that the greatest care should be exercised with regard to the employment of gas for the purposes either of lighting or warming. Electric light should certainly be used whenever available, not only on account of its

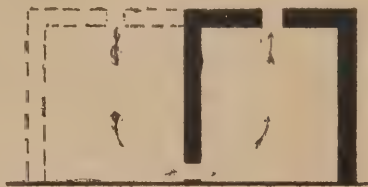


FIG. 14.

greater healthfulness, but because its adoption considerably simplifies the general problems connected with ventilation. Fires when used for warming also require air, the quantity averaging from 800 to 1000 cubic feet per minute for each fireplace. Although this air is vitiated, the conditions differ materially from those existing in the case of gas lights and gas stoves, because the products of combustion from a fire do not enter the room. Further, air which is partly vitiated by respiration, gas lights, animal heat and exhalations, is still available for promoting combustion.

Notwithstanding the fact that an open fire tends to encourage the admission of fresh air from every available point, it is desirable that inlets should always be provided with due regard to the individual requirements of every fireplace. These differ so much in size and construction that the subject cannot for the moment be treated exhaustively. In some cases the supply of fresh air may already be on a sufficiently liberal scale to provide for all necessities.

Next in order to the foregoing questions comes the consideration of various modes in which ventilation may be attempted. In order to secure the conversion of attempts into accomplished facts, it is necessary, when dealing with natural ventilation, to bear in mind the physical characteristics of air and the laws by which it is governed. As in Nature, variations of temperature, and, consequently, of specific gravity at different parts of the



FIG. 15.

earth's surface, create breezes and winds, so do similar differences in connection with buildings produce movements of air. If these be properly ordered and regulated, ventilation may be ensured. Heat, whatever may be its immediate source, is so inseparably connected with ventilation that it is somewhat difficult to exclude it from present consideration. As, however, the subject will be entered upon at a later period, the existence of sufficient heat for the provision of motive force in ventilating shafts and ducts will be assumed to exist.

The dimensions of air inlets and outlets exercise a most important bearing on efficiency, but these again will be discussed under a separate heading. In the meantime it will be most convenient to enquire into some methods which have been and are still being adopted, and to examine their respective merits and

demerits. Ventilation, in its most elementary form, is illustrated by the case assumed in Fig. 14, where the air, contained in a room, being at 62 deg. F., is lighter than an equal volume of outer air at 32 deg. F., occupying an imaginary room, shown in dotted lines. The relative weights being in the ratio of 1 to 1.06, the heavier air descends and drives out the air in the room, as indicated by the arrows.

If air inlets be too small, external pressure will be exercised on the outlet, thus causing a descending current of cold air in the room. Again, the inlet, although large enough to avoid this drawback, may still be too small to prevent an unpleasant draught. As a rule such an effect is avoided by making the inlet of ample size, so as to reduce the velocity of the entering current to about 4ft. or 5ft. per second. The positions of both inlet and outlet are of importance, as will afterwards be shown.

(To be continued.)

The Streets and Roads Committee of the Aberdeen Town Council has decided to lay out a new street on the Spital estate. The street is to be 50ft. in width.

ACCOUNTS for the first twelve months' working of the combined dust destructor and electric light undertaking in Shoreditch show a gross profit of nearly £6000. The Electric Light Committee estimate that the saving on the dust destructor, as compared with the old method of disposing of refuse, was £1253, and they conclude that the net profit and saving on the dust destructor and lighting combined has been, for the twelve months, £2679. It should be borne in mind that during the first three months, when the work done was very small, there was a loss of £500, and that the Vestry has reduced the price of current by 33 per cent. during the year.

A BEGINNING has been made with the Staines reservoirs scheme, which is to save London from water famines. Two immense reservoirs are now under construction on Staines Moor, which, when completed, will have a capacity of 3300 million gallons. The mind is not readily capable of grasping the meaning of such stupendous figures; but, to put it in another way, it may be said these reservoirs will be about 1½ miles in length and varying from a mile to a little over half a mile in breadth, with anything from 15ft. to 20ft. depth of water. Nearly two thousand men are at work on these great undertakings, which will cost over a million sterling. The works are the joint enterprise of the Grand Junction, West Middlesex, and New River companies. Great, however, as the works may be, they are only part of the original scheme for national storage reservoirs, formulated some five or six years ago. This project provided for nine reservoirs, each with a capacity of 2000 million gallons, capable of ensuring a daily average supply of 300 million gallons for the use of the metropolis. Meanwhile, it will take quite four years to complete the two reservoirs already in hand.

INQUIRIES go to show that cracks have recently revealed themselves in several buildings in Cheapside and King Street. It is contended by the railway authorities that this is a coincidence, and in no way due to the boring, and it is pointed out that the powerful tubes in which the lines are placed tend rather to strengthen than to weaken the ground. Moreover, as a precaution against any interference, the tunnels are placed under the roadways, and not beneath the buildings. The long spell of dry weather and the clay soil upon which Cheapside is built would, it is said, be quite sufficient to account for the cracks. The occupants of the buildings that have shown signs of "settling down" are becoming anxious as to the safety of the premises, and are obtaining the best advice possible in order to ascertain the cause of the subsidence. No cracks, it is pointed out, were perceived prior to the commencement of the tunnelling for the railway; and, though it will undoubtedly be a somewhat difficult task to prove that the subsidence is due to these excavations, the owners of the premises affected will not be likely to rest contented until the matter has been settled by arbitration.

Surveying and Sanitary Notes.

THE Penrith Urban District Council on September 6th addressed to the Local Government Board a letter stating that at a meeting of the Council it had been resolved:—"That, having regard to the difficulties of purchasing land for the disposal of the sewage on the principle of broad irrigation, the Local Government Board be respectfully requested to give the Council their views as to the adaptability for Penrith of the septic system of sewage treatment, which is now receiving so much attention from sanitary reformers." The Clerk, in forwarding the resolution, stated that its terms "are not to be taken so as to affect the present position of the question as to the provisional order proceedings already taken, but any advice of the Board which might lead to an easier arrangement to secure the means of the purification of the Penrith sewage would be considered of great advantage if received at an early date."—Mr. Alfred Adrian, the Assistant Secretary of the Local Government Board, writing on September 30th, stated that the Board "cannot undertake to advise the Urban District Council of Penrith as to whether the septic system of sewage treatment would be suitable for adoption in their district. It may be stated, however, that the Board have had this method of treatment under consideration, and the main principle which has so far been established is that, if the septic system is adopted, it is necessary that the effluent from the tanks and filters should be subjected to further treatment on land before being allowed to pass into a water-course. The Board have also come to the conclusion that the septic system can only be regarded as an experimental substitute for an ordinary process of chemical precipitation. They would not, therefore, be prepared to entertain any proposal for the adoption of that system in connection with a scheme of sewerage for the urban district unless provision were made in the scheme for the purification of the effluent from the tanks and filters on a sufficient area of land. They would also require the Urban District Council to accept the entire responsibility for the experiment, and to give an undertaking that, in the event of the

process failing to give satisfactory results, they will adopt in its place some process of treating the sewage with chemicals combined with artificial filtration."

A CASE of considerable importance to local authorities was decided on Wednesday week at the Monmouthshire Quarter Sessions, held at Usk. The main sewer, constructed by the Ystradfydwg and Pontypridd Main Sewerage Board, runs through the parish of Rhymney and discharges into the Bristol Channel. The Newport Union Assessment Committee recently brought this portion of the sewer into assessment, and rated it at an assessment of £700 nett rateable value. Against this assessment the Sewerage Board appealed. Counsel for the appellants relied on the judgment given by Lord Herschell in the House of Lords in the appeal of the London County Council on the proper assessment of the West Ham sewer.—The Court gave judgment for the appellants, and decided that only a very short length of the sewer—owing to its construction—was rateable, assessing that portion at £145 gross and £105 nett rateable value, with costs to the appellants.

At the Town Hall, Newcastle, an inquiry ordered by the Local Government Board has been held into an application by the Council for sanction to borrow £750 for street improvement purposes, and £7000 for market purposes. The Town Clerk explained the purposes for which the loans were required. The first item of £750 was for the purchase of three houses at the east end of Douglas Terrace and the south end of Derby Street, in order to throw their sites into the street, and improve the line of both Douglas Terrace and Derby Street. The owner of the houses had offered to sell them for £750. The loan of £7000 was for improving the meat and provision market. £3500 of it was for the renewal of the roof, which was erected over fifty years ago. There was no debt on the buildings, but the land was mortgaged forty years ago for £20,000. The market site was now worth £60,000. Of the balance, £2500 was for altering what was called the wide alley of the market, by extending the shops in advance of the existing shop line by 5ft., and fitting these shops with frame-fronts and stalls. There was £500 for altering the stalls in the centre, and £500 for contingent works.

The Aberdeen Granite Trade.

IN view of the great falling-off in the granite trade at Aberdeen with the United States, increases in other branches of the industry are recorded. The following figures applicable to the exports from Aberdeen Harbour during the last financial year (ended September 30th, 1898) bear out this, and it is otherwise known that a large amount of business has been done during the present year by the monumental works, chiefly in the way of making ornamental fronts for buildings in the large towns in England and elsewhere. Granite goods for America are shipped via Glasgow, but the statistics given below as to Aberdeen Harbour apply to exports for most places abroad, and also, of course, to such destinations as London, Newcastle, &c. The exports of stone from the port during the year mentioned may be summarised as follows:—Of causeway stones there were exported 35,284 tons, being a rise of 3881 tons upon the record for the previous year. As the average value of the stones may be taken at £1 a ton, the sett-making industry in this district is evidently still a considerable one. Then of kerb, pavement, and building stones there were exported during 1897-8 no less than 4479 tons, being an increase of 243 tons over the figures for the year preceding. The total weight of chips, rubble, &c., exported was 14,616 tons—a rise of 3399 tons. The exports of polished granite again amounted to 9349 tons, an increase of 367 tons. This item is of importance, as the value of polished granite for elaborate work is probably £20 per ton, while the average value of all grades is moderately estimated at £14 per ton. Of granite waste slabs ("adamant") there was exported last year 2898 tons—a rise of 1058 tons over the previous year. The imports of rough foreign granite have not been materially altered. These amounted to 12,619 tons, being a fall of only 1205 tons on the record of 1896-7. Most of this rough foreign granite comes from Norway and Sweden, and owing to the variety of colour available, it is largely used for the polished fronts as well as for cemetery monuments for the United States.

COMPLETE LIST OF CONTRACTS OPEN.

DATE OF DELIVERY.	WORK TO BE EXECUTED.	FOR WHOM.	FROM WHOM FORMS OF TENDER MAY BE OBTAINED.
BUILDINGS—			
Dec. 9	Elgin—Erection of Villa	.....	C. C. Doig, Architect, Elgin.
" 9	Ovenden—Two Villas	.....	M. Hall, 29, Northgate, Halifax.
" 10	Cambridge—Erection of Hotel and Stabling	Star Brewery Company Limited	W. A. Barber and Son, 22, Buckingham-street, W.C.
" 10	Dublin—Erection of Iron Shed	Cleansing Committee	City Architect, Municipal Buildings, Cork-hill, Dublin.
" 10	Maesteg, Wales—Alterations, &c. to Police Station	Glamorgan County Council	County Surveyor, Bridgend.
" 10	Morecambe—House Alterations	.....	A. L. Lang, 12a, Pedder-street, Morecambe.
" 10	Troon—Schools	.....	H. W. Collins, Penryn-street, Redruth.
" 12	Cambridge—Erection of Dining Hall, &c.	Girton College	A. Waterhouse and Son, 20, New Cavendish-street, W.
" 12	Carlisle—Erection of Seven Houses	Grey and others	Johnstone Bros., 39, Lowther-street, Carlisle.
" 12	Edinburgh—Engine House, Offices, &c.	Magistrates and Council	Colam and Cooper, 1, Parliament-square, Edinburgh.
" 12	Barnsley—Electricity Buildings	Corporation	G. H. Taylor, St. Mary-place, Barnsley.
" 12	Eccles—Bowl House and Pavilion	Parks Committee	Borough Surveyor, Eccles.
" 13	Lancaster—Erection of Home	.....	Austin and Paley, Architects, Castle-hill, Lancaster.
" 13	Woking—Erection of Pair of Cottages	Urban District Council	G. J. Woodbridge, Surveyor, Bank-chambers, Woking.
" 13	Heywood, Lancs.—Supply of Fireclay Goods	Gas Committee	W. Whatmough, Gas Manager, Heywood, Lancs.
" 13	Covey—Sub-Stations	Electric Light Committee	J. E. Swindlehurst, St. Mary's Hall, Coventry.
" 13	Easington—Houses	Admiralty	Director of Works Dept., Northumberland-avenue, W.C.
" 13	West Ham—Sessions Court, &c.	Corporation	L. Angel, Town Hall, Stratford, E.
" 13	Barking—Eighty-three Cottages	Urban District Council	C. J. Dawson, East-street, Barking.
" 13	West Ham—Public Baths	County Borough	L. Angell, Borough Engineer, Town Hall, Stratford, E.
" 14	London, S.W.—Refreshment Pavilion, &c.	Fulham Vestry	C. Botterill, Surveyor, Town Hall, Fulham.
" 14	London, S.W.—Brick Wall	Fulham Vestry	C. Botterill, Surveyor, Town Hall, Fulham.
" 15	Mousehole, Penzance—Alterations to Chapel	.....	H. W. Collins, Architect, Penryn-street, Redruth.
" 15	London, S.E.—Bath Room, Lobby, &c.	St. Olave's Union	Newman and Newman, 31, Tooley-st., London Bridge, S.E.
" 16	Preston—Alterations, &c. to School	Corporation	Borough Surveyor, Town Hall, Preston.
" 16	Preston—Extension of Inn Cellars	Corporation	Borough Surveyor, Town Hall, Preston.
" 16	Preston—Alterations to Cattle Stage	Corporation	Borough Surveyor, Town Hall, Preston.
" 17	Tynewydd, Wales—Rebuilding Hotel	E. Evans Bevan	J. Rees, Architect, St. Thomas-chambers, Neath.
" 17	Edinburgh—Station Hotel	Caledonian Railway Co.	Pieddie and W. Browne, 8, Albany-place, Edinburgh.
" 19	Hampton-on-Thames—Additions to Infants' School	Station Schools Managers	F. G. Hughes, Architect, Hampton-on-Thames.
" 20	Edmonton—Infants' School	School Board	H. W. Dobb, 110, London-wall, E.C.
" 22	London, N.W.—Erection of Two Chapels	Guardians of St. Pancras	A. and C. Harston, 15, Leadenhall-street, E.C.
" 22	London, E.C.—Patent Office Extension	Commissioners of H.M. Works	H. Tanner, H.M. Office of Works, Storey's Gate, S.W.
" 24	Dartmouth—Repairs, &c., to Guildhall	Town Council	T. O. Veale, Surveyor, Castle View House, Dartmouth.
" 27	Blaenau Ffestiniog, Wales—Police Buildings	.....	J. J. Morris, Clerk to the Justices, Blaenau Ffestiniog.
" 28	Burghill, Hereford—Asylum Works	Visiting Committee	Giles, Gough, & Trollope, 28, Craven-st., Charing Cross, W
1899.			
Jan. 3	Nottingham—Superstructure of Workhouse	Guardians	A. Marshall, King-street, Nottingham.
" 7	Plaistow, E.—Enlarging Hospital	County Borough of West Ham	E. T. Hall, 57, Moorgate-street, E.C.
No date.	Banbury—Temporary Annex	Volunteer Bazaar	Office, 38, High-street, Banbury.
" 99	Blaengarw, near Bridgend—Chapel	.....	Matthews, Manager, Ocean Colliery, Blaengarw.
" 99	Bradford—Shop Premises	.....	Isitt, Adkin, and Hill, Prudential-buildings, Bradford.

COMPLETE LIST OF CONTRACTS OPEN—continued.

DATE OF DELIVERY.	WORK TO BE EXECUTED.	FOR WHOM.	FROM WHOM FORMS OF TENDER MAY BE OBTAINED.
BUILDINGS—Continued.			
No date.	Burtonwood, Warrington—Burial Ground Walls, &c. ...	Parish Council ...	W. and S. Owen, Architects, Warrington.
"	Buxton—Electric Lighting Station ...	Urban District Council ...	W. R. Bryden, 1, George-street, Buxton.
"	Cardiff—Erection of Church ...	— Frank ...	Habershon, Fawcner, and Groves, 41, High-st., Newport.
"	Dogsthorpe, Peterborough—Erection of Six Houses ...	— Frank ...	J. G. Stallebras, Architect, North-street, Peterborough.
"	Frizinghall, Bradford—Six Houses ...	— Frank ...	John Jackson, Architect, Barry-street, Bradford.
"	Harrogate—Alterations, &c., to Hall ...	J. Thompson ...	T. E. Marshall, Architect.
"	Horsford, near Leeds—Cottage Residence ...	— Frank ...	H. and E. Marten, 5 and 7, Charles-street* Bradford.
"	Hull—Alterations, &c., to Hotel ...	Imperial Hotel Co. Ltd. ...	W. S. Walker and J. M. Dossor, 2, Manor-street, Hull.
"	Inverness—Erection of Hotel, &c. ...	— Frank ...	D. Cameron, Architect, Inverness.
"	Leeds—Eight Scullery Houses ...	— Frank ...	P. Robinson, 72, Albion-street, Leeds.
"	Llandrindod Wells—Erection of Baths, &c. ...	T. Heighway ...	Swash and Bain, Midland Bank-chambers, Newport.
"	Llanelli—Alterations ...	— Frank ...	W. Griffiths, Architect, Falcon-chambers, Llanelli.
"	Middlesbrough—Erection of Laundry ...	Board of Guardians ...	R. Lofthouse and Sons, 62, Albert-road, Middlesbrough.
ENGINEERING—			
Dec. 9	London, E.C.—Hydraulic Appliances ...	Great Eastern Railway Co. ...	Engineer, G.E. Rly. Co., Liverpool Street Station, E.C.
" 12	Kinson—Extending Hot Water Apparatus ...	School Board ...	S. J. Newman, Branksome.
" 12	London, E.C.—Well ...	Shoreditch Vestry ...	Engineer, Electricity Department, Coronet-street, N.
" 12	Barnsley—Electric Lighting (Four Contracts) ...	Corporation ...	T. L. Miller, 7, Tower-buildings, N., Water-st., Liverpool.
" 13	London, E.C.—Electric Transformers ...	Shoreditch Vestry ...	C. N. Russell, Electricity Supply Dept. Coronet-st. Shoreditch
" 14	Haslingden, Lancs.—Refuse Destructor ...	Town Council ...	W. Musgrove, Town Clerk, Haslingden.
" 17	Beckenham—Electric Lighting Plant ...	Urban District Council ...	Wilson and Storey, 66, Victoria-street, S.W.
" 20	Manchester—Station Works ...	Lancs. and Yorks. Railway Co. ...	Engineer's Office, Hunt's Bank, Manchester.
" 28	Bucharest, Roumania—Two Tubular Wells ...	Town Council ...	— Radu, 9, Strada Mihai-Voda, Bucharest.
" 29	Bucharest, Roumania—Supplying Town with Water ...	Town Council ...	— Radu, 9, Strada Mihai-Voda, Bucharest.
" 31	Cairo—Steam Boilers ...	Administration of Ports & Lighthouses ...	Commercial Department, Foreign Office, S.W.
1899.			
Jan. 2	Quebec, Canada—Bridge ...	Quebec Bridge Company, Canada.	
" 6	Johannesburg—Carburetted Water Gas Plant ...	Town Council ...	R. Whyte and Co., 22, Bury-street, St. Mary Axe, E.C.
" 24	London—Tunnel ...	London County Council ...	Engineer's Department, County Hall, Spring-gardens, S.W.
Feb. 1	Townsville, North Queensland—Supply of Crane ...	Harbour Board ...	Chairman, Townsville Harbour Board, Townsville.
March 15	Belem, Para, Brazil—Water Supply Transfer ...	Government ...	Brazilian Consulate, England.
" 15	Rio de Janeiro—Waterworks ...	— Frank ...	Commercial Department, Foreign Office.
" 15	Shanghai, China—Electric Tramways ...	Municipal Council ...	J. Pook and Co., 8, Jeffreys-square, St. Mary-axe, E.C.
" 31	Shanghai—Telephone System (thirty years) ...	Municipal Council ...	J. Pook and Co., 8, Jeffreys-square, St. Mary-axe, E.C.
No date.	Brymbo, near Wrexham—Railways Cuttings, &c. ...	Steel Company ...	Offices of Brymbo Steel Co. Limited, near Wrexham.
"	Grantham—Sinking Well ...	— Frank ...	J. Bailey, Avenue-road, Grantham.
"	Hull—Taking-out Engine Bed, &c. ...	— Frank ...	Brodrick, Lowther, and Walker, York-chambers, Hull.
FURNITURE—			
Dec. 10	Castlereagh, Ireland—Supply of Bedsteads, &c. ...	Guardians ...	M. Flanagan, Clerk, Board-room, Castlereagh.
" 16	Christchurch, Hants—Furniture and Fittings ...	Workhouse Guardians ...	J. Druiitt, High-street, Christchurch.
IRON AND STEEL—			
Dec. 10	Hamsterley, Durham—Colliery Stores ...	Colliery Owners ...	Guildhall Chambers, Newcastle-on-Tyne.
" 10	Glasgow—Supply of Various Stores ...	Messrs. Burns ...	Messrs. Burns, 30, Jamaica-street, Glasgow.
" 10	London—Supply of Railway Stores ...	North-Metropolitan Railway Co. ...	Office, 138, Leadenhall-street, E.C.
" 12	South Hetton, Durham—Colliery Stores ...	Coal Co. Limited ...	J. R. Lambert, South Hetton, Sunderland.
" 12	Trimdon Grange, Durham—Colliery Stores ...	Colliery Owners ...	Storekeeper, Trimdon Grange Colliery Co., Durham.
" 12	Leamington—Supply of Stores ...	School Board ...	C. J. Blaker, 3, Dornier-place, Leamington Spa.
" 14	London, E.C.—Railway Stores ...	Bombay, Baroda, & Central India Rly. Co. ...	Offices, 45, Finsbury-circus, E.C.
" 14	Dublin—Various Stores ...	Port and Docks Board ...	N. Proude, Secretary, Port and Docks Office, Dublin.
" 14	Macclesfield—Various Stores ...	Corporation ...	Borough Engineer, Macclesfield.
" 17	Galway—Ironwork for Bridges, &c. ...	— Frank ...	J. Perry, County Surveyor, Galway.
" 19	London, S.W.—Rails, &c. ...	— Frank ...	Agent-General for Victoria, 15, Victoria-street, S.W.
No date.	Ryhope, Durham—Colliery Stores ...	Coal Co. Limited ...	Colliery Offices, Ryhope, via Sunderland.
PAINTING AND PLUMBING—			
Dec. 10	Worcester—Supply of Lead Water-pipes, &c. ...	Corporation ...	T. Caink, City Engineer, Guildhall, Worcester.
" 10	Glasgow—Supply of Paint Stores ...	Messrs. Burns ...	Messrs. Burns, 30, Jamaica-street, Glasgow.
No date.	Whittlesea—Plumbing, Painting, &c. ...	Saxon Brick Co. Limited ...	F. H. Cooke, Surveyor, Peterborough.
ROADS AND CARTAGE—			
Dec. 10	Abersychan—Road Works ...	Urban District Council ...	E. Cooke, Surveyor, Abersychan.
" 12	Church—Paving, &c., Works ...	Urban District Council ...	Surveyor, District Council Offices, Church.
" 12	Ecclesfield, near Sheffield—Cartage ...	School Board ...	T. H. Bingley, 10, Figtree-lane, Sheffield.
" 12	Newcastle-on-Tyne—Cartage, &c. ...	County Council ...	County Surveyor, Moot Hall, Newcastle.
" 12	Southampton—Supply of Broken Granite ...	Corporation ...	W. B. G. Bennett, Borough Surveyor, Southampton.
" 13	London, N.W.—Road Works ...	Willesden District Council ...	O. C. Robson, Public Offices, Dyne-road, Kilburn, N.W.
" 13	London, S.E.—Kerbing, Tar Paving, &c. ...	Lewisham Board of Works ...	Surveyor, Board's Offices, Catford, S.E.
" 14	Twickenham—Supply of Granite Spalls ...	Urban District Council ...	F. W. Pearce, Council's Surveyor, Town Hall, Twickenham.
" 15	Preston—Road Works ...	— Frank ...	Borough Surveyor, Town Hall, Preston.
" 17	Galway—Making New Road ...	— Frank ...	J. Perry, County Surveyor, Galway.
" 21	Blackpool—Street Works (Fourteen Contracts) ...	Corporation ...	J. Wolstenholme, St. John's Market-buildings, Blackpool.
SANITARY—			
Dec. 10	King's Lynn—Supply of Pipes, &c. ...	Corporation ...	H. J. Weaver, Borough Engineer, King's Lynn.
" 12	Carshalton—Supply of Stoneware Pipes ...	Urban District Council ...	W. W. Gale, Surveyor, Public Offices, Carshalton.
" 13	Durham—Construction of Sewers, &c. ...	Corporation ...	Lomax and Lomax, 37, Cross-street, Manchester.
" 13	New Shoreham, Sussex—Construction of Sewer ...	Rural District Council ...	C. O. Blaber, 64, Ship-street, Brighton.
" 13	Tunstall—Drainage Works ...	Urban District Council ...	Lomax and Lomax, 37, Cross-street, Manchester.
" 14	Mansfield—Construction of Sewer, &c. ...	Town Council ...	R. F. Vallance, Borough Surveyor, Mansfield.
" 14	Mansfield—Sewers, &c. ...	Town Council ...	R. F. Vallance, Surveyor, Mansfield.
" 15	Wallsend—Scavenging ...	Urban District Council ...	G. Hollings, District Council Offices, Wallsend.
" 15	London, N.W.—Removal of Shops ...	St. John's Vestry, Hampstead ...	Surveyor, Vestry Hall, Hampstead, N.W.
" 31	Melton—Rearranging Drainage ...	Suffolk County Asylum ...	A. T. Cobbold, County Hall, Ipswich.
1899.			
Jan. 1	Taunton—Construction of Sewer ...	Town Council ...	J. H. Smith, Borough Surveyor, Taunton.
TIMBER—			
Dec. 13	Stockton-on-Tees—Timber, &c. ...	Tees Conservancy Commissioners ...	Engineer to Commissioners, Stockton-on-Tees.
" 14	Rotherham—Supply of Coffins ...	Guardians ...	Master of Workhouse, Rotherham.
No date.	Sunderland—Supply of Timber ...	River Wear Commissioners ...	C. H. Dodds, Harbour and Dock Offices, Sunderland.

COMPETITIONS.

DATE DESIGNS TO BE SENT IN.	DESIGNS REQUIRED.	AMOUNT OF PREMIUM.	BY WHOM ADVERTISED.
Dec. 12	Morley—Schools ...	.....	Morley School Board, Gildersome-road, Morley.
" 31	Stockholm—New Stations ...	.....	Secretary, Royal Administration Swedish State Railways.
1899.			
Jan. 1	Hull—Public Library ...	£50, £30, £20 ...	Public Libraries Committee.
" 2	Harrogate—Pump Room, &c. ...	£50, £30, £20 ...	Corporation of Harrogate.
" 2	Harrogate—Alterations to Old Pump Room ...	£30, £20, £10 ...	Samuel Stead, Boro' Surveyor, Municipal Offices, Harrogate.
" 14	Bradford—Fire Brigade Station ...	£100, £50, £30 ...	Corporation of Bradford.
Feb. 1	Burnley—Higher Grade School, &c.	Burnley School Board, Ormerod-road, Burnley.
" 1	Bradford—Central Fire Brigade Station ...	£100, £50, £30 ...	City Surveyor.

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December 15th.
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January 19th May 18th September 21st
February 2nd June 1st October 5th
February 16th June 15th October 19th
March 2nd July 6th November 2nd
March 16th July 20th November 16th
April 6th August 3rd December 7th
April 20th August 17th December 21st
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JNO. B. ASHWELL,
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November 24th, 1898.

THE LONDON COUNTY COUNCIL is
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MEASURING CLERK in the Architect's Department.
Applicants, who must not be under 25 or over 35
years of age, must have had experience in abstracting
and billing quantities.
The commencing salary will be £130 a year.
Applications must be delivered not later than TEN
a.m. on SATURDAY, DECEMBER 10th, 1898.
Forms of application containing conditions of appoint-
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Spring Gardens, S.W.
C. J. STEWART,
Spring Gardens, Clerk of the Council.
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An Architectural Causerie.

The "London" of William Hyde. It seems inevitable that an artist of quality, born into a generation of second-rate men, should suffer ill-advised comparisons with the few classics who abide all time. From the persons who so incontinently heralded M. Maurice Maeterlinck as the Belgian Shakespeare, Mr. William Hyde may confidently await his christening as the Turner of to-day. It

given a welcome opportunity for exhibiting the original drawings reproduced therein. That Mr. Hyde is a "nature-artist" in a special sense—a lover of the sternest and yet most elusive moods of weather and light—forces him into challenge with exceptional genius, and tempts some of us into relative criticism which does injustice to his actual power. The present exhibition shows him in two diverse but by no means opposite manners; as intimate with pastoral beauty as with the noonday aspect of the Strand; and while defining the quite acceptable limitations of his talent, leaves us more than satisfied of his fascination within those lines. He is a worshipper of that "Natura Maligna" that "glimmers in the death-wind cold," with her "dire mists, and azure eyes of prey." Rain and frost are his elements, and lurid cloud, and all ungenial twilights, from the loveliest hillside to the heart of the town. Much of his art, indeed, is but a brilliant attack on the impossible; as when, in a "Night Scene, Bermondsey," he tries to reduce to terms of black and white a gas-lit street-corner, with the moon above—a subject in which the very essence

it. He knows it as a living thing—in-satiable, seductive, imperturbable—"Terrible London," as he calls it in what would seem at first sight the least terrible of its aspects, viewed from suburban heights in a mild, calm dawn. Here, as we look closer, that subtle and indefinable terror breaks upon us which we feel sometimes in Nature's most benignant moods. The dawn's placid beauty becomes poignant for what it shines on, reflecting so indifferently the evil and the good. It is high praise to say that Mr. Hyde is able to convey this by sheer composition and atmosphere, without realistic or symbolic detail. "The Nerves of London," a study of telegraph poles from a house-top, is a *tour-de-force* in the idealisation of the commonplace. The familiar platitude about "doing what a photograph can do better" rises to our lips at the marvellous literalism of the picture, but is silenced by the imaginative force which has transfigured a prosaic into a picturesque and palpitating thing. "Utilitarian London," with broader and less exacting materials, fails conspicuously in this imaginative charm—the dull details of a railway junction have escaped



ASHORNE HILL HOUSE, NEAR LEAMINGTON: DRAWING-ROOM ENTRANCE DOORS. - E. GOLDIE, ARCHITECT.

may be well to anticipate this label frankly, and to dismiss it at once as irrelevant to the modest group of black-and-white drawings which Messrs. Dowdeswell, of Bond Street, have now on view. The publication of two luxuriously illustrated books—Mrs. Alice Meynell's "London Impressions," and Mr. George Meredith's "Nature Poems"—has

of the impression is the conflict of colours, utterly unexchangeable, between two different kinds of light. But Mr. Hyde knows London architecture like a poet, and sees it always in a mysterious and fluctuating atmosphere—poetic, and yet relentlessly real. He knows the City in its appalling mass, as well as a hundred typical corners of

that convincing touch. The river studies are treated with a lighter hand. Water, to Mr. Hyde, seems always to be a redeeming element; as though he found in it, amidst all sordidness, a curious compensation and delight. "Below Bridge" (No. 27—Mr. Hyde has an awkward way of duplicating his titles) is one of such; and among others

are "The Last Boat" and "Waterloo Bridge." But it is hardly among well-known landmarks, or even, in the fine studies of St. Paul's, that the artist is at his best. It is in the nameless but typical bye-ways of the city that his pessimism—if it be such—is least forced and most impressive. One of the best examples of this vision, so intimate and actual, of London slums, is a quiet little picture called "The End of a Winter's Day." It might have formed the frontispiece to "Tales of Mean Streets." There are no figures in it—at least none that can be remembered; yet it is full of the suggestion of life. Its grim grey stones and murky windows arrest us like the silent raising of a drop-scene in a play, upon such darkness as lures our eyes to the next action—shadowy, momentous, almost without speech. The London of cheerful noons and gala-days he leaves to painters of a different school. Most of us, however, have gathered from our life in it certain more sombre impressions of the city; memories, perhaps, of some familiar building in fog or snow, or in common gas-light, dusk, or rain. According to such predilections will each London-lover choose his own particular favourites among Mr. Hyde's "Impressions." One of the most popular will surely be the still, cold picture of St. Margaret's and the Abbey after snow. Others will include the little twilight idyll in Kensington Gardens, also in winter; or that "Forgotten Corner" of a churchyard, in which the eighteenth century still broods over sententious epitaphs and once-august gates. In an artist to whom mood and temperament are so much, one finds frequent response to one's own preferences in London landscape and Architecture. It is well that Mr. Hyde can sometimes turn entirely from these things, and take us into the very heart of the woodlands, showing us the most exquisite frost-magic of the trees. Here at least is beauty, seen away from man in the aggregate, though always through the individuality of the seer. And he would not be so genuine a seer if, even in the midst of pastoral joys, the inevitable pensive undertone did not creep in again with the first hint of sentiment life—the folded sheep, the adventurous owl—crowning beauty, as ever, with the knowledge of pain. Mr. Hyde has few notes: they are rare and finely struck; and he is wise not to over-reach his gamut.

E. W.

THE TIMES has been exploiting the Street Noises nuisance. This matter has always seemed to us one which, in the main, adjusts itself. A street hawker whose cries are intolerable to dwellers in Mayfair, is yet a useful member of society in White-chapel, and accordingly he frequents White-chapel and scorns Mayfair. When the street hawker falls to the expedient of making himself a nuisance till he is paid to desist, as did the organ grinder, then, as in the case of the latter, it is time to legislate. For our own part, we would put up with a good deal of personal annoyance rather than see the free life and bright activity of our streets reduced to the dull-flowing mechanism of the commercial day, under a system of petty despotism which characterises, for instance, German towns. There is a more considerable issue at stake in this matter than the welfare or discomfort of a neurotic gentleman. Those who complain of street noises seem chiefly to belong to that class in whom the stress and tension of modern life has engendered a morbid susceptibility to sounds.

MR. W. MILNER was elected a member of the Architectural Association at their meeting held on December 9th, at 9, Conduit Street, Regent Street, W., previous to Mr. Edwin T. Hall reading his paper on "The Position of Architecture Among the Fine Arts."

ON REFLECTION.

Peterborough Cathedral.

At a meeting lately held at Peterborough in aid of the Cathedral Restoration Fund, the Bishop of Peterborough congratulated the assembly, with some justice, on the skill and care with which the work of restoration has up to this time been conducted. The Bishop went on to say that the Dean and Chapter and the Restoration Committee "were now prepared before the whole world to vindicate completely the step so pluckily and perseveringly taken" by them in maintaining an independent attitude in face of the public criticism they provoked two years ago. These must seem "big words" indeed to those who recall the original proposals of the Dean and Chapter for the restoration of the west front. That the restoration has been generally conducted in a spirit of reverence for the inimitable age-scarred stones of the cathedral is greatly due to the independent activity of the S.P.A.B., and the Society of Antiquaries, involving the protest of the majority of those whose names are associated with the vanguard of architectural progress; and also to the wide public interest round the spirited letters of the editor of the Architectural Review to the Daily Chronicle and to Mr. Ruskin's warlike and characteristic protests to the same intent, which appeared afterwards in The Times. Neither Sir A. Blomfield's early advice that it would be necessary to pull down and rebuild above the caps of the great towers, nor the late Mr. Pearson's unmodified scheme involving, in effect, the replacement of the old front with a new one in the same design, would have afforded the Dean and Chapter cause for self-congratulations, nor granted them much hope of vindicating their choice. Let honour be given where it is due. We owe it to the whole-hearted enthusiasm of certain votaries of Art and Architecture, and not to the Dean and Chapter, that Peterborough Cathedral still stands a relic of past ages, rather than a memorial to the Gothic revival.

Urban Inurbanity.

WE need hardly explain that this subject-heading refers to the behaviour of Town Councils in the matter of the architectural competitions which they promote. Readers of this and other Professional journals have grown to expect periodically well-warranted disparagements of the tactics of municipal corporations, and, so far, we see no indications that this expectation should not continue to be justified even to the end of time. When we perceive, on the one side, stout British burghers combined together in committee to cozen architects by this system of so-called "competitions," and on the other, enthusiastic, energetic, young British architects in a virtual conspiracy to support and endorse the system, we know, from innumerable analogies of history, that the dogged perseverance and pluck of the English race will rise superior to all difficulties, and, being once set to its purpose, will triumph over all opposition, including those overwhelming units contributed by reason and common sense. We may realise the bull-dog pertinacity with which promoters and competitors keep the system going when we observe how Urban Councils go through the laborious process of promoting competitions for buildings which they have no hope, much less opportunity, of erecting; and when we remember that it has been estimated that the average number of competitors in public competitions is forty—or, in other words, that every competitor must expect to fail

thirty-nine times for his each success. The incentive to these remarks at this time is afforded by a correspondent, who tells us that in a late competition for public baths at Wimbledon, the drawings for which were sent in on Aug. 16th, the Urban District Council having pledged itself to disqualify any design which involved an expenditure exceeding the stipulated sum of £7000, yet in its "Baths Committee" report named, as deserving the first and second awards, designs which both exceed this cost. The chairman seems to have imbibed the contents of two letters addressed him by the competitors pointing out this injustice, with unwinking stoicism. The final decision of the Council is, however, not yet published, so there is still hope for those of the law abiding competitors who may be inordinately sanguine in disposition. We learn also that the Tavistock Road Competition at Plymouth is giving rise to a great disquiet in the minds of the competitors who supported the project. The drawings were sent in on September 24th, and no assessor has yet been appointed. It is suggested that no reputable architect can be found to assess under the conditions on which the competition was instituted!

CLAIMS by workmen under this Act
Workmen's Compensation Act.

have been numerous reported from the County Courts, the Court of Appeal, and sittings of arbitrators appointed by the Courts. Among recent decisions it has been given that "a building 30ft. high," as described in the Act, does not mean a building which may eventually attain that height, as was ingeniously urged before the judges of the Court of Appeal; and it has been decided that a man employed on a ship in dock is employed "in or about a factory or dock" for the purposes of the Act. The widow of the ticket collector, who, after collecting tickets, got on to the footboard of a train to talk to a friend, and thus met his death, won her case on the grounds that her husband was in the paid employment of the railway company at the time of the accident, and was not guilty of "wilful and serious misconduct;" and the widow of the carman who died from the effects of a fall from a wagon of timber he was loading at his employer's gate, was also allowed compensation, it being decided by Lord Justice Smith that at the time of the accident the man was killed "in course of his employment" and "on, in, or about a factory." Three claims for compensation by workmen or their widows were allowed by the Arbitrator, under the County Court, sitting in the Registrar's Court at Leeds. A petitioner, however, who elsewhere claimed compensation upon one toe and part of a second which he lost in a brickmaking machine, lost his case on the ground of "wilful and mischievous misconduct" by which he met his injuries. Altogether the Act seems as efficacious and satisfactory as it is just and humane. We remember many years ago to have visited the machine-room of a large carpenter's shop of a well-known London firm, where circular saws were screaming on all sides, and men feeding them whose hands were within a few inches of the blades once a minute. We noticed many maimed hands. A foreman had lost several fingers. "Yes," he said, "we most of us get touched sooner or later." There was no attempt to guard or screen these fearful engines, and as soon as a man was incapacitated by one of them he was dismissed and turned away destitute, and someone found to take his place. It is surely a strange irony that a class which is content to prosper under a usage such as this one, should be the first to decry the indolence and callousness of carpenters.

Men Who Build.

No. 54.

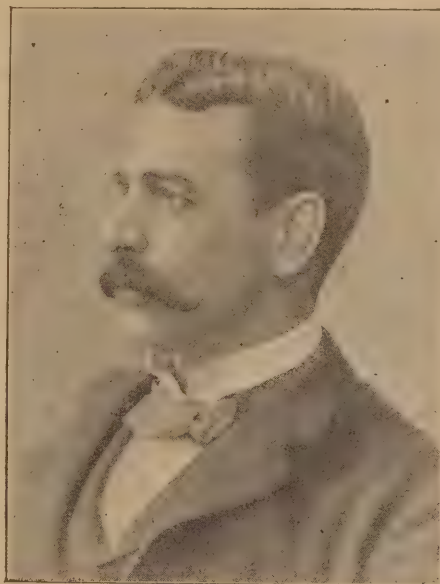
MR. EDWARD GOLDIE.

WE know many architects whose natural tastes and bent have predisposed and directed them in the choice of their profession, and whose abilities and enthusiasm have pre-eminently justified that choice; and we know many, also, whose eminence in the practice of Architecture is largely due to the circumstances of their birth and surroundings, and to exceptional advantages for acquiring professional experience and special opportunities of succeeding in the practical application of their knowledge; but we know very few architects in whom a natural gift and facility has been combined with such auspicious circumstance of birth and opportunity as have been the lot of Mr. E. Goldie. The accuracy of the first of these assertions is sufficiently endorsed by the power, and the very remarkable versatility exemplified in the designs which accompany this article, and the truth of the latter will be apparent when we remind our readers that Mr. E. Goldie is the son of Mr. George Goldie, and that he was for some time previous to his father's death partner in the firm of Messrs. Goldie, Child, and Goldie. Mr. George Goldie is best known for his Gothic Ecclesiastic work, and took a foremost place among the more vigorous of the later architects of the Gothic revival. Articled to the firm of Messrs. Hadfield and Weightman, with which he was afterwards connected as a partner, he eventually removed to London and opened in practice on his own account, and to this period are due such well-known works as the Church at St. Wilfrid at York; the Pro-Cathedrals at Kensington, at Durban in Natal, and at Middlesborough. The Cathedral at Sligo was perhaps his most important and best-known work, and, besides many other Roman Catholic churches, the Church of St. John of Jerusalem in Great Ormond Street, "Upsall Castle," and "Weston Manor" in the Isle of Wight are to be attributed to him. In view of the variety of styles in which Mr. E. Goldie has designed, a variety, however, which is not fully exemplified in the illustrations appearing in these pages, and the decision and mastery of which characterise his designs, the son pays a high compliment indeed to his father when he says: "I learnt all the Architecture I know in my father's office."

Mr. Goldie entered his father's office in 1875, when at the age of 19, so that a simple calculation reveals him to be, in point of years, still at the outset of his professional career. In 1880, without having made the student's usual Continental tour, he became in due course a partner in his father's practice, the firm being known as Goldie, Child, and Goldie, and in this capacity his taste and abilities were fully exemplified in the designs for which the firm was justly distinguished. As time went on the senior partner retired almost entirely from the business, and the responsibilities of the firm largely devolved upon the junior partner. When Mr. George Goldie died in 1887, the practice was conducted under the title of Child and Goldie until 1893, when this partnership was dissolved, and Mr. E. Goldie took sole charge of the wide connection and the high reputation attaching to his father's name and practice.

As has been said, the most remarkable quality in the work of the subject of this article, is the very unusual versatility in the uses of style displayed by the architect, and the still more unusual attainment, in an architect of many styles, of a masterly grip and decision in the essential technical and aesthetic qualities of each. It is unfortunate that a demonstration of the versatile nature of the architect's work can only be achieved by the consideration of a much larger number of examples than we are able to illustrate here. We might have given internal views of Hay-

ward's Heath Convent, which show a management of the strict traditional Early Gothic style under difficult and unusual conditions, which so far as may be judged from photographs, has the same subtle convincing quality of antiquity as we must admire, for instance, in Mr. Bodley's work at Magdalen College, Oxford. As an instance of an opposite extreme in point of style we may well choose as an example the drawing-room at Ashorne Hill House. Apart from the design of this beautiful room, there is revealed such a subtle and minute knowledge of the essential qualities and such an intense appreciation of the spirit of the styles of the Early Georgian epoch, as we recognise in the work of a specialist like Mr. Reginald Blomfield. The design raises, even in the experienced critic, the sentiment of English life of a hundred and fifty years ago. There is no false touch; the spirit of past generations is so truly and exactly reproduced and interpreted, that a sort of deception or cheat is imposed upon the beholder, and his admiration is enthralled by qualities which, strictly speaking, are really not architectural



MR. EDWARD GOLDIE.

qualities at all, but rather arouse his sympathies by the human affinity that lives for us all in the Art ideals of a past age and a dead people. This is a sentiment which passes with the general public as due to an architectural quality, and it has contributed more than anything else to the general mis-conceptions, and the complacent ignorance of the public upon all questions of Architecture. It is, therefore, very much to be doubted whether this spirit of design is that in which the interests of the art of Architecture are best advanced, but though the ideal may be cavilled against in the case of churches, and state, and public, and municipal buildings, which have a national character, and should therefore interpret the ideals and impulses of the age in which they are raised; it may still be considered admissible when applied to the highest forms of Domestic Architecture, where the building has primarily a personal interest attaching to the owner, and may be considered as typifying an individual, rather than a national taste and discretion. Mr. Goldie, however, though he shows so keen an insight into the basic elements of the styles in which he composes, is yet no exact advocate of the "Revival" principle. We may realise this if we turn to illustrations of his other works appearing in these pages such as, to take one example, that of the Carmelite Monastery, Kensington, which was his first work designed and executed since his father's practice entirely devolved upon him; and Ashorne Hill House itself is a case to point his unprejudiced attitude, for it exemplifies a principle upon which he insists as not only legitimate, but

desirable. The elevations of Ashorne Hill House are of brick in a free Elizabethan treatment, and the same note is struck in parts of the interior design; the dining-room, however, owes rather to Jacobean traditions, and the drawing-room, as we have noticed, is an encomium on the principles of the early Georgian epoch. Mr. Goldie holds that it adds interest and brightness to a house when it is treated in such various styles as the aspect, plan, and uses of the several rooms may indicate as desirable and fitting, and he has no hesitation in finishing the interiors of his buildings in a style of Architecture other than that of the exteriors, provided always that the manner of the outside work is derived from a tradition anterior to that which characterises the design within.

With regard to the designs illustrated here it may be said that Mr. E. Goldie's reputation as an architect has, like that of his father, though perhaps with less reason, been associated with his ecclesiastic work, and he has in particular had a great deal of special experience in the designing of conventual buildings. These are here represented by a photograph of a convent at Ascot, and a perspective drawing of the large mass of the Hayward's Heath Convent, which has been gradually building for many years about an old house which formed the basis of the convent, and which is even now in course of completion. These two designs exemplify yet again the diversity of Mr. Goldie's methods. Our readers will notice the collegiate form of this latter building, the general arrangement of which may be readily grasped from the perspective view. The planning of these edifices admits of fine effects, the general lines recalling the plans of the conventual buildings of the Middle Ages, for the traditions of such establishments are nearly as old as their origin and are carefully preserved. The general requirements are a cloister, with a church to one side; a chapter-house, perhaps; and a community room and refectory—all accessible from the cloister; quarters for the Superioress and for the bursar (or his equivalent), and also a reception room near the entrance, where visitors may be entertained. A series of small rooms, called "cells," take the place of the monastic dormitory. The Hospital of St. John and Elizabeth, being instituted for the reception of chronic disorders, may be regarded very much in the light of a home, and this quality has been expressed in the elevations. The Church of the English Martyrs, is of the unusual double-nave form of plan. There is a single arcade down the middle of the church, the arches of the naves being sprung from brackets fixed between the windows in the walls of the building. The church, which was planned in accordance with the idea of the incumbent, has never been built. The form of plan, whatever practical advantages it may possess, may be considered in appearance to be no improvement upon the usual form. The central arcade destroys the axiality of the building.

Having said so much of the grip and finish in Mr. Goldie's designs, we may perhaps describe his method of work which is at once characteristic and interesting. When he has established in his mind a clear intention as to the principles and limits of a design he draws it in plan, section and elevation, so far as need be, to 16th in. scale. This design is drawn in pencil, with the finest line, and with an amount of detail and intricacy which must at once set Mr. Goldie's eyesight, as well as his draughtsmanship, on their mettle. The elevations, including the interior elevation revealed by the sections, are lightly washed to indicate the colour tone of their materials, and shaded in places to show the recess and shadow of the main parts. The position of stained glass, frescoes, or other decorative colour effects are indicated with a few touches, the whole, when finished, giving a minute as well as an accurate representation of the building. From this Mr. Goldie's assistants make the general working drawings.

The following is a list of the most important works executed by Mr. E. Goldie since the dissolution of the partnership of Goldie, Child, and Goldie—between the years 1893



CHURCH OF ENGLISH MARTYRS, YORK. MESSRS. GOLDIE, CHILD, AND GOLDIE, ARCHITECTS.

and the present time—Highgate, La Sainte Union Convent; Blakesware, Hertfordshire, part of house, chapel lodge, entrance gates, bridge, for Sir M. Gosselin; completion of Upsall Castle, Yorkshire, for E. Turton, Esq.; Wandsworth, Church of St. Thomas; Chelsea, Church of Our Most Holy Redeemer; Stoke Newington, Home for the Aged Poor; Hayward's Heath, Priory of Our Lady; Blandford Square, chapel and decoration; St. Mary Cray, church; England's Lane, convent and school; Ascot, St. Mary's Convent, Chapel, and School; Harrogate, St. Robert's School; Ashorne Hill, Warwickshire, house and stables for A. M. Tree, Esq.; Hawkesyard, Priory and Chapel; Blackburn, St. Alban's Church; London, Hospital of SS. John and Elizabeth.

A DESPATCH from Wellington, New Zealand, states that the Roman Catholic Cathedral there has been destroyed by fire.

A NEW Orange Hall has been erected in the village of Smithborough, Co. Monaghan. The entire cost was about £150, which sum has almost been cleared off.

THE Conservative Club, Rawtenstall, is being warmed and ventilated by means of Shorland's patent Manchester stoves and patent Manchester grates, supplied by Messrs. E. H. Shorland and Brother, of Manchester.

LADY BURNE JONES is likely to undertake the task of writing Sir Edward Burne Jones's life. A collection of his letters will make a fascinating addition to modern English literature and history and criticism.

THE Plans Committee of the Aberdeen Town Council has just passed plans of property to the value of £17,000. The plan of the Westfield School, estimated to cost £8000, was included in the number, as well as plans of dwelling-houses to be erected at Wallfield at a cost of £3000.

The Position of Architecture among the Fine Arts.*

BY EDWIN T. HALL.

THE subject on which I essay to address you this evening is one of so wide a range, a subject on which so many books have been written, that I cannot hope to treat it fully in the limited time at our disposal, but only rather to suggest matter for reflection; and I must at the outset ask your kindly and patient consideration for my shortcomings. In approaching a subject like this, one is at once face to face with the necessity for definitions, and the two at the base of our fabric are: What is fine art? What is Architecture? I suppose we are so used to these terms that we feel rather a shock in being asked if we really understand what we confusedly know. Fine art has been defined as that power whose great end is to give pleasure, and the pleasure we have in contemplation is the higher or intellectual to the exclusion of the lower and sensual. The vehicles by which this higher pleasure is conveyed to us are, of course, the senses, so that we get sensuous and intellectual or reflective pleasure. By hearing and by seeing, fine art is appreciated, and the pleasure it affords is the greater in proportion to its permanent retention by the intellect, and in proportion to the tranquility with which it is so conveyed. Fine art has been also defined as the representation of an intended idea, the expression of an idea in matter, while the ideal in Art is the rejection of a rude and crude act to illustrate an emotion and the selection of a more subtle and poetic mode of illustrating the idea. The definition

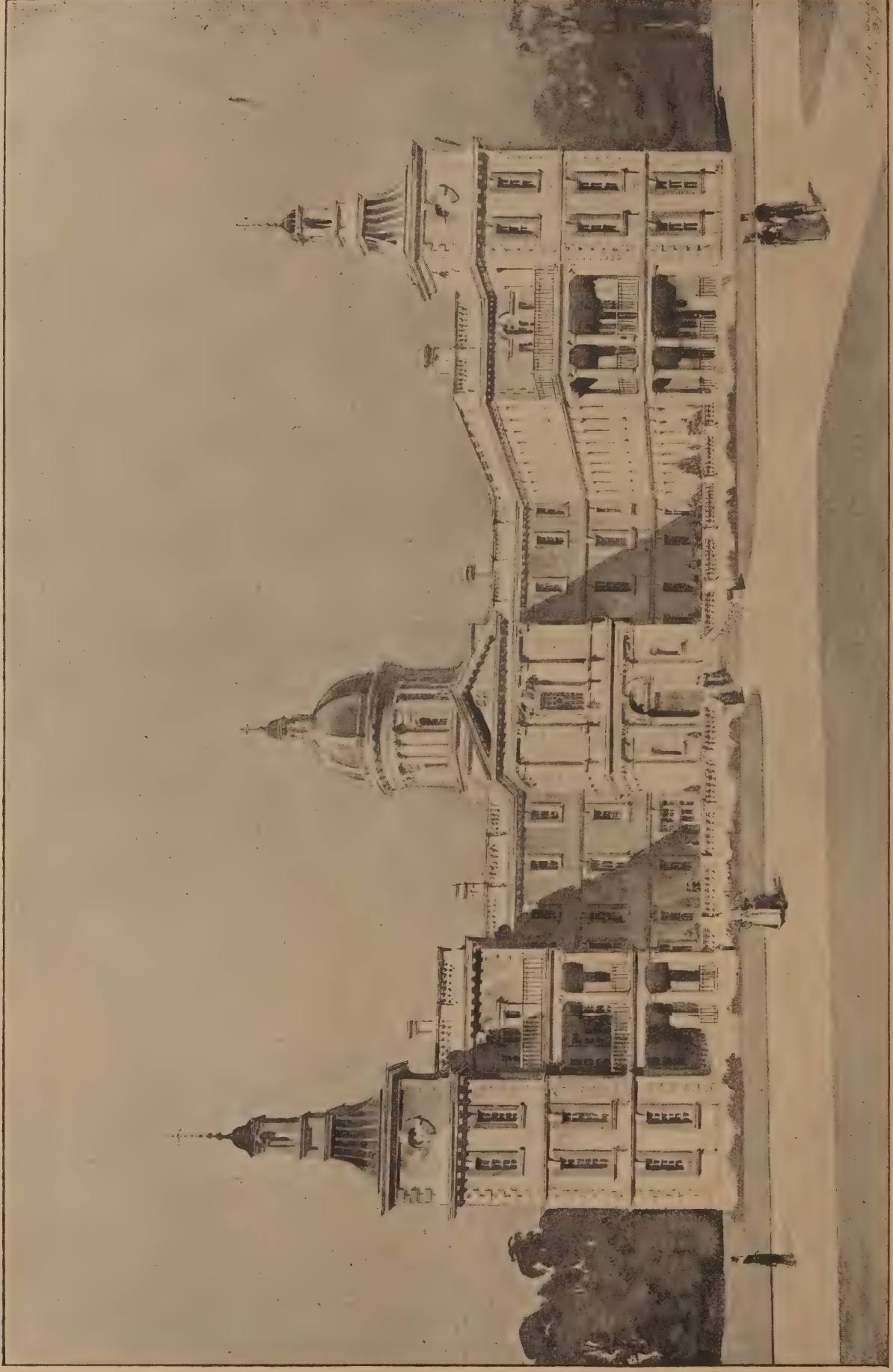
of Architecture varies almost with every writer on this subject, and one is sometimes appalled to hear the courage with which a young architect speaks, and, with the confidence begotten of enthusiasm, lauds this building as good Architecture, and decries that as devoid of Architecture. What is this art of Architecture? Mr. Ruskin says in one place "it is a science of feeling more than of rule," in another it is that which "taking up and admitting as conditions of its working the necessities and common uses of the building, impresses on its form certain characteristics visible and beautiful, but otherwise unnecessary." So that in his view Architecture is a gloss separate or separable from the building. Mr. Fergusson defines Architecture as "the art of ornamental and ornamented construction." To emphasise this he says that in a building it is the art of the engineer which consists "in selecting the best and most appropriate materials, and using them in a scientific way, and where the engineer leaves off the art of the architect begins." In other words, the planning and the

CONSTRUCTIONAL DESIGN

of the building are works anterior to the "architecture" of it, this being a superimposed ornament. Indeed, he gives us an illustration of a building, and shows how he adds Architecture to it. M. Viollet-le-Duc takes a different view. He says: "Architecture and construction must be taught together. Construction is the means, Architecture the result. Architectural construction is the employment of materials according to their quality and their adaptability with the idea of satisfying a want by the most simple and solid means, giving to the constructed object the appearance of durability and proper proportion, subject to certain rules imposed by the senses, reason, and human interest." Briefly, a building must be

* A paper read before the Architectural Association on Friday, Dec. 9th, 1898.

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HOSPITAL OF S.S. JOHN AND ELIZABETH, LONDON. E. GOLDIE, ARCHITECT.



CONVENT, HAYWARD'S HEATH, SUSSEX. E. GOLDIE, ARCHITECT.

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devised by one mind so using construction as to result in a work of Architecture described as having specified aesthetic properties. Mr. Eidlitz's definition is less involved than that of M. le-Duc, and carries the point further. He says: "Architecture is the art which models buildings, which teaches the development of structural forms," the word development comprehending the continuous evolution of Architecture as distinguished from its crystallisation into styles. Mr. Statham, in his recent work on "Architecture and the Poets," defines Architecture "from one point of view as the realisation of

AN IMAGINATIVE CONCEPTION

in composition and outline; from another as the craft of building." The first part of this, it seems to me, is well stated, and it might be added that the architect sees mentally the completed building beyond and through the veil of his drawings. The latter definition, however, appears to me to be involved in the former, because, as M. le-Duc says, the craft of building is merely the means used to attain Architecture, which is the end. A drawing can never faithfully represent a building; the depicted block lacks density and an aerial separation from its surroundings. To us who pass our lives among drawings they become a sort of shorthand, and are intelligible in a way they can never be to the uninitiated. Hegel defines a work of Art as the interpenetration of matter and thought. Viewed in this light, the matter in an architectural production is so relatively massive and intractable that to penetrate it with thought is the goal for

which we must laboriously aim, and he who can subordinate the material to the mental in such a production is entitled to rank as an artist, and to rank higher than other artists in proportion to the difficulties of the material in which he has to express his ideas as compared with those in which they have to work. Having endeavoured shortly to put before you some conceptions of fine art and Architecture, I will ask you to consider with me the

RELATIONS OF THE FINE ARTS

one to another in their mode of expression, and from this to endeavour to find what is the best rule of life which will help us most to carry forward the banner of our own art. We shall speak of the arts of music, poetry, the drama, painting, sculpture, and Architecture. Of these painting, sculpture, poetry, and the drama are imitative, music and architecture creative. As ideas in Art must be expressed in language understood of the people, it is essential to convey the artist's meaning by depicting something in imitation of or based on principles observed in nature, that is, in real life. That this is done in painting, sculpture, and the drama is self-evident, but it is also the same in poetry. The poet's conceptions are descriptive of man or of some other work of nature, and the vivid portrayal of the scene or effect desired is a measure of the artist's power. Thus in the Iliad, and Odyssey, Homer's gods and warriors and women are pictures appealing to us by our power to realise them, and the more subtle pictures of poets' thoughts are conveyed by

imitating that which we can grasp from general knowledge. All the imitative arts may raise the subjects they depict from

THE COMMONPLACE TO THE IDEAL.

and the abler the artist the greater his success in this direction. Music has nothing to imitate. It is a spontaneous creation, and it may convey to the mind suggestions of anything or everything in nature. It is probable that music of a kind is almost as old as speech, and we know that at least thousands of years ago musical instruments were used. There are representations of such instruments on Egyptian monuments, and we have descriptions of them in elaborate variety as in use in Assyria and Babylonia. The European music of to-day, the opera, the oratorio, are but a few centuries old. These originated in the fifteenth or sixteenth century, at the time of the great Renaissance. From the exhibitions we had in London a few years ago of Japanese music it would seem that in the extreme East no such development has taken place. That music is but a rhythmic cadence of few tones. Here it has attained such a development that it speaks to us in a language of its own, quite apart from words. It portrays all emotions. But it seems to me it differs from all other arts, in that it is almost incapable of pandering to the lower passions. It is perfectly true that, used with the accompaniments of words and dramatic action, it may and does minister to sensual tastes; but alone it breathes a purer air and tends always to refinement. Luther says, "Music is the grandest and sweetest gift of God. Satan hates music; h



CONVENT, ASCOT. E. GOLDIE, ARCHITECT.

knows how it drives the evil spirit out of us." And many of us can speak of our own experience how often in the battle of life, when we have been almost in despair, music has calmed and softened and elevated us, faith and courage have revived, and we have been

RENERVED TO GREATER EXERTION.

Poetry would appear to be of later origin than music, in that its aim has been to depict that which pre-existed in the human history, or prophetically to discourse of that which is to be. It is the adornment of expressed thought in any form. We recognise it in descriptive histories, and probably no more poetical piece of writing can be found than the Book of Job, written many centuries before Christ. It is a book which Mr. Froude, the historian, goes so far as to say "will one day perhaps, when it is

than the other arts. I propose to consider it together with the sister arts of painting and sculpture, as they have been so intimately associated with it. When the necessity first arose for man to build in order to protect himself from the elements or his natural enemies, his buildings would take their form on

STRICTLY UTILITARIAN LINES,

using the material readiest to hand. Thus in a timbered district a conical hut of wattles covered with leaves would be the first form of shelter—suggested by the drooping branches of a tree—and in an arid or stone district the earliest form would be doubtless the excavation of a hole under a large flat surface slab, the sides of the excavation being lined with stones to support the edges of the large slab and prevent it slipping or causing the earth

The accessible flat roof belongs essentially to the tropics or hot climates, its purpose being to afford opportunities for getting the greatest amount of air by day or by night. Architecture was born when, in the contemplative mood of leisure, the man of the stone inclosure began to reflect that the pillars of his colonnade might be arranged not at the distances necessary to support the various sized stone slabs which came readiest to hand and were used as covers, but at regular intervals, selecting his cover stones to suit, and that he might reduce the rude outlines of his pillars to regular shapes; and the man of the timber house began to think that he might, instead of having a lot of detached rooms, put them together under one roof, and, when they were so joined might remove the separating walls of some and place pillars in their stead.



ASHORNE HILL HOUSE, NEAR LEAMINGTON: DINING ROOM. E. GOLDIE, ARCHITECT.

allowed to stand on its own merit, be seen towering up alone, far away above all other poetry in the world." The influence of poetry on the race is diverse. It may exalt or elevate the soul, it may debase it. Poetry, being a form of speech, can be artistic while it panders to the lowest of our natural appetites. The drama is a form of poetry depicted by action. Whereas the epic poem appealed to the ear, the drama appealed to eye and ear by a more vivid and realistic representation, exciting more profoundly the interest of the audience. In historical sequence it was later than either music or poetry. Probably its date is the sixth or seventh century B.C. Its influence is great, but it is evanescent. It is an acted sermon whether its aim be high or low. It is taken not as daily food, but as an occasional tonic. We now come to that art which is primarily the subject of our consideration to-night, and as such we must consider it in greater detail

on which it rested to give way under its weight. Many such can be seen in Brittany to-day. As the family or clan increased and, with its increase the feeling of greater security obtained, the wattle hut would give way to the larger timber room, and the burrow would be replaced by the building up of stones above the earth to form a walled inclosure. The existence of large flat stones would suggest the formation, inside the inclosure, against its outer walls, of a portion covered with flat slabs supported by pillars of stone on the inside, and this feature in principle is preserved to this day in the cloister or ambulatory of courtyards and ecclesiastical buildings in the West, as well as in the older buildings of the East. In Iceland a large native house is now but a series of detached wooden rooms joined together by a corridor. The high pitched roof arose in countries of heavy snows, and a wise conservatism retains it in variable climates.

Gradually with the process of political and social education which taught him and his neighbours to live in mutual dependence, would come the recognition of the necessity for order and organisation, and these applied to the home would develop the architectural faculty of convenient planning, and so on until the rude congeries of rooms would become an architectural entity, symmetrical and rhythmic, and thus would be evolved what Fergusson calls "the æsthetic form of the technic art." A further development would arise when assured of the stability of the Commonwealth. Man, in contemplating

THE GRANDEUR OF NATURE,

the sublimity of its outlines, the mystery of its forests, the dignity of its rocky terraces, the massing of its lights and shades, would reflect on the mysterious powers which dwell in these, and on the laws which control the



PLAN OF CONVENT, HAYWARD'S HEATH.

(See inset supplement.)

seasons and the storms, and a desire would arise in him to do honour to the Unseen Author of these mysteries by erecting a temple. In such a building the narrow limitations of domestic life would have no place, and the architect, attuning his mind to this great Author, and finding within himself a reflex of that Author—a creative power—would reverently set himself to produce a work which should, in however dim a fashion, reflect the emotions with which nature and his subject had impressed him. In such a structure there would be no place for the lighter moods of life. The predominant key would be dignity; its harmonies, repose, mystery, and symbolism; their combination appealing to mankind in its contemplative mood, conveying an expression, as Ruskin calls it, "often serious and sometimes melancholy—an equivalent for the sorrow, trouble and mystery of human life." It is by gradual process we thus see the art of Architecture vivifying the dry bones of construction, and making them live and speak. This spirit once aroused would permeate the world. The palace would come next, in which the oratorio would be replaced by the opera, expressive of the various phases of life. The

BROAD OUTLINES OF THE STRUCTURE

would be representative of the dignity of life as a whole. Subordinated to this, the various parts would appropriately express the lighter moods. In the temple the mysterious attributes of the Deity would be symbolised and the phases of His worship expressed. In the palace the glory of the Man would be emphasised and enhanced, so that the stranger should be impressed with his majesty and importance. The enclosure would mark that the King's abode was set apart. Through its stately portals, as through a frame, the eye would be led to contemplate the picture within, and a visitor, conducted for the first time through its courtyards and vestibules, its colonnades and halls furnished with the pomp of armed guards, the peopled bustling of a busy place, would be emotionally affected, his senses impressed, and his mind prepared by the time he reached the hall of audience to render homage to the master mind. The effect I have endeavoured to sketch is recorded of the Queen of Sheba when she had been conducted through King Solomon's palace and had seen its magnificence, "There was no more spirit in her." From the palace the spirit of Architecture would, through the ages, percolate downwards, its steps growing slower and its form attenuated as it receded from the centre of wealth and leisure, of culture and refine-

ment, until it would evaporate at the abodes of grinding poverty, at the factory where Mammon alone was worshipped. And here parenthetically I would dare to dissent entirely from Mr. Ruskin where, in the "Seven Lamps," he inveighs against the external

ARTISTIC TREATMENT OF TRADE PREMISES.

He says you must not mix architectural ornament with business, but should only use it for places where you rest. I venture to affirm, on the contrary, that it is in the refinement of the tradesman's surroundings there is most hope for raising the artistic standard of his wares and fabrics, and indirectly of his customers. It seems to me that the external treatment of every building is a matter of the deepest concern to the man in the street; indeed, every building owner in a city should be encouraged to recognise his responsibility

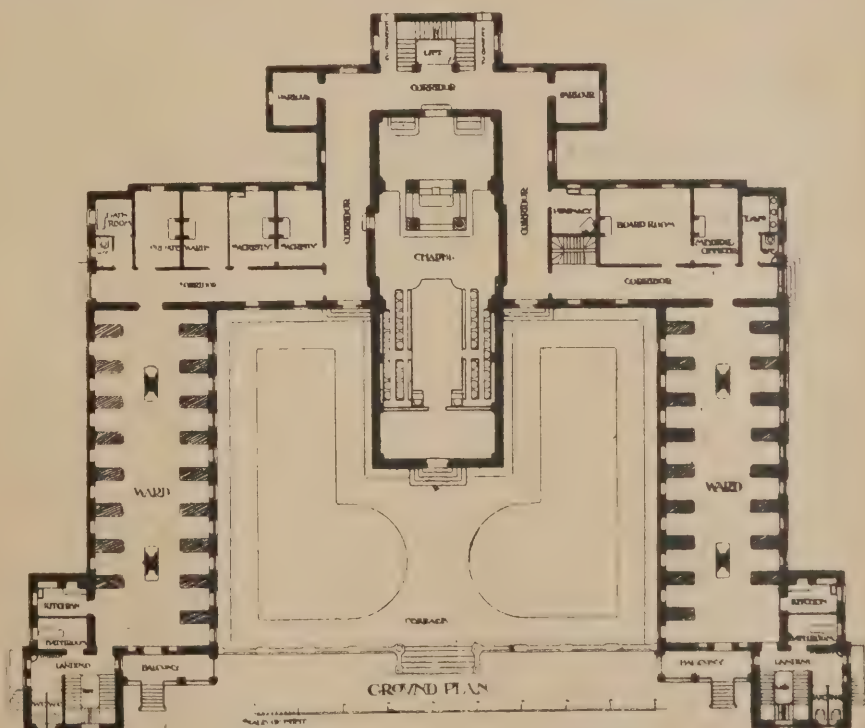
in the architectural treatment of his building as part of the whole street, just as in his moral conduct he has a responsibility to the community. Architectural ornament is to building as the leaves and blossoms are to the structure of a tree—an artistic development of the skeleton, evidencing life—a perfecting. But, like the leaves, it should be characteristic of, and in harmony with, the structure within. The relative position of Architecture among the associated arts of painting and sculpture may be likened to the relation of trees to flowers. The trees are the more stately, the broad features which give dignity and masses of subdued tone to a landscape; the flowers the decorative colour and brightness. The tree in its perfection is, so to speak, a part of the landscape.

PAINTING AND SCULPTURE

are more like the flowers of the earth, bright, poetical, refined. They must be examined near and in detail. They are the companions of leisure and of ease, while an architectural composition is for him who runs to read, for the virile man, the man of activity. So that for a monument to record a great victory or a national achievement, an architectural building is appropriately the medium almost universally chosen, while the sister arts are selected to record a pageant, an act in the great drama—in short, to depict the detail rather than the mass. Architecture seeks to express the more permanent in nature; sculpture and painting the more evanescent, the ever changing. The picture, too, has a frame to inclose it, to remind the onlooker of its limits. A work of Architecture has its own proper place under the vault of heaven, and calls out that it is part of the actual. Now, to be of any living and vitalising value we must bring home Architecture to our daily life and surroundings. I ventured last autumn, in speaking to your President's address, to suggest a doubt as to the wisdom of teaching architectural history in the early stages of the Architectural Association curriculum, and proposed rather that the student's mind should be first trained to understand the principles of Art and of design, not only by studio work, but by the study of buildings.

THE HISTORY COMING LATER

when his trained mind would know better how to appreciate it. Shortly afterwards the Bishop of London, discoursing to teachers of the School Board on learning, said it was useless to start a child's education with the



HOSPITAL OF SS. JOHN AND ELIZABETH

(See inset supplement.)



END ELEVATION OF CARMELITE MONASTERY, KENSINGTON. E. GOLDIE, ARCHITECT.

Witena-gemote, and that it was better to teach him constitutional history by starting with the actual around him—with the policeman whom he knew—and from the present to lead him back step by step, by which means, said the Bishop, he could learn to appreciate history and so get back to the cradle of our Constitution. I feel that is our best position. We should strive to learn the principles constituting the basis of design and to apply the knowledge of construction we possess now—a knowledge wider far than any possessed by the ancients—to meet contemporary wants. Do not suppose I am belittling the study of history or deprecating research. These are of immense value to an architect, but one may be learned in them and never be an architect. Nothing is more cramping or sterilising to the mind than, by becoming saturated with history, to become the slave of "style," be it Classic, or Gothic, or anything else. To design in a recognised "style" is to arrest all Art progress; to always seek for and follow a precedent, be it for grouping or outline, for planing or moulding is

THE NEGATION OF ART.

It is living in the dead past, in a world whose aspirations, whose moral life, whose callings have but little relation to those of our day. Mr. Fergusson tells us what are the "correct" proportions for a room, others what are the correct proportions of a column of an entablature, &c. As Mr. Eidlitz very properly remarks, "if rules of proportion existed, and a knowledge of them enabled men to produce great architectural monuments, architecture would become a trade, and not an art." My younger friends will say all this is true, but so true that it is unnecessary to speak of it.

But I would ask them to look around, to study the buildings only within the earlier years of this century, to read, when they have nothing better to do, the literature of the battle of the styles fifty years or so ago. Mr. Ruskin, in one place, says we are unwise to build in any other style than that of the pointed arch, "because it is the strongest in structure and a beautiful form, while the square head is both weak in structure and ugly in form." The Egyptians and Greeks did not think this.

They certainly knew of the arch. We have recently heard of the discovery of a brick arch in the tomb at Denderah, erected 4000 or 5000 years ago, and yet the architects built their great monuments in the trabeated style. The fact is, we are inclined to worship the great achievements of the artists of the past, and to regard their work rather than the spirit and principles which underlay their work. Had our great

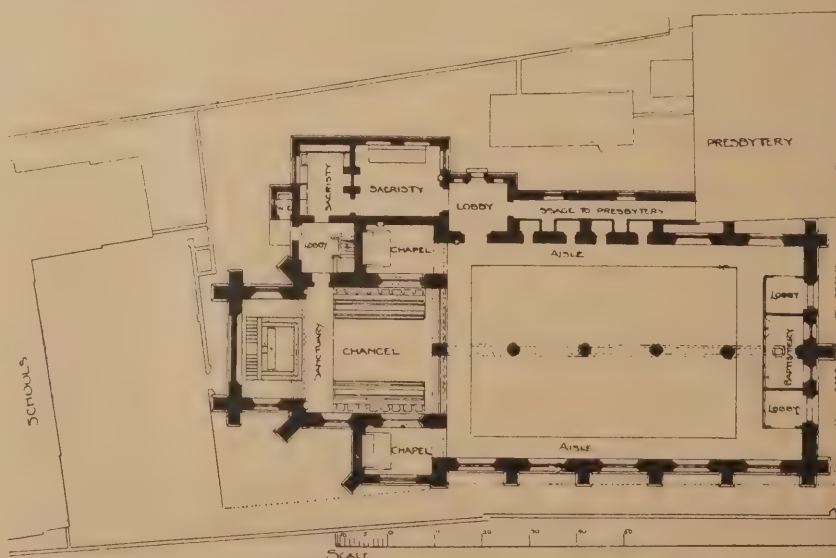
MEDIEVAL CHURCH BUILDERS

been trammelled by precedent and style, how would their marvellous Art achievements have been produced? We should never have had their masterpieces to glorify the land. That which places Architecture above the sister Arts is that while they, with few exceptions, of necessity record emotions and ideas of the past or present, Architecture is, or should be, ever labouring to bring forth a new organic creation, something in sympathy with the needs, the developments, the aspirations of the times. I want to emphasise this word *new* because the aim to be original is often spoken of as though it were a reproach. I am not defending wild and extravagant designs—though even they show life—but it is of the essence of vitality in Art to depict that which has not been, to increase and multiply forms. You will remember in Viollet-le-Duc's "Habitations of Man," there are two principles represented by Doxious and Epergos. Doxious who sees only in ancient Architecture the *summum bonum* of Art, and resents all change, who when he travels through the world for thousands of years is always with a sigh looking back to Egypt. This is the spirit of the rules of proportion, the worship of style, the negation of progress in science and Art. Epergos, on the other hand, sees in the evolution and development and in the new offspring of Architecture an evidence of godlike powers given to man, an evidence that life and not death is

THE KEYNOTE OF THE WORLD,

and he urges us on to strive, not to stagnate. If we approach an architectural design from the point of view of grasping the purposes for which the building is wanted, so planning it that its various parts adapt themselves to those purposes in such a way that all seems natural and harmonious; making the entrance-hall impressive and expressive with dignity, spaciousness and hospitality; arranging our windows so that the light shall suit the purposes of the various apartments, aerating with sunshine the various cubes, so that sweetness pervades everything, breaking our large floor areas by columns, forming little surprises by arcaded recesses or galleries affording views of any particular picturesque groupings, and making all to grow naturally from our construction, we may produce that which will be both artistic and individualistic, an evidence of thoughtfulness and creative faculty.

(To be continued.)



PLAN OF THE CHURCH OF THE ENGLISH MARTYRS, YORK.

AN ADDRESS TO ARCHITECTS.*

BY MR FRANK W. RICH, F.R.I.B.A.

IT is astonishing what a very small percentage of domestic buildings are the work of architects; those of our friends who reside in detached residences, and who do employ architects, are generally men of simple or quiet tastes, who allow little latitude or scope for design. They generally are possessed of a cherished ideal, a house after their own hearts, often one like a square box, with hipped roofs. This tendency on the part of some of our friends for this modest display is perhaps better so than the other way. It may be called a national characteristic. But however plain or simple our friends desire a house designed, or whatever cranks they may have in their heads either as to the plan or exterior effect, it is our duty as architects to place before them the correct course to be followed, and, whether the house be simple or elaborate, the design should be right, and the plan

A MODEL OF USEFULNESS.

The architects of Newcastle have done fairly well in other walks of Architecture, but in this we are not up to the mark. We have the consolation, as I have said before, of being perhaps as good as our neighbours, but that is not sufficient. The criticism may be a fair one, and the stigma must be wiped out. The British public ever grumble at the costs of works, whether public or private; but if any really fine design be placed before them they are quick to recognise its merits (except members of a Government, or, indeed, of any elective body) and rightly applaud its author, and will gladly face the extra cost rather than a poor design. Our students have done some work during the past session, but one cannot help feeling that there is with our students, as with those in nearly every other similar association, a certain lack of enthusiasm. This is a matter to make us all think seriously whether the plan we follow is a good plan. The whole of our efforts in teaching our younger students at present is voluntary, and however excellent in theory a voluntary system may be, yet there is no shutting our eyes to the fact that the results are not satisfactory, and the reason is not far to seek.

THE TASK OF TEACHING

should, and no doubt does, devolve upon the men of most experience, and of greatest merit; but these men are generally those engaged in active practice, whose every moment is bespoken, rendering it impossible they can do any justice to voluntary teaching. It, after all, very much resolves itself into a money question, that is, the teachers of our students or demonstrators, or whatever we may term them, should be remunerated; to make it worth their while, as in other professions, and the cost involved in this remuneration should be paid by the recipients of the knowledge, and what is more important, is the fact that the teachers should be architects in active practice, the information must not be taught by professional crammers. Architecture is a living Art, and the practice of Architecture carries with it the implication that any person practising it must necessarily be quite to the front in all the endless wants and details of our busy lives, taking advantage of, and working into use, the innumerable facts that science is for ever disclosing; and last, but not least, to possess an enthusiastic and thorough knowledge of what we may safely call

OUR "OLD MASTERS"

and their works—the men who laid down the foundation of our Art, from that Egypt of which we have lately heard so much, down through all the centuries to our own time, building up, in stone and in literature, a colossal and a glorious Art—one which it is incumbent on us to hand down unsullied, and bettered if we can, to future generations. It is on considerations of this nature that the

littleness of our teaching becomes apparent, and the need of a better system being inaugurated. The system of pupilage (as in the apprenticeship system in the building trades) has undergone great changes in our lifetime. Our younger students have, however, all the greater need for information. It is a well-known fact, that one man in every ten would not hesitate to attempt to teach Architecture, so much is it the custom of every man to consider Architecture an art with which he is quite conversant, and, therefore, attacks it gaily with a light heart. He lives in a house, or has business premises, and therefore knows all about it; but, take my word for it, there is no one who knows so much of Architecture as your architect. He spends his life in the study and performance of it; he is in touch with the innumerable wants of the times, and conversant with the record of past centuries, to which I have before alluded. It is to such men to whom I would hand over our younger students. The manner in which this is to be done is the crux of the whole subject. The voluntary system has been tried, and with no particular success. There then only remains the other system, accompanied by the financial consideration. Our Council have given this matter some attention, and know that in this city there exists an institution, the Durham College of Science, where very many subjects of a technical nature, and in touch with Architecture, can be studied, and a scheme for amalgamation with the college on these subjects is at present under consideration by our Council. But

AFTER THE STUDY AND MASTERY OF
TECHNICAL SUBJECTS,

there remains that immense field of true Architecture, embracing the absolutely useful in everyday life, and the absolutely immeasurable field of imagination, or what is more generally termed the fine art of design, a quality beyond the range of examinations. I think we may leave the matter for the present with our Council, who will safeguard our younger friends, and trust the scheme of amalgamation with the College, and also with the Institute, who, I believe, have a plan in embryo, to work in conjunction with allied Societies, not, possibly, so much in technical subjects as with the literature and history of Architecture, will have the effect of putting our students upon a sound footing. But all this points distinctly to some greater scheme looming in the future, a future I imagine not far distant. I should now like to refer to one or two subjects relating to our general practice. I believe we all find, and every day accentuates the position, that the inspection of our works becomes more onerous, owing to circumstances we need not stop to examine here, and the employment of clerks of works has become a necessity to meet the varying changes of practice. But the admittance of a clerk of the works is not always a blessing, and frequently

BRINGS UNCALLED FOR RESPONSIBILITIES

upon us, who have already many to bear. The uprising of so many local and money-spending authorities, who so frequently appoint their own clerks of the works, calls for some decided course of action from our side. Men appointed in this way, are frequently so appointed on political or other questionable grounds, working very often antagonistic to the architect, rendering his position well nigh untenable. We all know, from long experience, that our best-designed schemes may be absolutely wrecked in the performance by the carelessness or ignorance of an inspector. There is no need why any more responsibility should be put upon members of our profession by the faults of others. Therefore, the clear course is apparent—that is, the architect must appoint the clerk of works, as recommended by the Institute, selecting a man who, from his own knowledge, is fully qualified to carry out the work. I think it prudent that the clerk of works should, in the first instance, be paid by the architect, who, in due course, is repaid by his client. I have never known a work suffer when worked on this system, but have known deplorable results follow the other course. It will, I

have no doubt, be well within the knowledge of members, of the increasing vigilance of the City Engineer in respect of the deposit of plans, and the carrying out of buildings. There can be no fault lying with the City Engineer in his efforts to obtain accuracy; it is a quality much wanted, but it, like many other things, all go to make work more costly. Where we do really find a fault, is in the Town Improvement Committee taking such an extended time in approving or disapproving plans. I wish here

TO MAKE A STRONG PROTEST,

on behalf, not only of our members, but of the public generally, against the long interval of time that is lost in the Committee meeting for the consideration of plans, at intervals of fourteen days, causing, in many cases, considerable financial loss to owners of property, and would respectfully ask the Town Improvement Committee to fall in more with the wants of the times, and place their meetings at lesser intervals. I remember, some years ago, when I happened to act as your secretary, the same question arose, and information was obtained from all the chief cities of England and Scotland, as to the usual practice in these matters, when it transpired that, in many of the larger cities, there were much quicker facilities, in dealing with deposited plans, than what obtains in Newcastle. This was communicated to our Town Improvement Committee, but no good resulted. Let us hope they will no longer stand in the way of public business, but take a more enlightened view of the situation. There is not time, in the present rush of business, to wait a fortnight for a decision as to whether a plan is approved, or it is not approved. The public want their work done quickly, and in some instances, where alterations occur in the progress of building, to wait a fortnight, frequently means laying in the work altogether for that period, to the manifest loss of the owner. There is a general feeling that we are becoming very much

OVER-GOVERNED IN MUNICIPAL MATTERS.

Powers are now being sought which will still further interfere with the liberty of the public in building, the strangest part of it being that the public have never asked particularly to have their liberty curtailed in this way; but there is no doubt nine-tenths of these new powers are fads emanating from the mind of some of our City Councillors, and generally for notoriety or elective purposes. This may be plain language, but, speaking for Architecture, we shall find, presently, serious obstacles placed in the way of free design, and the Architecture of our streets reduced, by these Bye-Laws, to a "ditch water" level. It goes without saying, that the picturesque quality of our streets depends entirely on diversity in design, upon one building differing from the other in height, width, disposition of eaves or gables, projections or recesses, or the like. Some there may be found who advocate a design in street Architecture of the "Gower Street" type, but let us hope they are few, or, to fly at higher game, some of the streets of Paris, of the Baron Haussmann period, which, although more grandiose than the former, are equally unsatisfactory in their final effect. The

QUALITY OF STREET ARCHITECTURE

marks down the history of the times, and records the sentiments of the people. We all know the circumstances under which the HAUSMANN buildings were erected, and we all know scores of cities where other circumstances existed, where a free people have given a free scope to their qualities in design, imprinting upon their buildings a strong individuality, rendering their cities interesting in every turn we take. I am the last man in the world who would advocate the abolition of by-laws for the regulation of some building matters; let these matters be confined to health measures and the like, but let us have liberty in design. One is tempted into making these remarks on a suggestion emanating lately from our Town Improvement Committee, and there is the draft for a further Bill now lying at the Town Hall, which should have the careful attention

* The inaugural address of the President of the Northern Architectural Association, delivered at the opening meeting of the session 1898-1899, held in Newcastle-on-Tyne on November 16th, 1898.

of every citizen. While on building matters, we may say a word or two on

A SPECIAL KIND OF BUILDING

very much talked of now-a-days, and much needed, one popularly called a "Fireproof" building; but, as a fireproof building has never yet been built, it is more correct to say a "fire-resisting" building, precisely in the same way as iron or steel safes have changed their names of late. I do not propose here reading an essay on fire-resisting buildings, but merely to call attention to their increasing importance. This is a class of building needing all the skill of skilful men to devise, needing all our powers of observation and investigation to enable us to keep in touch with the times, it is what may be called the "Modern Building." Business, as we all know, moves quicker year by year, and the hazards increase. To have a large and valuable building filled with equally valuable stock burned down about our heads, is too serious an interference with business to be lightly endured. There is often too much theory in the design of fire-resisting building. Fire is a terrible master, but, in it, Dame Nature will have her way; it is, therefore, no use romancing in matters of construction. It is now pretty well agreed that all important or business premises, especially those abutting on public thoroughfares, should be reasonably fire resisting, yet we frequently find them supported on the ground floor entirely on cast-iron columns or steel stanchions. The effect of this, in the event of a fire, is for the whole building to collapse like a pack of cards. It may be said

ARCHITECTS ARE TO BLAME

for this, but it is not so. From what I know of architects, I do not think there is one who in designing a building would, on his own intuitive knowledge of design, ever produce a building standing apparently on plate glass. This iron and plate glass is one of the signs of the times, one of the phases in the history of Architecture of the nineteenth century. The busy City man, in his instructions to his architect, insists on having "All Window," and he has to have it. Therefore, that material, which will bear the greatest load on the smallest section, must be used for supports and, for the rest, glass, for which there is no substitute. But, unfortunately, both these substances are not safe under fire. Here, however, is where the skill of the architect must come in, and here we must rely on our actual experience in fires, noting the effect on building materials, and on well conducted and authentic experiments. I think further that, at this time, it is particularly opportune to refer to fire-resisting buildings, for our methods of construction are altering every day, and, if they are so altering, they may as well alter in the direction of safety. Science has yet a big field before it, there are already many materials in the market of which we can take advantage in constructing fire-resisting buildings, but more efficacious ones are needed. Every one who has noted the great change that has come over

BUILDING MATERIALS DURING THE LAST TWENTY-FIVE YEARS.

and of the wants of the general public, cannot, I believe, help coming to the conclusion, that sooner or later some of our well-known and much used materials, such for instance, as wood, and common lime plastering, will become more scarce, and may, to a great extent, drop out altogether. Already other materials are taking their place. Wood has two great faults (though I am bound to say it has many virtues), it is highly inflammable, and it is highly susceptible to wet and heat; schemes have been tried with a view to render wood less inflammable, but before we can consider our buildings fire-resisting, much more must be done in that direction, that is to say, if wood is used. I alluded earlier in this address to the "rush of business," and it is here where wood fails us. Our clients will not wait, they must have their buildings finished quickly, and expect them to be quite dry in no time, forgetting that the materials of which they are built, are largely mixed with water. If we were, like the shipbuilders, to rivet iron plates together,

and there you are, finished, and as dry as ever it will be, but we have not quite come to that yet. The wood fittings are fixed while the building is reeking with moisture, and when, having had time to imbibe a quantity of this moisture, which expands the fibres of the wood, the heating apparatus is then lighted up, and the woodwork shrinks often to a wreck. It is quite clear that under these circumstances neither of these materials (wood and lime plaster) meet the demands of ordinary practice. Wood on account of its inflammable nature and instability, and lime plaster on account of its wetness and slow setting. There are, as we know, many

EXCELLENT QUICK SETTING PLASTERS

in the market, but then we frequently lay this on to wooden laths, which, in their turn, are upheld by wooden scantlings. In case of a conflagration, all this ends in disastrous results. Indeed, we may go further, and say a great many of the usual modes of construction are wrong, for do we not embed floor, roof, and other timbers in the walls where they rot, and do we not form cavities between floors and ceilings, hollow partitions, skirtings, &c., which form excellent channels for fire? Much of this can be avoided by using a more solid form of construction, but this means more cost; it is the difference between good work and jerry work. The public, after all, have it very much in their own hands to decide. I think all buildings should be built reasonably fire-resisting, especially public buildings, business premises, and country mansions. There seems to have never been a public building so reasonably fire-resisting as the Colosseum of old Rome, and, although such a building is

UNLIKELY TO BE BUILT IN THIS AGE,

yet its lessons should not be lost upon us. A building of to-day would be more composite in its materials, but, take my word for it, simplicity in materials, as in details, is often the secret of good design. It is distressing in the extreme to hear of public buildings being destroyed by fire, probably carrying with it some loss of human life; of immense places of business reduced to a heap of ashes, dislocating trade, and throwing scores of people out of work at a moment's notice; of some old ancestral mansion engulfed in the same fury, destroying, in its irresistible force, not only the building, but, at the same time, priceless works of Art that are lost for ever. It is time, therefore, that more attention was given to fire-resisting buildings, even in a small way, and if wood is still to be used it must be rendered entirely non-inflammable, and which must not much increase its market value or render it unworkable on the bench; or, if wood cannot be so treated, then some other material is wanted

TO FILL UP THE MISSING LINK.

Some material that will be easily worked into all the varied uses to which we now put wood, such as our doors, windows, staircases, and innumerable other things. It must not only be non-inflammable, but must be of such a nature as will admit of its being worked into all the uses I have indicated, and also to be adaptable to all the alterations that occur in ordinary life, such as the alteration of buildings, or even the alteration of a door, or a window, or making a new way through a partition, &c. Wood lends itself easily to all these alterations. It is owing to this very word "alterations" that so many schemes now in the market for fire-resisting purposes fail; but that fatal word "alterations" must be reckoned with, for although the quality of being fire-resisting is a most important question, yet it must go hand in hand with ordinary usefulness, for buildings change owners, and often uses, and alterations become inevitable.

(To be continued.)

A NEW wing in connection with the Whitechurch Cottage Hospital, erected at a cost of £1300, has just been opened.

A NEW Orange Hall has recently been built at Ballymena. Mr. Wm. O'Neil, of Loughconnolly, being the contractor.

FIREPROOF CONSTRUCTION IN AMERICA.

MR. R. W. GIBSON'S paper on "The Construction of Fireproof Buildings in the United States," read before the R.I.B.A. on Monday, December 5th, was followed, as usual, by discussion. Mr. Percival Gordon Smith proposed a vote of thanks to Mr. Gibson.—Mr. Smith said that as Chairman of the Science Committee which initiated this paper he thought he might claim it as an extremely practical one. He believed that those concerned with the erection of large buildings in England would find much that was useful in it. He did not pretend to say that they would ever arrive at the time when those twenty or thirty-story buildings would be accepted in London. The point that occurred to him as being the most difficult was as to the method of

CONTROLLING THESE BUILDINGS

so as to ensure reasonable security. He was glad to hear that the New York Building Law was under revision.—Professor W. C. Unwin said he had seen the buildings with which the paper had dealt. One building he had seen in Chicago was of fourteen floors, containing something like 100 offices. On a moderate computation, something like 7000 persons would be constantly in that building during business hours. In fact, American business habits seemed to make it very convenient that a large number of persons should be within reach of each other rather than in different buildings or different streets. But quite apart from the policy of high buildings, they had the question of iron construction and its strength when masked by masonry or brickwork. In the latest type of the American big building, they had absolute steel construction; every part of the strain going directly to the steel structure. The

WALLS WERE MERE PANELS,

and became thinner as the floors went up. The difficulty of expansion and construction of steel had been found not at all serious. In Chicago difficulties were encountered such as were not met with elsewhere, because buildings were placed on the worst foundations, even 10ft. or 12ft. below the ordinary level of the town, and even from that there were instances of settlements of 4in., and even 8in. and 15in. In general they secured the uniform strength of iron concrete foundations by two fundamental conditions—first, that the pressure per square foot of the foundation should be uniformly distributed and not to exceed 3000lb. or 3500lb. per square foot, and secondly, that in each foundation block resultant pressure should pass from the centre of gravity of the block.—Mr. Lewis Solomon seconded the vote of thanks. He said he was asked to make an examination of the specification of the building they had heard described by Mr. Gibson. What struck him most was

THE COMPLETENESS OF THE SPECIFICATION.

A list of all the stanchions and girders were given, and such matters as electric lighting and heating apparatus were all completely specified. They used Portland cement in the proportion of 1 to 2 of sand; in England this would be regarded as positive waste. Then the bond was different from that used here. Mr. Gibson specified that the bond was to have two headers every fifth course. He was struck by the enormous amount of copper work provided for. Lately there seemed to have been introduced an enormous quantity of copper work. The flooring was mostly ironwork, seven-eighths of an inch thick, not agreed to in England. Then the specifications went on to provide for the best French plate glass. They never heard of French plate glass in England. It was either English or Belgian. It was usual to paint their brickwork, as was provided for in these specifications. The Americans used the word "masonry," where in England it would be brickwork; they used the words "chutes" in cases in which

we used "shoots"; they speak of vault lights where we should say pavement lights. In the diagrams then on exhibition there were several useful features for calculating the weights and strains for each floor, allowing it to be easily ascertained whether there was any fault in the calculations, being much preferable to our system of keeping the particulars on separate papers.—Mr. R. Gifford Read was of the opinion that the paper gave a very good idea of the American way of building high structures, and showed how the Americans differed from us in the

REGULARITY THEY DISPLAYED

in going to work, and their application of purely scientific principles. No doubt they had found much trouble between the iron-work and brickwork men, but the Americans by the plans they adopt stand a very good chance of avoiding this trouble.—Mr. C. H. Brodie stated that the terra-cotta used for fireproof floors in the States was of a comparatively soft and porous composition.—Mr. Max. Clarke said it should be clearly understood that the terra-cotta referred to by Mr. Gibson in his paper was the hard or solid material, not the porous variety mentioned by Mr. Brodie. The latter was noted in the paper as being better in many ways than the hard variety, but was

NOT IN SUCH UNIVERSAL USE,

and in some localities was more expensive.—Mr. Delissa Joseph stated that in this country we should never have the opportunity of building so high as in America, and therefore steel-frame construction did not appear to raise such important issues. As to fireproof construction, he questioned whether capitalists would build more extensively in that direction so long as the fire insurance companies refused to give assistance or encouragement. At the many conferences with the

FIRE INSURANCE COMPANIES,

arranged by the Goldsmiths' Company, in order to see whether the companies would consequently reduce their excessive rates, nothing was arrived at, they deciding to maintain their rates. It was then suggested that the companies should define what they regarded as a model fireproof building, but they refused to give themselves away to that extent. So long as this monopoly was maintained so long would the development of fire-resisting building in London be discouraged.—The vote of thanks was then agreed to, and the president announced that at the next meeting on December 19th, the following papers would be read: (1) "The Application of Electric Power to Practical Purposes in Buildings," by Mr. H. R. J. Burstall, M.Inst.C.E.; (2) "Some Practical Hints on the production and Use of Electricity for Lighting Country Houses," by Mr. Bernard M. Drake, M.E.E.

OAK altar rails have been presented to St. Leonard's Church, Thornton-le-Street, Thirsk, in remembrance of the late Rev. Peter William Watts, formerly vicar of Thornton-le-Street.

At a general meeting of the Society of Oil Painters, Sir George Reid, P.R.S.A., and Mr. Ernest A. Waterlow, P.R.W.S., A.R.A., were elected honorary members, and Messrs. Byam Shaw, R.I., Cecil W. Rea, Mortimer Menpes, R.I., Chas. I'Anson, and Alfred Hartley were elected members.

NINON DE L'ENCLOS took her secret of sempiternal youth and beauty to the tomb. But (says the Paris correspondent of the Telegraph) she left her house behind her. It is still standing in the Rue de Tournelles, with its six stories and its magnificent staircase of artistically wrought iron. The people who live there are not a year younger than they ought to be, but none the less, they refuse to allow the residence of the celebrated Ninon to be touched up or modernised. A rumour circulated lately that the staircase and other relics were going to be removed, and the building renovated. But all the inhabitants of the district rose up against the idea like one man, and prepared a petition to the Conscript Fathers. Their prayer has already been heard, and Ninon's house will be preserved.

Bricks and Mortar.

EFFINGHAM HOUSE, ARUNDEL STREET,

December 14th, 1898.

"I know what it is to live in a cottage with a deal floor and roof, and a hearth of mica slats; and I know it to be in many respects healthier and happier than living between a Turkey carpet and a gilded ceiling, beside a steel grate and a polished fender. I do not say that such things have not their place and propriety; but I say this, emphatically, that the tenth part of the expense which is sacrificed in domestic vanities, if not absolutely and meaninglessly lost in domestic discomforts and incumbrances, would, if collectively offered and wisely employed, build a marble church for every town in England; such a church as it should be a joy and a blessing ever to pass near in our daily ways and walks, as it would bring the light into the eyes to see from afar, lifting its fair height above the purple crowd of humble roofs."—JOHN RUSKIN.

SIR WILLIAM B. RICHMOND, a few days ago, conducted 200 members of the Hampstead Art Society over St. Paul's Cathedral, and showed them the mosaic decorations upon which he and his assistants are engaged. In explaining the work, Sir William told the members of the society that it was initiated by himself, but that, without the industry and intelligence of others, he could not have succeeded at all. There were many hopeful signs which pointed to a better taste in England, in the matter of the Arts and Crafts, than had previously been the case. The Reformation put a stop to church decoration in this country, and the dread of idolatry fostered that terrible dulness which history showed to have been a part of the Puritan spirit.

LITTLE more than a century ago, a Bishop of London refused to sanction the decoration of St. Paul's with Reynolds at the head of the scheme, upon the plea that "nothing would persuade him to sanction the conversion of Protestant St. Paul's into a Romish church." Times had changed, and they were living in times of æsthetic revival; long might it continue. It came to him that he was to have the honour of serving the Church of England, and through her the Art of England, by using whatever abilities might be his in making the metropolitan church as beautiful as he knew how to make it. It was certain that mosaic was the most durable material for decoration in their dirty London. When intended that mosaic should be the decoration. All his workmen, with one exception, were Englishmen, and the exception was a naturalised British subject. In fairness to those Englishmen, he was bound to say that—leaving out all question of the value of his own design—Italy at her best could not show finer mosaic work than they had done in St. Paul's. The materials used were also made by Englishmen, the old firm of glass manufacturers, Messrs. Powell, of the Whitefriars Works. The only merit he claimed was that of having revived the true principles of a lost but most noble decorative Art.

THE Solomon Islands were until recently chiefly noted for savages, malarial fever, and a solid cliff of pure copper. Stern justice is disposing of the first, the second is considered to be grossly exaggerated, and the vision of the third did not survive actual inspection of the new Bonanza. Still, the official report of the British Resident Commissioner much regrets that the disappointment resulting from the failure of the elaborately equipped expedition to find the solid cliff of copper caused the search for minerals to be abandoned.

It will be long, says the report, before persons in such a position to thoroughly test the value of any minerals discovered will again visit the Protectorate, and yet it would be desirable that the locality whence samples containing copper were obtained should be further explored. It seems that the hopes of the expedition, which started from San Francisco—where one would have imagined they were sufficiently inured to wild-cat enterprises at Klondyke to be taken in by a mere Solomon's Island affair—were based upon some fabulous accounts of the existence of gold and copper on San Christoval. Unfortunately, the recorder of the story "was a man of notorious character," although what special form his notoriety took we are not informed. However, the expedition arrived, found but the slightest traces of precious metals, and as for the "solid cliff of pure copper," they failed to find it at all. The "man of notorious character" was leading the expedition, so that the members of it naturally turned to him for information. He was positive that he had seen it; in fact, he had a distinct recollection of the actual spot, and he was evidently troubled in mind when it was not forthcoming. Recognising in Nature an old enemy of his own, he finally decided to attribute the failure to her nefarious methods, and suggested that it must have disappeared in an earthquake. The report is discreetly silent as to whether the "man of notorious character" disappeared from that or other causes. Still, there does not seem to have been so much to complain about, as actual samples assaying 46.94 per cent. of pure copper have been forthcoming.

ONE of the most interesting of the exhibits that are held periodically in London is the Royal Society of Painters in Water Colours. There are always some works to admire, some merit to note. But, apart from this, the number of exhibits is not bewilderingly large. It is possible to examine all the paintings without having a headache to commemorate the event. All the works occupy one large room, and if you wish to enjoy a feast of colour you have but to stand in the centre of the hall, and your eyes will be delighted by bright and brilliant, sombre and dark colouring, which make you forget the gloominess of a London December day. Over 300 pictures and drawings are on the walls and screens, but fifty of these are the work of the late George Prince Boyce, and a very interesting and representative collection is formed. As usual, the West of England is conspicuous at this exhibition. We have works by Mr. Charles Davidson, Mr. Albert Goodwin, Mr. C. Napier Hemy, Mr. S. P. Jackson, Mr. W. Collingwood, and other artists who have gone to the West Coast for inspiration. Perhaps the best of Mr. Hemy's four water colours is "Under the Cliff, Land's End." He has caught the spirit of the angry waves and sky, and in this work he is far more vigorous than in "The Landing Place," another interesting seascape.

MR. DAVIDSON sends no fewer than seven water-colours, and the atmospheric effect in some of them is very striking. In "Borrowdale" there is the soft glow of sunlight over the valley, and in "Morning" the glowing clouds and the weed-covered rocks of the coast combine to make a most effective picture. Mr. Albert Goodwin's works are in his familiar style, and he gives us glimpses of Canterbury, Hastings, Westminster, and Salisbury. Mr. S. P. Jackson's careful, elaborate, and finished paintings are represented by "Trevone Beach," with its rugged slabs of rock and dashing waves, in "Magpie Island, near Henley-on-Thames," and in his striking "Porth Towers, Cornwall." Mr. Sam T. G. Evans gives us a vigorous picture of a "Storm brewing near Newquay," with its lowering clouds and choppy sea. Mr. Matthew Hale sends a painting of the Bristol Channel in twilight, and the familiar "Mount St. Michael, Cornwall," is painted by Mr. Robert W. Allan. There are many other works of general interest in this exhibition, which ought to be visited by all who wish to see the achievement of present-day water-colour painters.

MR. FREDERICK GROVER, of Leeds, has published the results of his experiments on the pressure and explosive efficiency of mixtures of acetylene gas and air. The first series of experiments consisted in exploding mixtures of acetylene and air at atmospheric pressure; the second series with the mixtures compressed to 15lb. per square inch above atmosphere before ignition took place; and in the third series the mixtures were fired at 30lb. per square inch above the atmosphere. It has been thought that great difficulty would be experienced in working a motor on acetylene gas on account of the slow diffusion of the gas with the air. The author experienced less trouble with the ignition of acetylene than with coal gas, when the same time is allowed for the diffusion of each. He therefore anticipates no difficulties in the application of acetylene to motors. It has also been thought that incomplete combustion would lead to a rapid deposit of carbon. After each explosion when the products of combustion were being discharged from the cylinder, a piece of white paper was placed in front of the small pipe from which the products were escaping at a high velocity. This paper was perfectly clean after all the gases had been discharged from the cylinder. This would certainly not have been the case if a large deposit of carbon took place. There is no doubt that with incomplete combustion occasioned by working with too strong mixtures, there would be a serious deposit. The large excess of oxygen with which it is found possible to explode the gas to advantage is a guarantee that no serious deposit in the cylinder is likely to be met with.

At a recent meeting of those who are trying to fight the smoke fiend, the Earl of Meath presided, and Sir W. B. Richmond, R.A., said the proposed body would not take over the duties which were already consigned to the local governing authorities, but they could assist those authorities to carry out the law at present dealing with the question. If they could strengthen and encourage the powers that be, in a very short space of time London would be rid of a considerable portion of a very serious and dangerous nuisance. It was not an æsthetic or artistic agitation, but one which was of great interest to every class and section of society. He had received letters in favour of the movement from the Duke of Westminster, Lord Hobhouse, Mr. Ruskin, and others. He explained his proposed scheme of working for the society, and the association was formally inaugurated, after some discussion. Mr. Ruskin's letter alluded to "doing battle with that villain smoke."

THE annual prize distribution in connection with the Goldsmith's Institute took place the other evening. A large number of valuable prizes were won in many competitions connected with the various arts and sciences, as well as in scholastic and mechanical subjects. The prizes were distributed by the Right Honourable Lord Davey. In the course of his address he said that he felt sure the enlightened individuals who founded the Institute would feel well rewarded when they contemplated the success it had already achieved. After dealing with different successes achieved by the students, Lord Davey dealt with the recreative side which had been provided. Referring to foreign competition, he said he considered that protection would only aggravate the evil. The true remedy was to put their shoulders to the wheel, and produce better goods than their foreign competitors. He thought it was the duty of every patriot to strive to maintain their commercial greatness, which was only to be done by providing a means for technical education accessible to all classes.

A most interesting exhibition of artistic bookbindings is now on view at 61, Charing Cross Road. The work, which has been carried out by members of the Guild of Women Binders, is remarkable not only for its beauty and finish, but for its great originality. The

designs in every case are fresh, and have been specially thought out, so as to harmonise with the special character and contents of the book for which they may be intended. Among the most beautiful are the mediæval bindings, embossed by hand on undressed morocco. An interesting example of this kind of binding is the work of Mrs. Macdonald. An example of the same kind of binding is the cover of the Kelmscott "Chaucer," which bears a design composed of various details from Sir Edward Burne-Jones's illustrations. A number of beautiful copies of the Song of Solomon are also to be seen. Another case is devoted to examples of "African binding," in which a new and very beautiful Venetian-red morocco from the Niger Territories is employed, embossed in any design on a groundwork of gold dots. The colouring of the leather is extremely rich, and many of the designs shown were very effective. Most visitors will probably covet a Browning or an Omar Khayyam, of which there are several examples in the exhibition, bound in this style, which is at once handsome and durable. A case of bindings sent by Miss Barrett derives a special interest from the fact that all the work has been done by crippled girls under her supervision; but the work need not rely in any way on charitable interest, for it is thoroughly well done. The specimens of cut calf bindings by Miss Sophia Smith are also very effective, and her designs, more particularly for the covers of nursery tales and fairy books, are particularly clever. The exhibition also includes a number of very fine specimens of the work of the Hampstead Bindery, which consists of men binders. An original design is made there for every book bound, and is never repeated unless ordered. The collection includes some examples of the new "Londonderry" binding in cream morocco, on which flowers are inlaid in brilliant colours. Besides the bookbindings, a number of specimens of hand-coloured illustrations by Miss Gloria Cardew are in the exhibition, and are of great interest.

FOR some little time a movement has been on foot in favour of throwing Finsbury Circus Garden open to the public. Difficulties have hitherto stood in the way consequent on the rights of freeholders and leaseholders, and the objection they have to what is considered by some to be an infringement of their privileges. Only about a month ago the matter came before the Court of Common Council in the form of a report by one of the committees, and it was then stated that the Corporation were powerless in the matter owing to the refusal of the residents to concede what was asked. The City Press now states that there is a possibility of an arrangement being come to that will shortly enable the garden to be enjoyed by the many instead of only by a few.

ONE of the strongest evidences of the strides which electricity as an illuminant and as a motive power is making in Great Britain is to be found in the figures published in connection with the plans, &c., deposited in respect of the Private Bills and Provisional Orders for next Session. The Electric Lighting Orders this year number 114, as against eighty-five last year—a very substantial increase. In addition to this, several important electric schemes will be proceeded with by private Bill. The application for powers is by no means confined to the large centres of population, as many of the smaller urban districts have decided to use the hidden power. Cornwall will this year enter the field for the first time, Penzance and Camborne being the towns applying. If all the London orders are granted, the metropolis will very materially increase its patronage of electricity. In the district of Sheffield the number of applications is well maintained. Scotland is represented by a fair proportion of orders, and one or two from "gallant little Wales," but not a single order is from Ireland. It is clear that gas is feeling the competition, as the few Gas Bills to come before Parliament are nearly all for the purchase by compulsion or agreement of existing undertakings by local authorities. There is only just an odd case of a new gas company to be incorporated.

SIR J. F. D. DONNELLY, Secretary of the Science and Art Department, distributed at Dalston, a few days ago, the prizes gained at recent examinations by the students of the North London and Borough of Hackney School of Art. This Institution, which was founded in 1868, has long been doing important work in North London. Since its establishment it has taught no fewer than 2944 Art students, who have gained among them 6228 Government awards, including 1282 Queen's Prizes. In the Government examinations of the present year 322 successes have been obtained, and in five years thirty-eight scholarships of the aggregate value of £840 have been secured, while Royal Academy Studentships for five years each were gained in 1896 and this year. The subjects of instruction comprise modelling, wood-carving, painting, and drawing, Art needlework, and various kinds of designing.

At Newcastle last week a number of summonses were returned against Solomon Levene, who was charged with having infringed the copyright of several well-known pictures. The information was laid by Mr. Francis Euston Field on behalf of the Fine Art Society (Limited) and others. In the first summons it was alleged that the defendant, not being then the proprietor of the copyright in a picture entitled "First Words of Love," and without the consent of the plaintiffs, unlawfully did copy and multiply for sale the copyright painting by means of photographic reproductions thereof. In other summonses he was accused of having similarly reproduced "Wedded," "Peacemaker," and "Forgiven." According to the prosecution, Levene had for many years carried on this class of business, and had guilty knowledge of the class of trade he was engaged in. When a gentleman painted a picture which happened to be successful it was unjust and unfair that this work should be pirated and produced at a tithe of its value, and that copyrights selling from one guinea up to ten guineas should be sold for 2s.—The magistrates dismissed the charges of multiplying the pictures, but convicted the defendant of having sold imitations of copyrights, and fined him £5 in cash in each of the four cases, with special costs of ten guineas and the court costs spread over the four cases.

ONE of the most painstaking and conscientious artists in the West is Mr. Charles E. Brittan, and the water-colour drawing which he is now exhibiting at Plymouth, at Messrs. Harris and Sons' Bedford Street establishment, bears striking evidence of the excellent progress which this young artist is making. It is a large work, and is unquestionably one of the best, if not, indeed, the very best we have noticed from Mr. Brittan's studio. That straining for effect, which we have had cause to condemn in the past, is absent, and there is proof in the picture that the artist fully appreciates the importance of outdoor work. It is an expansive Dartmoor view taken from Hamilton Down, and its title is "Amid Devon's Alps." In the foreground is a sparkling, rippling stream, and spanning it is an old clapper bridge. Lying here and there are grey, moss-clad boulders, around which bracken and furze, touched by Autumn's "fiery finger," and delicate grasses grow, whilst two or three moorland ponies give life to the picture. To the left the rugged form of Haytor, and to the right the Bowerman's Nose, are seen, and between these familiar landmarks stretch away ridge after ridge of moorland heights, until they become all but lost in the pure light from the rising sun. The background is full of refreshing beauty. A flood of clear, silvery light, interspersed by rays of a warm-r hue, tells that the sun is still below the horizon, and has not yet grown hot and oppressive, but is slowly driving away the mists and fleecy clouds of an autumn morning. The breeziness of Dartmoor and the loftiness and majesty of its tors are pervading elements in the picture, and its atmospheric effects are noticeable; but, apart from these features, the lichen and the mosses, "the humblest and the most honoured of the earth-children," are painted in all their unfading beauty.

R.I.B.A.

THE NOVEMBER EXAMINATIONS.

The asterisk (*) denotes members of the Institute.

THE November Examinations list of the Royal Institute of British Architects has just been issued. It is as follows:—

THE PRELIMINARY.

Agutter: Edwin Albert; Falconhurst, Devonshire Road, Honor Oak Park, S.E. [Master: Mr. J. T. Lee*].

Alexander: James Montgomerie; Greenbank, Ashton, Gourock, Scotland [Master: Mr. Jas. B. Stewart].

Amies: Herbert William; the Vicarage, Barkworth Road, South Bermondsey, S.E. [Masters: Messrs. Truefitt and Watson*].

Anderson: Douglas; Aldersyde, Middleboro' Road, Coventry [Master: Mr. T. R. Donnelly].

Anderson: Herbert Cooper; Wesley Villa, Wesley Road, Leeds [Masters: Messrs. Thos. Howdill and C. B. Howdill*].

Armour: John Laurence; 5, Woodhouse Terrace, Gateshead-upon-Tyne [Master: Mr. W. Lister Newcombe*].

Arthur: John Maurice; West Parkhill, Airdrie [Master: Mr. George Arthur].

Balderstone: John Henry; 128, Railway Terrace, Padiham, Lancs. [Master: Mr. John Gregson].

Barker: Walter Clement; West Grove, Hebdon Bridge, Yorks. [Mr. Wm. H. Thorp*].

Batley: Claude; Little Roundwood, Ipswich [Master: Mr. George Wm. Leighton].

Bennett: Robert; c/o Messrs. Parker and Unwin, the Quadrant, Buxton [Masters: Messrs. Parker and Unwin].

Blacka: Fort Vincent; Victoria Villa, Todmorden [Masters: Messrs. Butterworth and Duncan].

Bladen: Lionel Macdonald Wells; Fairlie, Stone, Staffs. [Masters: Messrs. Lynam, Beckett and Lynam].

Bosom: Alfred Charles; 17, Caledonian Road, King's Cross, N. [Polytechnic Architectural School].

Bowen: Henry Farre; 102, Lansdowne Place, Brighton [Harrison College, Barbados].

Box: Lawrence Ashton; 339, High Street, Cheltenham [Masters: Messrs. H. A. Prothero* and G. H. Phillott].

Boyle: Joseph; Low Wood, 195, Chorley New Road, Bolton, Lancs. [Master: Mr. Robert Boyle].

Bramley: Francis Herbert; Claremont Crescent, Sheffield [Masters: Messrs. Flockton,* Gibbs* and Flockton*].

Bridges: Sydney; 30, Wickham Road, St. John's, S.E. [Master: Mr. George Elkington*].

Buckley: Harry Francis; South Field, Halifax [Master: Mr. Thos. Kershaw*].

Chambers: Theodore Gervase; 4, Bloomsbury Place, W.C. [Tonbridge School].

Chard: Claude Percy; Glen View, Wembdon, Bridgewater (Masters: Messrs. Samson* and Cottam*).

Chilwell: Benjamin Charles; Oakeswell, Wednesday (Master: Mr. C. W. Bosworth).

Church: Guy; Sunny Bank, Waringham, Surrey [Master: Mr. A. Beresford Pite*].

Clarke: Herbert Ford; 56, Great Cheetham Street, Lower Broughton, Manchester.

Claypole: Edward Ernest Blunt; 2, Benedict Road, Brixton, S.W. [Master: Mr. Aston Webb*].

Collings: John Saxby; 68, Jermyn Street, St. James's, S.W. [Master: Mr. J. Osborne Smith*].

Collington: Frederick Edwin; 42, Vicarage Street, Nottingham (Masters: Messrs. Sutton and Sutton).

Commin: Ethel May; Barnfield Road, Exeter [Master: Mr. Frederick J. Commin].

Corking: James William; 42, Jackson Street, Gateshead [Master: Mr. James W. Frazer*].

Cosway: Reginald Wentworth Alfred James; 6, Engineers' Quarters, H.M. Prison, Wandsworth [Master: Mr. T. E. Lidiard James*].

Crickmer: Courtenay Melville; 15, Albert Road, Regent's Park, N.W. [Master: Mr. A. Aitchison*].

Curtis: William Thomas; Harbledown, South Croxted Road, W. Dulwich [Master: Mr. Durward Brown].

Davidge: William Robert; Teddington Park Road, Teddington, S.W. [Master: Mr. M. Hainsworth].

Davies: Alan Hier; Rosemont, Clytha Park, Newport, Mon. [Masters: Messrs. Habershon and Fawckner].

Dyer: Frank; 167, Chorlton Road, Brooks's Bar, Manchester [Masters: Messrs. Booth and Chadwick*].

Elkington: George Leonard; 95, Cannon Street, E.C. [Master: Mr. George Elkington*].

Ely: George Frederick; 32, King Street West, Manchester [Master: Mr. John Ely*].

Forbes: James; 2, Woodlands Terrace, Borough Road, Middlesbrough [Masters: Messrs. R. Lofthouse and Sons*].

Fouracre: John Leighton; 16, Portland Square, Plymouth [Master: Mr. H. J. Snell].

Gardiner: Frank George; 7 and 8, Barton Street, Bath.

Gask: John Harold; Bank House, Todmorden [Masters: Messrs. Barker and Ellis].

Gradwell: Arthur Rowland; Bank Villas, Blackburn [Masters: Messrs. Stones* and Gradwell].

Grant: Robert; Dunheanish, Oban [Master: Mr. Alex. Shairp].

Hall: Amos George Frederick Martin; Huntly Grove, Peterborough [Master: Mr. Martin Hall].

Haswell: Frederick; Monkseaton, Northumberland [Master: Mr. F. R. N. Haswell*].

Haward: Francis Robert Boyd; 19, Nelson Road South, Great Yarmouth [Masters: Messrs. Bottle* and Olley].

Hemingway: Willie; 254, Ainsworth Lane, Tonge, Bolton [Master: Mr. Frank K. Thompson].

Hilton: Geoffrey William; Burlaston, Stoke-on-Trent [Master: Mr. G. L. Jones].

Holbrook: Arthur Ernest; Warleigh House, Grove Road South, Southsea [Master: Mr. Alfred H. Bone].

Holder: Archibald Lawrence; 5, Bloomsbury Square, W.C. [Master: Mr. W. West Neve].

Hoskins: Henry Joseph Bissaker; 45, Longmore Street, Birmingham [Masters: Messrs. Cossins, Peacock, and Bewlay].

Hossack: Ian Andrew; 123½, Union Street, Aberdeen, N.B. [Master: Mr. Arthur Clyne].

Huggup: Robert, jun.; Low Hedgeley, Glatton, Alnwick [Master: Mr. Geo. Reavell].

Hussey: Montague Grove; 13, Promenade, Cheltenham [Masters: Messrs. Prothero* and Phillott].

Judge: Max; 7, Pall Mall, S.W. [Master: Mr. Mark H. Judge*].

Kellett-Smith: Herbert Chippendale; Hill View, West Kirby, Cheshire [Masters: Messrs. Willink* and Thicknesse].

Kennedy: William James; 8, Fettes Road, Edinburgh [Masters: Messrs. Hay and Henderson].

Knapp: Alured Faunce Primatt; [Forest School, Walthamstow].

Lacey: Philip Warner; Selwyn House, Mill Hill, Derby [Masters: Messrs. Naylor* and Sale].

Laycock: Edward Penard; 5, Argyle Terrace, Plymouth [Masters: Messrs. King and Lister].

Leech: Norman Austin; The Walnuts, Pinkney's Green, Maidenhead, Berkshire [King's College Architectural School].

Lethbridge: James Morton; 9, Cholmeley Villas, Highbury, N. [Master: Mr. George Lethbridge*].

McKissack: James; 68, West Regent Street, Glasgow [Master: Mr. John McKissack].

Marwick: Thomas Craigie; 43, Lauder Road, Edinburgh [Master: Mr. T. P. Marwick*].

Millar: Allan Scott; 5, Victoria Square, Reading [Masters: Messrs. Millar and Nasmyth].

Moore: John Kernish; 20, Copeland Road, Walthamstow.

Moss: Harry; 9, Park Road, Alexandra Park, Manchester [Master: Mr. F. W. Dixon].

Nash: William James; 117, Midland Road, Wellingboro', Northants [Master: Mr. Alfred Bucknall].

Newman: Bernard Leigh; Ty-Melyn, Clytha Park, Newport, Mon. [Masters: Habershon and Fawckner].

Parlett: John; 33, Daneville Road, Denmark Hill, S.E. [Masters: Messrs. Colman and Thomas].

Payne: Ernest Henry; 95, Lincoln Street, Barton Hill, Bristol [Masters: Messrs. La Trobe* and Weston*].

Pease: Charles Edward; Lancaster Lodge, Lawriston Road, Wimbledon, S.W. [Masters: Messrs. C. John Mann and Son].

Phibbs: Harry; Williams Street, Brierley Hill, Staffs. [Master: Mr. R. S. Oldacre].

Poulter: Briant Alfred; Collingwood, Camberley, Surrey [Farnham Grammar School].

Preece: John; 62, Miskin Street, Cathays, Cardiff [Master: Mr. David C. Salmond].

Price: Francis Henry; 8, Mount Terrace, Taunton [Master: Mr. C. H. Samson*].

Rainforth: Sydney Herbert; Brier Gate, South Park, Lincoln [Masters: Messrs. W. Watkins* and Son*].

Richmond: Wilfrid Stanley; 89, Victoria Road, Bedford [Bedford Modern School].

Robinson: Francis James; 39, Green Park, Bath [Master: Mr. Mowbray A. Green].

Salvin: Thomas; Melrose, Sheffield Road, Chesterfield [Master: Mr. Charles Hadfield*].

Scott: Archibald; 6, Broompark Terrace, Dennistoun, Glasgow [Masters: Messrs. Thos. Dykes and Andrew Robertson*].

Shebbeare: Henry Vivian, B.A. Cantab; 1, The Crescent, Surbiton [Master: Mr. E. W. Mountford*].

Simpson: Claude Herbert; 19, Southbourne Road, Sheffield [Masters: Messrs. Flockton,* Gibbs,* and Flockton*].

Smith: John Barlow; 8, Kent Villas, Alexandra Place, Bedford [Masters: Messrs. C. E. Mallows and Grocock].

Smith: William Collin; 1, Westbourne Park Crescent, Paddington, W. [Philological School, Marylebone Road].

Spencer-Smith: Charles Owen; Palmer Lodge, Palace Street, Westminster, S.W. [Master: Mr. H. Percy Adams*].

Stair: Arthur Cecil; Highcroft, Etchingham Park, Church End, Finchley, N. [Master: Mr. Ernest A. E. Woodrow*].

Stretton: Clement; 2, Mecklenburg Street, Leicester [Master: Mr. Stockdale Harrison*].

Sullivan: Leo Sylvester; 28, Maitland Park Villas, Haverstock Hill, N.W. [Masters: Messrs. Alfred Waterhouse* and Son*].

Symon: Alexander; 7, John Street, Bedford Row [Masters: Messrs. Carver and Symon].

Tod: George Wallace; 19, East Preston Street, Edinburgh [Masters: Messrs. MacGibbon and Ross].

Topley: Samuel Douglas; 57, Granville Park, Lewisham, S.E. [St. Dunstan's College, Catford].

Tyndall: Richard John; 17, Castellain Road, Maida Vale, W. [Master: Mr. A. J. Style*].

Walters: Frederick George; 37, Great Queen Street, Westminster, S.W. [Master: Mr. F. A. Walters*].

Widdup: Percival Sylvester; 171, Preston New Road, Blackburn [Master: Mr. Walter Stirrup].

Williams: Geoffrey Hyde; Longwood Vicarage, Huddersfield [Master: Mr. J. William Cocking].

Yorke: John Vincent; Church Street, Tunstall, Staffs. [Masters: Messrs. Wood and Hutchings*].

THE INTERMEDIATE EXAMINATION.

In Order of Merit.

Byrne: Thomas Joseph [Probationer 1897]; 55, Clarence Street, Kingston-on-Thames [Master: Mr. F. R. Farrow*].

Ewing: James [Probationer 1897]; 70, Church Street, Berwick-upon-Tweed [Masters: Messrs. James Stevenson and Son].

Green: Thomas Frank [Probationer 1893]; 55, Blenheim Terrace, St. John's Wood, N.W. [Master: Mr. Frederick Wheeler*].

Papworth: Alfred Wyatt [Probationer 1897]; 8, Maitland Park Road, N.W. [Master: Mr. F. R. Farrow*].

Holstead: Abraham [Probationer 1897]; 46, Hopwood Lane, Halifax, Yorks. [Master: Mr. Petty].

Mayhew: Robert Henry Jewers [Probationer 1897]; Edmondsbury, Genoa Road, Anerley, S.E. [Masters: Messrs. Roger Smith * and Son*].

Gould: Victor Royle [Probationer 1898]; 10, Hamilton Road, Highbury, N. [Master: Mr. A. W. Hennings*].

Mackenzie: Alexander George Robertson [Probationer 1894]; 61, Queen's Road, Aberdeen [Master: Mr. A. M. Mackenzie, * A.R.S.A.].

Wilson: Henry Armstrong [Probationer 1896]; 20, Broughton Road, South Shields [Master: Mr. C. S. Errington*].

Hemingway: Ralph Eustace [Probationer 1896]; 1, Brunel Terrace, Derby Road, Nottingham [Master: Mr. A. N. Bromley*].

Reilly: Charles Herbert [Probationer 1896]; 23, St. Swithin's Lane, E.C. [Master: Mr. Charles Reilly*].

Spain: John Edward [Probationer 1897]; The Rectory, Rand, Wragby, Lincolnshire [Master: Mr. Wm. Scorer*].

Cockrill: Ralph Scott [Probationer 1896]; Northbury, Great Yarmouth [Master: Mr. J. W. Cockrill*].

Wrinch: Raymond Cyril [Probationer 1896]; Hill Crest, Ipswich [Master: Mr. E. F. Bishopp].

Trew: William George [Probationer 1897]; Tanglin, 232, Dulwich Rise, S.E. [Master: Mr. H. S. Legge* and Son*].

Baird: James [Probationer 1894]; Clyde Villa, Prestwick, Ayrshire, N.B. [Master: Mr. D. V. Wyllie].

Walker: George [Probationer 1897]; Clyde Villa, Old Newbarns, Barrow-in-Furness [Master: Mr. John Butler].

Grace: Lionel Upperton [Probationer 1897]; C/o R. C. Edwards, Esq., 37, Norfolk Street, Strand [Master: Mr. R. Clarke Edwards*].

Norman: George Henry [Probationer 1896]; 24, Palm Street, Old Ford [Master: Mr. J. Henry Ball*].

Smith: Spencer [Probationer 1896]; 29, Lawson Road, Sheffield [Master: Mr. A. F. Watson*].

Banfield: Ernest William [Probationer 1894]; 15, Penford Street, Knatchbull Road, Camberwell, S.E. [Master: Mr. H. L. Florence*].

Bressey: Charles Herbert [Probationer 1896]; 70-71, Bishopsgate Street Within, E.C. [Master: Mr. J. T. Bressey*].

Clifton: Leonard Winton [Probationer 1896]; Atherfield, Clifton Road, Winchester [Master: Mr. T. Stopher].

Hughes: Augustus Edward, jun. [Probationer 1894]; 28, Mortimer Street, Regent Street, W. [Master: Mr. A. E. Hughes*].

Hunter: James Douglas [Probationer 1895]; 10, Pemberton Gardens, St. John's Park, N. [Master: Mr. F. Hammond*].

Joseph: Charles Sampson [Probationer 1892]; 34, Inverness Terrace, W. [Masters: Messrs. Josephs* and Smithem*].

Milburn: William Godfrey [Probationer 1896]; Holywood House, Wimbledon Park, S.W. [Master: Mr. A. J. Gale*].

Pickering: Arthur Edwin [Probationer 1893]; 70, Tressillian Road, Brockley, S.E. [Master: Mr. F. Nesbitt Kemp*].

Pullar: Edgar John [Probationer 1894]; 111, Denmark Hill, S.E. [Master: Mr. Arthur Green*].

Smith: Francis Danby [Probationer 1894]; Saxonhurst, Laurie Park Road, Sydenham, S.E. [Master: Mr. F. J. Smith*].

Tasker: Andrew Kerr [Probationer 1894]; Dunblane House, North Shields [Master: Mr. W. Hope].

White: Horace [Probationer 1896]; Ellesmere, Loughton, Essex [Master: Mr. Edmond Egan*].

THE FINAL EXAMINATION.

Bourne: Walter Hargreaves [Probationer 1895, Student 1897]; 29, West End Lane, West Hampstead, N.W.

Cubbon: John [Probationer 1892, Student 1894]; 2, Cambridge Road, Sale, near Manchester.

Green: Leslie William [Probationer 1891, Student 1897]; Sumptermead, Datchet, Bucks.

Hiorns: Frederick Robert [Probationer 1895, Student 1896]; 2, Moselle Villas, St. Peter's Road, Margate.

Kirkland: John [Probationer 1889, Student 1892]; 6, Aldebert Terrace, Albert Square, S.W.

Knight: Edward Frost [Probationer 1896, Student 1897]; North Bank, Oakleigh Park, N.

Mager: Ernest Jesse [Probationer 1894, Student 1895]; 28, Carlton Road, Tufnell Park, N.

Pearson: Harry Dighton [Probationer 1890, Student 1891]; St. Arvan's Teddington.

Phillips: John Henry Arthur [Probationer 1894, Student 1896]; 110, Cheapside, E.C.

Reavell: George, jun.; Alnwick.

Scott: William Alphonsus [Probationer 1889, Student 1895]; 16, William Street, Drogheda.

Steadman: Vincent [Probationer 1892, Student 1894]; Gifford House, Alma Road, Clifton, Bristol.

Tanner: Henry, jun. [Probationer 1895, Student 1896]; Rothbury, Brackley Road, Beckenham.

Triggs: Harry Inigo [Probationer 1892, Student 1898]; Stafford House, Chiswick, W.

Wager: Jasper; 2, Vanbrugh Hill, Blackheath, S.E.

Watson: Arthur Maryon, B.A. Lond. [Probationer 1889, Student 1894]; 9, Nottingham Place, W.

Views and Reviews.

HARROGATE.

The well-known Yorkshire Spa is not overpraised in two illustrated accounts of its attractions as a health-resort, which the Corporation has just issued. Harrogate, of course, is known to the world chiefly on account of its baths and waters, but the town has also the advantage of being situate within negotiable distance of several places and objects of antiquarian interest. Aldborough, which had some sort of an existence in Roman times, and which now boasts, as relics of its dusty antiquity, tessellated pavements and other Roman curiosities, is not a dozen miles away, and has, as a near neighbour, the town of Boroughbridge, which is interesting to the antiquary and historian chiefly from its connection with Aldborough. Abbeys and halls, castles and crags abound around Harrogate, rendering the town to the architect and antiquary a desirable headquarter for an enjoyable holiday.

"Harrogate as a Health Resort." "An illustrated account of Harrogate, its baths, waters, and environs." Both booklets are published by the Corporation.

MR. HUBERT HERKOMER has given at Florence a studio reception, at which the guests admired the latest paintings of the great artist.

THE DUKE OF NORFOLK has opened the new buildings of the Brighton, Hove, and Sussex Throat and Ear Hospital, a large and lofty square block on Church Hill immediately north of the parish church, and having a clear outlook over the town and the sea. The cost has been about £6000.

By permission of the Marquess and Marchioness of Downshire, a private view was held last week at Downshire House, Belgrave Square of a collection of pictures by Spanish artists, to be sold in connection with a bazaar there in aid of the Spanish wounded and the widows and orphans created by the late war with America. The pictures are some sixty in number, and include works by the best artists of Spain. Included in the exhibition is a pencil study of a head by Mr. Alma Tadema, R.A., which is priced at £63, and "Spanish Dancers," by Mr. J. Sargent, R.A., figured at £600. The original study for the "Secretos de Amor" of Garcia Mencia is hung, as well as a very fine piece of work, "Head of a Girl" by Madrazo, for which £150 is asked. This painting is unfinished, and bears a pencil note and the signature of the artist.

Professional Items.

CONSETT.—The foundation stone of a technical institute has been laid. The estimated cost of the buildings, including the site, furniture, fittings, &c., is about £5000. The contract has been let to Messrs. John Marshall and Sons, of Hawick. The Institute will occupy an eminently suitable site at the north end of the town, facing on to Park Road, one of the chief thoroughfares. The general design of the building is a plain treatment of Renaissance character. The exterior walls are faced with deep red pressed brick and Prudham stone dressings. The principal entrance has a deeply-recessed arched doorway, forming the chief feature in the façade, and leads through a vestibule with handsome stained glass screen into the entrance hall, from which direct access is obtained to the whole of the ground floor rooms. The second floor, which has been specially designed with the view of being adapted for use as Art room, with store room, cloak room, &c., in the future, will be at first utilised as caretaker's apartments.

DUNFERMLINE.—A company was recently formed in Dunfermline with a capital of £5000 for the purpose of erecting a lodging-house in the city. An admirable site has been procured at the corner of Chapel Street and Bruce Street, and a building is to be erected at a cost, including the site, of £4200. The building will accommodate 141 people. Special accommodation is to be provided for females and young children. The architect is Mr. MacLennan, Dunfermline.

GLASGOW.—Messrs. Stewart and M'Donald's new premises, Buchanan Street, Argyll Street, and Mitchell Street, have raised some discussion in consequence of the site on which they are to be erected, standing out prominently in Buchanan Street. The citizens of Glasgow have for years been looking forward to the possibility of Buchanan Street being widened by the setting back of the frontage line at the south end. But this corner happens to be the most valuable one in Glasgow, and has been valued at £130 per yard. There is also the difficulty of the present buildings not being large enough for the business occupying them, the consequence being that the firm had some years ago been compelled to extend into buildings on the west side of Mitchell Street. However, we are informed that the proprietors are willing to sacrifice the portion projecting beyond the adjoining line of Buchanan Street at its value. The architect of the proposed buildings is Mr. Horatio K. Bromhead, A.R.I.B.A. The entire front to Argyll Street is to be taken down and rebuilt fireproof. The wholesale entrance will then be in the centre of the Argyll Street front, and will at once lead to the principal staircase, which will be supplied with two passenger hoists, both communicating with every story of the premises. The additional stories of the new building, with the new stories now being added to the Mitchell Street buildings, will ultimately make a very large increase to the space now occupied by Messrs. Stewart and M'Donald. The new roofs are to be flat and also fireproof, and, when they are supplied with hose pipes, will be able to exercise a very important influence upon any fire, if such were to occur within the range of their commanding position.

LEEDS.—A new Wesleyan church has been opened in Burley. The new church is situated in Cardigan Lane. The premises have been designed by Mr. G. F. Danby, architect, of Leeds, whose design was selected in a limited competition. They comprise a chapel, school room, infants' room, church parlour, ministers' room, and twelve class rooms. The school room and class rooms, which are to have communication with the church, are not yet built, but land is reserved for the same. The style of Architecture adopted is Decorated Gothic. The church is built of stone lined with brick, whilst all the internal woodwork is of pitch pine. The principal doorway has granite

columns with carved capitals and moulded arches, terminating in a gable. Over this is a re-light traceried window. At the south-east corner a handsome tower and spire rise to the height of 110ft. Inside the tower is a stone staircase leading to the gallery, which has three entrances. The chapel is 84ft. long, 18ft. across the nave, and 57ft. across the transepts. There is seating accommodation for 480 persons on the ground floor and 320 in the gallery. The chancel is separated from the chapel by a moulded arch supported on granite columns, with bases and caps of Caen stone richly carved. The chancel is lighted by a circular traceried window, whilst two-girt traceried windows light the transepts. The open-timbered roof rises to a height of 11ft. The premises are heated by the low-pressure hot-water system. Fresh air is admitted to the chapel and various rooms by air-vents and ventilating radiators, the foul air being carried away by roof ventilators and flues. The cost, including site for schools, is £6590, towards which £3800 had been raised previous to the opening services. The work has been carried out by C. Myres, masonry; J. Ledgerd and Son, joiners' work; H. Boston, lumber; Atkinson and Son, slaters; Holmes and Co., warming; and J. F. Ebner, the mosaic tiling.

LUTON.—The Grand Theatre at Luton was opened to the public on Monday. The building has been designed on the latest modern principles. It is a two-tier house constructed on the cantilever system, and there are only two columns upon the pit level and upper circle level to in any way obstruct the view. The whole of the floors are of concrete. There is seating accommodation for about 1000 persons, and standing accommodation for about 50 persons in addition. The proscenium opening is 24ft. by 24ft., and the stage has a total depth of 30ft., with an extreme width of 6ft., with an additional area of 5ft. by 15ft. on the prompt side. The proscenium opening is fitted with a fire-resisting curtain, and the stage with all latest improvements, and with its mechanical appliances is quite up-to-date with the latest requirements. Provision has been made for ten dressing-rooms and a band-room, with all necessary conveniences. Three refreshment bars have been provided, together with all necessary cloak-room and lavatory accommodation. Upon the pit level there are no less than thirteen entrances and exits, including two to the dressing-rooms in case of fire, so that the house could be emptied in a very short space of time, and ample provision has been made for exit staircases. The main entrance will be paved with marble mosaic. The exterior is faced with grey Luton bricks, relieved with quoins and dressings of red bricks, and St. Aldhelm box ground stone for cornice strings, bands, etc., the ornamental detail being carried out entirely in stone; and the exterior has a pleasing effect. The whole of the work has been designed and carried out under the superintendence of Mr. Charles Herbert Shoppee, F.R.I.B.A., of 22, John Street, Bedford Row, London, while the contractor is Mr. W. G. Dunham.

NEWTON ABBOT'S.—At Newton Abbot's a new hospital has just been opened. In the new building twenty-seven patients can be accommodated without any strain on the resources of the hospital. In the new hospital drainage and everything has been carried out in the most perfect manner. The building is about 200ft. long and 48ft. in width. There are two large wards at either end, beautifully lighted. The private wards, board-room, surgery, operating room, &c., are in the centre. Special attention has been devoted to the operating room. Nurses' rooms are on the first floor, an accident room is at the rear, for cases that require only temporary attention, and a separate building is devoted to the out-patient department. Mr. S. Segar, of Newton Abbot, was the architect, and Mr. H. Mills the builder. The furnishing of the hospital, as yet only half complete. A broad winding roadway leads up from East-street to the hospital, close by the severely plain old Baptist chapel, erected in 1697. The cost was £6000.

Under Discussion.

THE EARLY RENAISSANCE SCULPTORS.

At the Leeds School of Art a lecture was recently given by Mr. W. H. Thorp, F.R.I.B.A., on "Early Renaissance Sculptors and Their Work." The lecturer, in his opening remarks, enumerated the early fifteenth century Florentine sculptors, specially mentioning Ghiberti, Donatello, Luca and Andrea della Robbia, Bernardo and Antonio Rossellino, Desiderio da Settignano, and Mino da Fiesoli. A brief sketch was then given of the three great schools of sculpture, the Greek of the time of Pericles, the Early Italian Renaissance of the fifteenth century (treated in the lecture), and the later or culminating period of the Renaissance. The year 1400 was notable in the annals of Art as being the date of the celebrated competition for the Baptistry doors at Florence between Branelleschi and Ghiberti. With the advent of these two artists, sculpture gradually emerged from its mediæval manner, and while retaining much of the devotional and mystical spirit which characterises the earlier work of the period, it burst the bonds of middle age tradition. There was a closer approach to Nature to be observed, a greater sense of proportion, and a feeling of refinement and subtlety which appeared to blend the best elements of Greek Art with the spiritual inwardness which was so marked a feature of early Italian artistic work. The sculpture of this epoch, although in a state of development which culminated in the work of Michael Angelo, was, notwithstanding, in itself perfect within certain limitations. Its perfection lay chiefly in its bas-relief—a system of low relief being relied on by the artists to express their creations in marble, bronze, or terra-cotta. The delicate kind of relief, called by the Italians "Staccato," in which the form often looked drawn rather than chiselled, was excelled in chiefly by Donatello, whose Santa Cecilia might be pointed out as a typical example of this treatment. This element of evanescence and delicate refinement was common also to the statues and effigies which formed so prominent a feature of the tombs met with in the churches of Florence.

R.I.B.A. ELECTIONS.

At a business meeting of the Royal Institute of British Architects, Prof. G. Aitchison in the chair, held on Monday, December 5th, the elections were made:—Fellows: Robert Lockhart McCowat, of Johannesburg; William White Cooper, M.A., Diocesan Architect of Grahamstown, Cape Colony; Henry Thomas Hare (A), Ashpitel Prizeman, 1886, of London; William Henry Duffield (A), of London. Associates: John Cecil Baines, London; Christopher William Surrey, London; Albert Herbert, Leicester; Louis Moore, Woolston, Southampton; Percival Cherry Blow, St. Albans; James Stockdale Harrison, Leicester; Miss Ethel Mary Charles, London; Arthur Reutlinger Gough, Redland; Charles Ridley, Wellingborough; Victor Evans Bisher, St. Leonards-on-Sea; Robert Walter Carden, London; Arthur William Vercos, Lee, S.E.; Alexander Cowie, London; Gerald McMichael, Birmingham. Hon. Associate: Sir Alexander Binnie.

DURHAM CATHEDRAL.

The members of the Northern Architectural Association, at their last meeting, heard a lecture by the Rev. Canon Savage, of South Shields. The subject was Durham Cathedral. The substance of the lecture was not a technical discourse on Architecture, but an historical sketch of the growth of the magnificent cathedral. Canon Savage's introductory remarks were especially interesting. He pointed out that the cathedral was not dumped down on the hill on which it stands, but that it was the outcome of a long heritage of spiritual life—a heritage that began with Iona, and that was developed at Lindisfarne till, within a short period afterwards, the whole of Northumbria became an organised diocese.

In that diocese at first the structures were extremely simple. The huts that were built on Holy Island were, no doubt, after the pattern of the huts some of which still remain in the West of Ireland. For some years wooden buildings only were erected, and then came the introduction of stone buildings by Benedict Biscop, with his Gallic masons, the first stone building being at Monkwearmouth, to be followed shortly afterwards by Jarrow. The Saxon churches had a totally different ground plan from the churches of the Augustine mission in Kent. Those in the North had the nave built in the form of two cubes, with a square presbytery, while those with a round presbytery were found only in the churches of the Gregorian mission. There were many indications of the passing from wood to stone.

SCOTCH GARDENS.

Mr. R. S. Lorimer read a paper before the Edinburgh Architectural Society on the 30th ult. Mr. W. Nicholson Cumming was in the chair. The subject was "Scotch Gardens," and in opening Mr. Lorimer dwelt on the privacy and seclusion of the garden, as a place removed from worldly worry, where one's fancy may blossom with the flowers. Of history there was little to tell beyond reminiscences of the days of Queen Mary, when French influence may be said to have created the taste for the formal pleasure ground. The special charm of Scotch gardens is difficult to describe, but Mr. Lorimer successfully carried his audience through a quaint "plaisance" of old yew hedges, cropped terraces, sun dials, and gay borders. Broad principles were then laid down on such matters as avenues, vistas, the shading off of formality as the park is approached, and Garden Architecture. Mr. Lorimer then showed a number of delightful views from such famous gardens as Balcaskie, Edgell, Wemyss, and Hatton. A hearty vote of thanks was accorded to the lecturer.

MODERN METHODS OF TREATING SEWAGE.

Any observations that Dr. A. Bostock Hill may have to make on the treatment of sewage are certain to be listened to with interest by members of the Institution of Civil Engineers, who heard an address the other day by Dr. Hill on the subject of "Sewage and modern methods of treatment."—Dr. Hill at the outset showed how sewage varied according to the construction of the sewers—whether they were old or modern, whether they received the storm water, or whether they were constructed on the separate system, or whether they received much manufacturing refuse. The variations in quantity also depended largely upon whether the sewage received the storm water. He submitted several analyses of sewage, and then proceeded to deal with his subject historically. He pointed out how the question of the treatment of sewage became important from the time of the appointment of the Rivers Pollution Commission, and went on to show how the old views with reference to the chemical treatment of sewage were false both in theory and practice, and were only maintained in places into which the more advanced views had not penetrated. He dealt at some length with the disposal of sewage by the modern bacteriological methods, affirming that any system which was opposed to the principle on which the bacteria which produced resolution of the sewage depended was false, and must fail. He asserted that one of the main reasons for the failure of purification at Saltley Sewage Farm was the flooding of the land, thus preventing the access of air to the bacteria. Without air, of course, the bacteria died, and without them no purification of the sewage could take place.

THE ARCHBISHOP OF YORK has dedicated the new day schools which have been erected in Royal Avenue Road, Scarborough, in connection with the Church of St. Martin's-on-the-Hill in that town.

TENDERS.

Information from accredited sources should be sent to "The Editor." No results of tenders can be accepted unless they contain the name of the Architect or Surveyor for the Work.

BROMLEY (Kent).—For additions, &c., to hospital, Skym Corner, for the Bromley and Beckenham Joint Hospital Board. Mr. John Ladds, architect, 7, Doughty-street, London, W.C. Quantities by Mr. Alfred Boxall, 8, Adam-street, Adelphi, W.C. :—
 B.J. White & Sons £7,723 18 3 R. A. Lowe... £6,723 0 0
 Wallis and Sons 7,393 0 0 L. Evans ... 6,711 0 0
 The General Pryer and Co. ... 6,707 8 0
 Builders... 7,370 0 0 T.D. Grady, Brom-
 Hutchings ... 6,921 0 0 ley* ... 6,299 0 0
 Potter Bros. ... 6,886 11 0

* Accepted.

CHISWICK, W.—Accepted for the erection and completion of eight detached villas, Spencer-road, Grove Park, W. Messrs. Falgrave and Co., architects, 28, Victoria-street, S.W. :—

Joseph Bennett, John-street, W. ... £8,500
CLIFDEN (Ireland).—For the extension of infirmary, sewerage, &c., for the Union Guardians. Mr. Jas. Perry, County Surveyor, Galway :—

William Baird (Drainage £227, plumbing £169, cooking £211.) ... £608 11 6
 Thomas and Taylor (Cooking and washing troughs only.) ... 198 10 0
 Maguire and Gatehell (Cooking and laundry £241, drains and plumbing £322.) ... 563 0 0
 T. W. Little, Dublin* (Drains £189, cooking, laundry, plumbing, &c., £356.) ... 545 0 0
 Thomas McWilliams (Drains, plumbing.) ... 360 0 0
 Thos. McWilliams, Clifton* (Building alterations.) ... 495 0 6

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Geoffrey Emerson ... 920 0 0
 (For all the work specified.)

T. W. Little... 1,070 0 0
 (For all the work.)
 * Accepted

DARTFORD HEATH.—For the erection of twelve cottages at Dartford Heath, Kent. Mr. St. Pierre Harris, architect and surveyor, 8, Ironmonger-lane, E.C., and Orpington, Kent :—
 Rider and Son ... £4,096 T. Knight ... £3,880
 Stebbings and Pannett 3,938 J. Lonsdale ... 3,812

DRUMMUIR, N.B.—For building public hall. Robert B. Pratt, architect, Elgin :—

Masonry.—Davidson, Huntly ...
 Carpentry.—Archibald, Huntly ...
 Plumbing.—Ross Bros., Dufftown ...
 Slating.—Forsyth, Keith ... £915
 Plastering.—McKay, Keith ...
 Painting.—Garden and Ward, Dufftown ...
 Heating.—McKenzie & Moncur, Edinburgh

LONDON.—For fittings to shop, Upton-lane, Forest-gate, E. Mr. Herbert Riches, architect, 3, Crooked-lane, King William-street, London, E.C. :—
 Parnell & Sons, Ltd. ... £344 A. Webb* ... £244
 A. B. Hill ... 255

* Accepted.

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LONDON.—Accepted for erecting twenty suites of flats, in road, Kensington, for Mr. H. B. McGabe. Mr. E. J. Jey, architect, 50, Lincoln's Inn-fields:—
W. Smith, Chamberwell £15,550
LONDON.—For enlargement of Block D, Telegraph
Jey, Mount Pleasant, E.C., for the Commissioners of
Public Works and Buildings:—
J. Lorden and Son ... £13,517 B. E. Nightingale ... £11,867
J. L. Sherwin ... 12,894 R. W. Pattinson & Sons 11,399
J. Yerbury & Sons 12,489 Arthur E. Wilson, 1,
hessum and Sons 12,283 The Pavement, North-
wood, Middlesex* ... 11,100
* Accepted.

LONDON.—For the erection of billiard-room at the
ng's Head, London, E. Mr. Herbert Riches, architect,
cooked-lane, King William-street, London, E.C. Quan-
s supplied:—
J. L. Webb ... £1,465 A. Webb ... £1,375
J. L. Webb ... 1,398 T. Osborn and Sons* ... 1,346
J. L. Webb ... 1,390 P. Hart ... 1,277
* Accepted, shortest time.

LONDON.—For extension of premises, Powis-street
which, for Messrs. Garrett and Co., Ltd. Messrs.
rch, Quick, and Whincop, architects, Woolwich:—
J. L. Webb ... £4,126 H. L. Holloway ... £3,832
J. L. Webb ... 3,830 Chapman ... 3,815
J. L. Webb ... 3,833 Thomas and Edge* ... 3,794
* Accepted.

LONDON.—For additions and alterations at "The Green
1," East Ham, E. Mr. Herbert Riches, architect, 3,
ked-lane, King William-street, London, E.C. Quanti-
supplied:—
J. L. Webb ... £3,075 T. Osborn and Sons ... £2,960
J. L. Webb ... 3,050 P. Hart ... 2,848
J. L. Webb ... 2,978 Sheffield Bros. ... 2,785
* Accepted.

LOSSIEMOUTH.—For building a dining-hall, &c.,
Lossiemouth, N.B. Mr. E. B. Pratt, architect, Elgin:—
Masonry.—McPherson, Elgin
Carpentry.—Ritchie and Son, Lossiemouth...
Plumbing.—Gordon and Son, Elgin ...
Plastering.—Gray, Elgin ... £1,007
Glazing.—Murray, Lossiemouth...
Painting.—Forsyth, Elgin ...
Ironwork.—Johnston and Co., Elgin ...

MANSFIELD.—For proposed eight cottages off Rose-
mary-lane, Mansfield, for the Mansfield Co-operative
Society, Limited. Messrs. Vallance and Westwick, archi-
tects, Mansfield:—
Brassford and Son ... £2,650 Vallance and Blyth
J. Greenwood ... 2,583 Mansfield* ... £2,120
Gilbert & Gabbittas ... 2,450
* Accepted—subject to deductions.

MANSFIELD.—For proposed two houses, Portland-
street, Mansfield, for Mr. G. A. Fish. Plans, specifications,
and bill of quantities by Messrs. Vallance and Westwick,
architects, Mansfield:—
H. Vickers ... £2,171 0 0 J. Greenwood ... £2,043 0 0
Gilbert & Gabbittas ... 2,124 0 0 Fischer Bros. ...
J. H. Vickers, Ltd. 2,108 11 2 Mansfield* ... 1,850 0 0
* Accepted—subject to deductions.

MANSFIELD.—For sewerage, levelling, metalling, kerb-
ing, &c., Quarry-lane, Mansfield, for the Mansfield Corpora-
tion; from drawings and specification prepared by Mr. R.
Frank Vallance-C.E., Borough Surveyor:—
J. F. Price ... £1,565 0 0 J. Lane and Son ... £1,326 0 0
J. Greenwood ... 1,494 0 0 J. Bradley ... 1,321 10 10
J. Hawley & Son 1,373 0 0 Fisher Bros. ... 1,278 0 0
J. Ford ... 1,369 1 3 W. A. Vallance, ...
J. Tomlinson ... 1,268 10 9 Mansfield* ... 1,240 0 0
* Accepted.

MARYPORT.—Accepted for rebuilding the "Victoria

Vaults and Royal Oak" Inn, for the Brewery Company,
Limited. Mr. C. Eaglesfield, architect, Maryport:—
Building.—W. Marshall ...
Joinery.—J. Kendall ...
Slating.—T. Mandle ...
Plastering.—T. Kirk ... £2,500
Plumbing.—E. Graham ...
Painting and Glazing.—J. Gordon ...
[All of Maryport.]

MUNDESEY (Norfolk).—For proposed new Grand
Hotel. Mr. H. J. Green, architect, 31, Castle Meadow, Nor-
wich:—
F. Bennett ... £12,150 0 J. Harn ... £10,036 10
J. S. Smith ... 10,716 0 Kerridge and Shaw 9,989 0
J. Youngs and Sons 10,660 0 Cornish & Gaymer,
G. Riches ... 10,591 0 North Walsham* 9,600 3
J. W. Collins ... 10,525 0 * Accepted.

SHOREHAM.—For the erection of a private residence
and stables at Shoreham, Kent. Mr. St. Pierre Harris,
architect and surveyor, 8, Ironmonger-lane, E.C., and
Orpington, Kent:—
Hanscomb and Smith £2,210 Somerford and Son ... £2,053
J. Lonsdale ... 2,126 Wiltshire and Son ... 2,024

WINCHESTER.—For erecting a house at Winchester,
for Colonel Dickens. Messrs. Cancellor and Hill, archi-
tects, 12, Jewry-street, Winchester:—
Carter and Sons ... £2,248 Waters ... £2,137
Thompson ... 2,246 Jobbins ... 2,090
Fielder ... 2,178

WOODEFORD.—For erection of pair of villas at South
Woodford, Essex. Mr. Herbert Riches, architect, 3, Crooked-
lane, King William-street, London, E.C.:—
T. Osborn and Sons (accepted) ... £1,050

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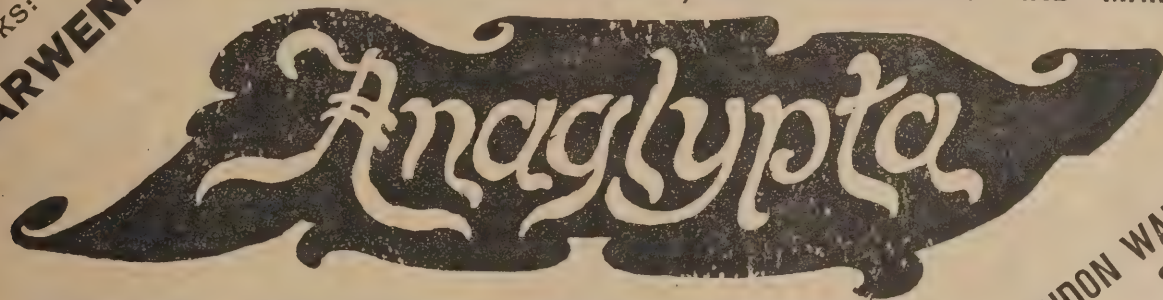
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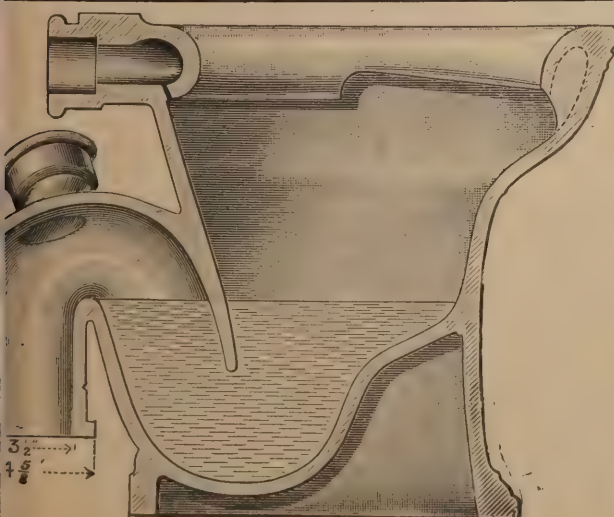
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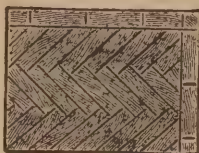
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BACTERIAL TREATMENT OF SEWAGE.*

By GEORGE THUDICHUM, F.C.S.

ON the last occasion upon which the author had the honour of reading a paper before the Society, he dealt with the principles involved in the successful biological treatment of sewage effluents, more particularly as deduced from the results obtained from the one-acre filter bed at the Northern Outfall at Barking Creek. At the same time he hinted at the advance then being made by the local authorities at Sutton, Surrey, viz., the direct treatment of the actual sewage by the same agencies, but under conditions, as regards bed material chiefly, necessarily somewhat altered. The progress in this direction has since that time been remarkable, and very many authorities, all over the kingdom, have followed in the footsteps of the Sutton Council by adopting their method in its entirety. It is not the intention of the author, on the present occasion to deal with the question from

ITS SCIENTIFIC OR THEORETICAL ASPECT; this has lately been fully discussed upon many occasions. It is rather sought to bring before the notice of the members of the society the practical outcome of a large amount of experimental work, and to show how the system can be adapted to meet local requirements in various cases; it being now evident that the general principal of biological treatment, in one form or another, is acknowledged by the majority of those practically concerned in the disposal of waste matters. The author has also no intention of entering into matters of history, claims as to priority of ideas, or even as to the relative merits of the various schemes suggested, except with regard to those two systems which are at present most prominently before the public. During the last eighteen months the author, together with his partner, Mr. W. J. Dibdin, formerly chief of the chemical and gas department of the London County Council, has had numerous opportunities of applying in practice the principles learned during many years of experiment; and it is the general result of such practical experience, illustrated

BY CERTAIN CONCRETE EXAMPLES,

that he now proposes to lay before the Society. In addition to dealing with this matter as applied to larger communities, he also proposes to discuss the question of the treatment of the sewage of isolated country houses, workhouses, schools, asylums or other public institutions; a question which, more especially latterly, has become of the greatest importance. In attempting to apply the biological method to the treatment of the sewage of any given place, three questions of paramount importance have to be considered; these are (1) the available fall; (2) the nature of the soil; and (3) the possibility of the sewage containing ingredients which are hostile to microbial life. The first two questions, those of fall and nature of soil, will in great measure determine, according to the author's views, the method to be adopted in the particular case. In gravitation schemes in which the sewage is delivered at less than 4ft. above the point at which it must be finally discharged, it would appear that the septic or Exeter method possesses some advantages, in that a fall is required into and out of one set of bacteria beds only, no head being lost by passage through the septic tank in which the preliminary solution of the solid matter is effected. It must be understood that in discussing arguments of this kind the author is not siding with the septic tank against the Sutton, nor with the Sutton against the septic tank system. He desires merely to point out what are the particular advantages of either according to the local conditions, and the final results produced by either process are in all respects comparable. If the sewage be naturally delivered at a point very near the level of the final outfall it must then be quite evident that

a system requiring a fall through one bacteria bed only has an advantage from an economic point of view over a scheme which necessitates a fall through two beds. If, however, the sewage must in any case be pumped, or is delivered by gravitation at a height above the outfall sufficient to allow of the interposition of two sets of bacteria beds, it then becomes a matter for consideration as to which of the two should be adopted; and the decision, it appears likely, will usually be arrived at from economic reasons mainly, if not entirely. The extent of fine-grain bed to be provided will be the same in either case; the difference, therefore, so far as the first cost is concerned, will be the

DIFFERENCE BETWEEN THE COST

of a coarse-grain bacteria bed and of a septic tank. Where the soil is light and porous, so that all tanks and beds must be built of brick-work on concrete bottoms, it is possible that such difference may be extremely small, since the extra cost of covering the septic tank will be compensated by its being of smaller cubic contents than bacteria beds to do the same work, and by its requiring no bed material. Where, however, the nature of the soil is such as to permit of the construction of bacteria beds in the open ground, merely puddling the bottom and sides, the advantage from a pecuniary point of view is entirely with the system adopted at Sutton. On suitable land, such as the heavy clay at Sutton itself, bacteria beds can be made by merely excavating, burning the soil, laying drains on the bottom, and returning the burnt ballast; and this has actually been done at a cost, for a bed 3ft. in depth, of 4d. per foot super, or £726 per acre. In places where the bacteria beds must be erected above the ground level, but where clay is readily obtainable, such beds can be prepared at a relatively small cost; and in these instances also the

FIRST INSTALLATION WILL COST LESS

on the Sutton than on the septic system. With regard to the third point, that of the sewage possibly containing matters hostile to the growth of microbes, the author has found, as a matter of experience, that the majority of trade effluents, especially if diluted with a reasonable proportion of ordinary domestic sewage, will yield to the influence of either aerobic or anaerobic organisms. In a joint paper by Mr. Dibdin and the author, read before the Society of Chemical Industry in April, 1897, this question was specially discussed; and it was shown that bacterial treatment was applicable to sewage containing considerable quantities of refuse liquors from many trades, including, as in the case of Leeds, effluents from tanneries, galvanising works, copper works (wet process), and the solid matters from shoddy; in the case of Maidstone, from tanneries and breweries; at West Bromwich, pickle liquor from galvanising works; at Yeovil, from the yards of fell-mongers and leather dressers; and in various instances in which the sewage to be treated was highly charged with refuse from gas-works, margarine factories, dairies, and distilleries. Taken as a whole, the experience of the last two years goes to prove that in the large majority of cases the manufacturing refuse which may be present in the sewage does not prevent the application of the

PRINCIPLES OF BIOLOGICAL TREATMENT

throughout; whilst in cases in which preliminary precipitation or other treatment is necessary, the final purification can be best effected by means of the fine bacteria bed, as described by the author in his paper read before the Society in 1896. Turning to a concrete example of the advantages possessed by a bacterial process as compared with chemical precipitation and land treatment, the author would point to the Worcester Park outfall works of the Cheam and Cuddington Council, in the area administered by the Epsom Rural District Council. This is one of those cases, alluded to by the author in his previous communication, in which the successful working of the farm is rendered practically impossible by the very nature of the soil, which is a heavy clay, waterlogged in wet seasons, and

in dry ones full of cracks which admit of the direct passage of the sewage effluent to the underdrains, whence it escapes, unpurified, into the brook. But it is just in such a soil that aerobic bacterial treatment can be adopted in the most economical manner possible. The daily quantity of sewage delivered at the Worcester Park Farm is about 80,000 gallons, the high-level sewage containing considerable quantities of brewery refuse, the low-level being ordinary domestic sewage. The high-level delivers by gravitation near the highest point of the farm, whilst the low-level, entering at the bottom, is pumped to precipitation tanks about the centre of the area. Two small artificial filters were also provided. The effluent produced was very bad, and the general condition of the farm unsatisfactory. It was accordingly determined to establish coarse and fine bacteria beds on the Sutton method; both sets, since the fall was sufficient, to be excavated; and the bed material to be burnt ballast obtained on the farm itself. Pending the carrying out of these alterations, it was necessary to deal by some temporary means with the high-level sewage, which was responsible for the larger proportion of the effluent complained of. The method adopted for effecting this purpose is highly instructive, as showing the

IDENTITY OF LAND TREATMENT

with so-called bacterial treatment, and at the same time demonstrating the reason for the superiority of the artificial over the natural method of rendering microbial life available for this purpose. A plot of land of about an acre in area having been selected, the main effluent drain was locked, and the sewage (which in order to reach the highest portion had to be backed up in the outfall sewer) was allowed to flow on to the land until no more could be received; in fact, the whole plot was considered and treated as a Sutton bacteria bed. This operation occupied about three days. At the expiration of this period the damming of the outfall sewer was stopped, and the sewage allowed to flow freely for a short time into the precipitation tanks, in order to remove any accumulation of sludge from the sewer; the backing up was repeated, and the sewage diverted on to a second plot treated in a similar manner to the first. The valve locking the latter was opened, and the water gradually discharged from the plot. The work was continued in this way, using the plots alternately, and the result was a remarkable

IMPROVEMENT IN THE QUALITY OF THE EFFLUENT.

That which before was black and stinking was clear and had only a slight sewage odour, analysis bearing out the conclusions arrived at from inspection by sight and smell. Such an operation must of course not be looked upon as a typical bacterial treatment. The time occupied in filling the bed and consequently the period during which the organisms are submerged is far too long; whilst the bed material is so fine that the re-entry of air is necessarily imperfect, and choking of the surface by the suspended matters in the raw sewage would take place probably at an early date. But as an object lesson it is worthy of the most careful consideration. By compelling the intimate contact of the sewage matters with the purifying bacteria, and by ensuring that such contact should be of some duration, work was effected, which under the original conditions was impossible. The

ACTION OF THE ORGANISMS

existing in the soil was controlled, as in an artificial bed; and the desired result was arrived at with practically no expenditure whatever. But, as just pointed out, such a method, however admirable as a temporary expedient, could not be looked on as a radical cure; since the fineness of the bed material and its softness would infallibly cause a break down in the course of time. The bed material must be of a size sufficient to admit the passage, in the case of the coarse beds, of the suspended particles in the sewage; and in both sets of beds of the free admission of atmospheric air as the water is withdrawn. It must also be of a more or less hard and resistant nature in

* A paper read before the Society of Engineers on Dec. 5th, 1898.

order that it may retain its original size and shape, and not break down into a mud. To provide, therefore, for the

PERMANENT TREATMENT OF THE SEWAGE

coarse-grain beds, having a united area of 4500 superficial feet and a depth of 3ft., were designed, the bed material to be burnt ballast, the whole of which had been rejected by a screen having a half-inch mesh; and a similar number of fine beds, with a united area of 4950 superficial feet and a depth of 3ft., the bed material being also burnt ballast, but in this case of a size which would pass a screen having a half-inch mesh, the fine dust only being rejected. The beds were constructed by excavating, puddling the bottoms and sides, and laying agricultural drains on the bottom, leading to an outlet controlled by a valve. The cost of the beds, to deal with a dry weather flow of 80,000 gallons daily, amounts to £325 only. The result of the work is what was anticipated, namely, the production of a perfectly satisfactory effluent. A similar method will be found generally applicable on a large number of sewage farms which are at present yielding unsatisfactory results, and it is this facility that constitutes one great advantage of the Sutton system. Existing precipitation tanks can be utilised, in small part as sand traps, in the greater part as coarse beds, being converted into the latter by the simplest form of drainage being laid on the floors, and by being then filled with burnt ballast, coke, or whatever material can be readily provided in the neighbourhood. Fine beds can then be constructed as indicated, and the effluent from these can be

PASSED ON TO THE LAND

when desired, or may be discharged directly into a watercourse when the condition of the crops or the soil renders irrigation useless or harmful. The immediate benefits derived from such a conversion of the method of treatment are well marked; the use of chemicals is abandoned, saving cost of both materials and labour. The collection and subsequent treatment of sludge is abolished, since there is no sludge, merely a small quantity of rags, paper, and similar matters collected by the screens, and amounting in ordinary cases to about thirty barrow loads per million gallons, the sludge item also making a marked difference in the working cost. There is at no time danger of nuisance arising from the works, such as is necessarily the case when sludge has to be dealt with and an effluent liable to secondary putrefactive decomposition is spread over the land; and, lastly, the crops can receive the full benefits of the manurial constituents of the sewage at such times as irrigation is wise or needful, without being drowned, and compelled to grow in sodden soil by its being always necessary to pass the effluent through the land. The Sutton works themselves form a typical instance of the advantage of conversion. By the time the alterations are completed, the whole cost will have been less than £2000, whilst the annual saving in working expenses already or to be effected amounts to no less than £500, or about 8d. per head of population.

(To be continued.)

MR. WALTER A. DUCAT, an inspector of the Local Government Board, opened a public inquiry at Milnthorpe, in relation to a new sewerage scheme promoted by the Rural District Council of South Westmoreland, who have applied to the Local Government Board for sanction to borrow £1250 to carry out the project.

The Finance Committee of the Whitechapel District Board have brought up a report in which they recommend that the Board shall make application to the London County Council for the borrowing of £25,000 for the purchase of a site as a generating station in Osborne Street, Whitechapel. This property is adjacent to the Board's destructor premises, and they hope to utilize the waste heat for the generation of the current. Among the streets to be first lighted will be the Whitechapel Road, Lemon Street, Commercial Road, and Commercial Street.

Surveying and Sanitary Notes.

At an important meeting of the Waterworks Committee of the Llanelli Borough Council it was decided to push forward the construction of a second storage reservoir, arrangements having been made with all the landowners for the purchase of the necessary land, with one exception. The proposed reservoir will be constructed above the present one at Cwmlledi, and will have a capacity of 180 million gallons. The plans were produced and approved, and the account of the arbitrator, amounting to 120 guineas, was ordered to be paid in full. It was further decided to instruct the Finance Committee to arrange for a loan for the money required.

GIBRALTAR can now boast of a system of drainage second to none in our Colonies. The advantages of a really effective sewerage scheme cannot be over-estimated in a fortress like this, where a large garrison of soldiers and sailors, whose health is of prime importance, is stationed. The new sewer has involved an immense amount of labour and skill during the two years or so of its construction. It is of solid concrete and high enough for a man to walk erect through its entire length of two miles from the north end of the town to the southern outlet at Europa Point, where all the matter is carried away into the waters of the Mediterranean. The pumping engines and machinery are fine specimens of British handiwork from the firms of Crossley (Manchester) and Schonn (London) respectively, and are situated at the north end of the garrison. By means of a tank of large capacity, fitted with flood gates, some hundreds of tons of water are discharged with tremendous force through the sewer at each flushing, which is carried to the sea outlet in five minutes. It now remains for the Sanitary Commissioners to see that the catch-pits and connections from the houses to the sewer are kept clean, and then, doubtless, all the bad odours for which "Gib." has been noted in past years in her streets will be a thing of the past, together with the periodical outbreaks of fever that must have increased the death-rate, which should be very low in such a mild climate. The attractiveness of the place will sure to be increased as a health resort thereby.

THE Royal Commission on the London water question sat again on Tuesday of last week, Lord Llandaff in the chair, Mr. Middleton, C.E., was again under examination. The rainfall was, he said, much more in the Welsh area, from which it was proposed to take water for the supply of London, than it was in the Thames district; but, on the other hand, the watershed in the Thames area was greater than that of the Welsh. It was his opinion that the Welsh scheme would not be profitable for a very long time to come, as the initial outlay would be so very great. He was of opinion that the Thames scheme would become profitable in a very much shorter period.—A Commissioner pointed out that the witness had the previous day stated that some time or another it would probably be necessary to go to Wales for water.—Witness replied that he had put that at a great many years hence. London would have to be a city never heard of before it would be necessary to go to Wales for water supply.—The Chairman: But London is a city never heard of before.—Witness maintained that it would not be necessary to go to Wales for many years, and until London had grown considerably larger than it was at the present time, with a much larger population and a much more widely extended area. He estimated the capital cost of the Welsh scheme for a supply of 123½ million gallons a day would be 20½ million pounds; for 135 million gallons a day £22,327,800; for 172 million gallons a day £27,803,467, and for 215 million gallons a day £32,789,310. He had based his estimate on three schemes that had already been carried out, and which gave an average distance of

conduit of 81 miles. This had been constructed at a cost of £91,611 per million gallons of supply. The total length of conduit which would be required for the Welsh supply to London would be 162 miles, and for the additional 81 miles he had reckoned the cost at so much per mile, namely, £64,000 a mile.—The Commission again adjourned.

SANITARY BUILDING CONSTRUCTION EXAMINATIONS.

THE Worshipful Company of Carpenters have held their annual examination on Sanitary Building, Construction in their hall in London Wall during the last fortnight, when the number of candidates entering exceeded that of the two or three previous years. Entries were received from the provinces as well as from the district of Greater London. That the Company insist on a high standard being reached by their certificate-holders is evidenced by the strong board of examiners who have kindly helped them in their work. The examiners are:—Prof. A. Wynter Blyth, Prof. Banister Fletcher, F.R.I.B.A., Prof. Henry Robinson, M.Inst.C.E., Prof. T. Roger Smith, F.R.I.B.A., Mr. J. Howard Colls, Mr. Stanton William Preston, the President of the Royal Institute of British Architects, the President of the Architectural Association, the President of the Institute of Builders, and the President of the Clerk of Works Association. We understand that the Company lay special stress on the practical nature of this examination, as well as on their examination in carpentry, &c. in the summer. All candidates are brought face to face with the actual objects met with in building, and no man who is not, or has not been, a practical man, can obtain the certificate. There has been a short course of lectures, delivered by Prof. Banister Fletcher and Prof. T. Roger Smith, as a preliminary to this examination, and this course has been very well attended by candidates and intending candidates. The following is a list of the successful candidates in order of merit:—Gold Medal—Mr. T. Cherrill Way. Silver Medals—Messrs. F. Hartnoll, H. C. Remnant, Jno. Sanderson. Bronze Medals—Messrs. E. F. Brown, T. E. Kinch. Certificates—A. Harrington, W. H. Masters, J. G. Anderson, C. R. Tinson, L. Bate, A. Norton, W. J. Andrew, S. W. Hayward, A. C. H. Pendlebury, C. R. Fenn, T. R. Tanner, Geo. Gout. The Duke of Fife, K.T., has consented to distribute the prizes and certificates, etc., won at this and at the Carpentry Examination in June last, and also to the students in the Trades Training School, at Carpenters' Hall on the 22nd inst.

AN institute, erected for the purposes of education and recreation in Tooley Street, E.C., at a cost of £12,000, in connection with the united charities of St. Olave's and St. John's, Southwark, has just been opened. Mr. Henry Stock, F.R.I.B.A., is the architect, and the Duke was conducted over the institute.

The last meeting of the Glasgow Technical College Architectural Craftsman's Society was held on the 2nd December. The paper for the evening was by Mr. David B. Dobson, whose subject was "Calculations Simplified," as applied to building structures generally. The lecturer treated his subject under the three following heads:—Reactions, bending moments, moments of resistance, mathematics in brief; wood beams, cast iron beams, rolled iron beams, steel beams; wood struts and cast iron columns, and went over the formulæ in a simple and comprehensive manner. He illustrated his remarks by going over examples of each on the blackboard. He gave new formulæ for rolled iron and steel beams and wood streets, which, when worked out, compared very favourably with the older and more complicated formulæ. A new one was also given for cast iron columns which was very simple and easy to understand, a thing that could not be said of the usual formulæ given by Rivington and other text-books. It is one that should prove valuable to all members of the society.

VENTILATION.

By W. N. TWELVETREES, M.I.M.E., M.S.I.

(IV.—Continued from page cxl)

A WELL-KNOWN primitive mode of ventilation consisted simply in making a hole at the top of a room, tent, or other dwelling through which smoke and heated air might escape. Fresh air had to enter by any convenient, or inconvenient apertures, and the result was naturally eminently unsatisfactory. In such an arrangement as this (Fig. 15), air, on entering, would travel towards the fire or

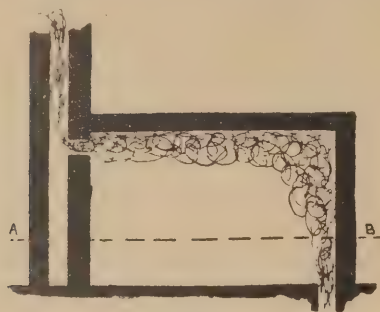


FIG. 16.

other source of heat, and after creating a draught would rise vertically towards the outlet without ventilating those parts of the room out of the track of the ascending current.

This system, with some modifications, is still adopted by uncivilised nations, and in many of our churches and chapels.

One variation of the early method consists in placing the hot air inlet or source of heat at one end of the room and the outlet in or near the ceiling, at the other end. This is an ingenious but futile endeavour to circumvent the laws of Nature and it is presumably intended that the warmed air shall be drawn to all parts of the room. In effect, however, the warm air ascends more or less vertically on leaving the inlet, and travels along the ceiling to the outlet, leaving the remainder of the space unventilated. The dotted line (A B) represents the ordinary level of respiration.

In order to secure the better dispersion of warmed air, the arrangement depicted in Fig. 16 is often used. The inlet or source of heat is at one end and the outlet at the other end, but situated near the floor line. In virtue of its warmth the air rises to the ceiling, over which it spreads, and is drawn downward by the outlet, connected with an exhaust shaft of sufficient power. This method has the effect of securing more equal distribution of the warmed air but the entire space is not absolutely covered, nor is the line of respiration (A B) influenced by the currents except at its extremes. During the summer season, the air admitted, not having been previously warmed, is frequently of lower temperature than the inside air, which may have absorbed heat given off from the occupants of the room, or may have otherwise received a degree of warmth. To provide for ventilation under such circumstances modifications become necessary. Air enters as before and being heavier than the internal air spreads over the floor, from which it is drawn upward by the action of an alternative outlet near the ceiling and in communication with the exhaust shaft. The winter and summer outlets are of course constructed so that either of them can be opened or closed as circumstances may require.

For the purpose of ensuring the complete diffusion of fresh air to all parts of the room, an entirely different arrangement must be adopted. This is indicated by Fig. 17, where the warm air inlet is near the top of the room and the outlet at the bottom. It may be thought perhaps that there will be a tendency for the incoming air to make a short circuit towards the outlet, but

experiment and practice both prove that no fear of any such result need be entertained. The warm air on entering tends to rise and is

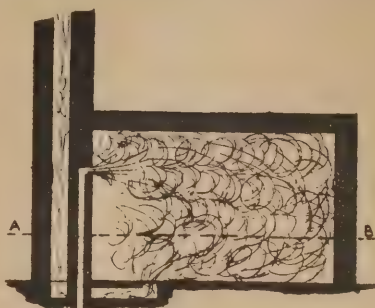


FIG. 18.

thus spread all over the ceiling; it gradually displaces the whole of the other air and when cooled, is naturally found near the floor line from whence it may be readily drawn off by the aid of an efficient exhaust shaft.

Apart from the fact that more equal distribution is secured, other advantages are derived from the position of air inlets at the top rather than at the bottom of a room. If situated at the bottom they are extremely likely to act as receptacles for the collection of dust, and to become incubators for the reproduction of micro-organisms deposited from the air. Air inlets in this position also form mouthpieces from which such unnecessary objects are wafted into the room. When, on the other hand, the inlets are near the ceiling, the

general tendency of air currents produced is identical with that indicated to falling particles by the force of gravity.

Considerable divergence of opinion exists as to the merits of various systems for the admission and withdrawal of air. There is, however, no doubt that when other conditions are favourable, the adoption of such a principle as that indicated by Fig. 16 is likely to yield the most satisfactory results. Its details may be varied and elaborated so as to suit all the requirements of large or small buildings,



FIG. 17.

and alternative arrangements may be provided for both winter and summer use.

Due attention must, of course, in every case, be paid to the proper distribution and area of air inlets, so as to prevent the creation of draughts, and when artificial heat is required the air should be warmed, if possible, before admission.

TABLE X.
TIME REQUIRED, IN MINUTES, FOR VITATION OF AIR IN HERMETICALLY CLOSED ROOM.

Description of Building.	Cubic feet per head.	CO ₂ = '06 per cent.			CO ₂ = '08 per cent.			CO ₂ = '1 per cent.			CO ₂ = '12 per cent.		
		Breath per head.	Paraffin Lamp.	Gas Burner.	Breath per head.	Paraffin Lamp.	Gas Burner.	Breath per head.	Paraffin Lamp.	Gas Burner.	Breath per head.	Paraffin Lamp.	Gas Burner.
Dwelling House ...	250	3·8	1·9	·9	7·6	3·8	1·9	11·5	5·7	2·8	15·2	7·6	3·8
" " " " " " " "	500	7·6	3·8	1·9	15·2	7·6	3·8	23·0	11·5	5·7	30·4	15·2	7·6
Schools, &c. ...	150	2·3	1·1	·6	4·6	2·3	1·1	7·0	3·5	1·7	9·2	4·6	2·3
" " " " " " " "	500	7·6	3·8	1·9	15·2	7·6	3·8	23·0	11·5	5·7	30·4	15·2	7·6
Workshops ...	300	4·6	2·3	1·1	9·2	4·6	2·3	14·0	7·0	3·5	18·4	9·2	4·6
Workhouses ...	400	6·1	3·0	1·5	12·2	6·1	3·0	18·4	9·2	4·6	24·4	12·2	6·1
Barracks ...	600	9·2	4·6	2·3	18·4	9·2	4·6	28·0	14·0	7·0	36·8	18·4	9·2
Hospitals ...	1000	15·2	7·6	3·8	30·4	15·2	7·6	46·0	23·0	11·5	60·8	30·4	15·2
" " " " " " " "	2000	30·4	15·2	7·6	60·8	30·4	15·2	92·0	46·0	23·0	121·6	60·8	30·4

TABLE XI.
STANDARDS OF PURITY CORRESPONDING TO VARIOUS DEGREES OF VENTILATION.
(FRESH AIR = '04 per cent. of CO₂.)

Cubic feet of Air admitted per head.		Percentage of CO ₂ .	
Per Minute.	Per Hour.		
5	300	'300	Injurious.
10	600	'170	
15	900	'126	
20	1200	'105	Undesirable.
25	1500	'092	
30	1800	'083	
40	2400	'072	Harmless.
50	3000	'066	
60	3600	'061	
70	4200	'058	
80	4800	'056	
90	5400	'054	
100	6000	'053	

TABLE XII.
CONSTITUTION OF COAL GAS (100 Volumes).

Hydrogen.	Marsh Gas.	Carbonic Oxide.	Heavy Hydro-Carbons.
47·60	41·53	7·82	3·05

Trade and Craft.

JARRAHDALE JARRAH.

The Jarrahdale Jarrah Forests and Railways Limited have executed an order from a London vestry for 1,773,000ft. of Jarrahdale Jarrah, of which not one plank was rejected. The fact brings out in relief the care exercised in the selection and manufacture of the well-known paving material. Jarrahdale Jarrah, besides being a proved paving material, is well adapted for other work, such as sleepers, piles, docking, platforms, fencing posts, palings, &c. It has an excellent reputation both in London and the provinces, and is frequently specified exclusively. Shipments are often taken up long before arrival.

A HISTORIC POTTERY BUSINESS.

Doulton's, the historic Lambeth pottery business, is to be floated as a limited company, the recent death of Sir Henry Doulton having involved the withdrawal of capital. The headquarters of the business are at Lambeth, but there are factories at Rowley Regis, the largest of their kind in the world, with works at Burslem, St. Helens, Birmingham, Paris, and elsewhere, all of which will be taken over by the new company. The directorate will consist of Mr. Henry Doulton, who has been a partner for seventeen years, Mr. Ronald Doulton, who has been engaged in the business for a quarter of a century, and two others. We believe, our contemporary continues, that the capital of the new company will be £1,100,000, divided into £350,000 first mortgage irredeemable four per cent. debenture stock, £350,000 five per cent. cumulative preference shares, and £400,000 ordinary shares, the shares being of the denomination of £1 each. The tangible assets to be acquired by the company, exclusive of goodwill, are valued at £1,063,000, and the purchase-price fixed by Mr. Henry Doulton for the whole of the business is £1,100,000, payable by the transfer of the whole of the ordinary shares, a third each of the preference shares and debentures, and £466,668 in cash. Thus only debentures and preference shares will be offered to the public. The profits of the business for the past four have been progressive, and have averaged more than £67,000.

THE UNITED ASBESTOS COMPANY LIMITED.

The United Asbestos patent decorations are gaining ground. We have become on very friendly terms with the non-inflammable "Salamander" panels and friezes, and our growing familiarity breeds, not contempt, but increased admiration. With the development of popular æsthetic taste, and the increasing demand for fireproof material in building construction, there can be no

doubt that the United Asbestos Company's novel and artistic covering for walls and ceilings will come more and more to the front. The material has been tested and not found wanting. This, together with its decorative possibilities—or rather achievements—are the potent factors in the success of "Salamander" decorations, which have now been introduced into British war vessels. The recently-launched second-class cruiser "Hyacinth" is up-to-date in this respect. Instead of the usual wood panelling in the cabins, the steel bulkheads are panelled with ornamental asbestos covering, so that not only is a decorative effect comparable to that of the best moulded plaster work and woodwork produced, but the fire risk is reduced to a minimum. One of the most notable tests to which the fire-resisting capabilities of asbestos decorations have been subjected was at the Burlington Restaurant and Hotel, Dublin. The fire originated in the kitchen under the buffet, into which it speedily passed and played with tremendous heat—so the expert report informs us—on the "Salamander" ceiling. This ceiling arrested the progress of the fire, which, the same expert says, must have passed into the upper regions of the building before the fire brigade arrived but for the check. When the ceiling came to be examined, it was found to be practically uninjured by the fire, although torn by the large quantities of water thrown upon the floor above. As we have already mentioned, the United Asbestos Company has recently issued a reduced scale of prices.

THE determination to have fireproof wood is likely to create almost a new industry, which will undoubtedly result in a much more extensive use of the fire-resisting material in buildings and all kinds of structures, so that some facts regarding the process adopted may not be without interest. It is akin to the procedure in creosoting wood, the timber being treated in an airtight cylinder, into which there is first pumped air charged with aqueous vapour of high temperature until the pores of the wood are opened, when the moisture is evaporated by creating a vacuum of 20 to 28in. in the cylinder. The wood is then ready to absorb the solution of phosphate of ammonia and sulphate of ammonia, with other chemicals, which is pumped into the cylinder, and gives the wood its fireproof quality when it has been thoroughly dried in a kiln at 125deg. Fahrenheit. The treatment largely depends upon the original nature of the timber. The cost in America in connection with the latest naval ships is about £10 per 1000ft. of timber. The result is to darken the colour of the wood, and there is said to be a reduction in transverse strength to the extent of from 2½ to 12½ per cent in Oregon pine and yellow pine, but white wood showed an increase of 7 per cent. in strength. All

woods, however, lose in compressible strength to the extent of from 6½ to 9 per cent. In tension there is also a loss of from 19½ to 24 per cent., so that it would be well in determining sizes to withstand given weights to have independent tests. Again, the wood is heavier, much harler to work, and it is said that in some cases it involves corrosion and also injury to clothes which are kept in contact with it.

A BUILDING has been completed for the Govan Y.M.C.A. The new Institute has a frontage to Water Row on one side and to Manse Lane on the other. The style of the building is late English Renaissance, with centre oriels of three lights resting upon an arch over the main entrance fronting Water Row. This arch is supported by fluted pilasters, one on each side, and mounted by a memorial tablet with inscription. The oriels are surmounted by a tower with flagstaff, and on each side of the main entrance on the ground floor are handsome shops, with basement or cellarage. The building consists of four stories, with dormers or attics.

Enquiry Department.

THE SURVEYORS' INSTITUTION EXAMS.

To the Editor of THE BUILDERS' JOURNAL.

SIR,—I should be much obliged if, through the medium of your Enquiry Department, you could inform me of a text book which would cover the legal subjects in the P.A.S.I. Exam. of the Surveyors' Institution (Building Section). I should prefer a single book to cover the whole if possible, and oblige,

Dorchester. "OGEE."

If you intend to take part in any of these examinations you should procure "Rules of Examination," free, and "Revised Syllabus of Subjects, Papers Set, etc.," price 1s. 6d., from the Secretary, Surveyors' Institution, Savoy Street, Victoria Embankment, London, W.C. The books recommended for the respective law subjects in the Professional Associates' Examination, "Sub-Division III., chiefly Building," are as follows. The examiners point out, however, that the examination is on the subject, not on the text books, and the books recommended are only mentioned by way of suggestion to students:—Law of Fixtures: Amos and Ferard's "Law of Fixtures," 1883; A. Brown "On Fixtures," 1881; Castle "On Rating." Law of Dilapidations: Gibbons "On Dilapidations;" Grady "On Fixtures and Dilapidations." Law of Easements: "Innes' "Digest of the English Law of Easements;" Latham's "Law of Window Lights."

COMPLETE LIST OF CONTRACTS OPEN.

DATE OF DELIVERY.	WORK TO BE EXECUTED.	FOR WHOM.	FROM WHOM FORMS OF TENDER MAY BE OBTAINED.
BUILDINGS—			
Dec. 16	Preston—Alterations, &c. to School	Corporation	Borough Surveyor, Town Hall, Preston.
" 16	Preston—Extension of Inn Cellars	Corporation	Borough Surveyor, Town Hall, Preston.
" 16	Preston—Alterations to Cattle Stage	Corporation	Borough Surveyor, Town Hall, Preston.
" 16	Rugby—Erection of Fire Station, &c.	Urban District Council	D. G. Macdonald, Surveyor, Rugby.
" 17	Clayton, near Bradford—Seven Houses		S. Spencer, 34, Great Horton-rd., Great Horton, Bradford.
" 17	Luton, Chatham—Farm Buildings		R. D. Batchelor, High-street, Chatham.
" 17	Tynenydd, Wales—Rebuilding Hotel	E. Evans Bevan	J. Rees, Architect, St. Thomas-chambers, Neath.
" 17	Edinburgh—Station Hotel	Caledonian Railway Co.	Pieddie and W. Browne, 8, Albyn-place, Edinburgh.
" 19	Hampton-on-Thames—Additions to Infants' School	Station Schools Managers	F. G. Hughes, Architect, Hampton-on-Thames.
" 19	Worsborough Dale and Ardsley, Yorks.—Police Stations, &c.	West Riding County Council	J. V. Edwards Surveyor, County Hall, Wakefield.
" 20	Blackpool—Construction of Platform, &c.	Launce & Yorks and L.N.W. Joint Rys.	Engineer's Office, Hunt's Bank, Manchester.
" 20	London, N.—Erection of School	Edmonton School Board	J. Moulle, Clerk, Offices, Upper Edmonton.
" 20	Overden, Yorks.—Erection of Pair of Villas		M. Hall, 29, Northgate, Halifax.
" 20	Edmonton—Infants' School	School Board	H. W. Dobb, 110, London-wall, E.C.
" 22	London, N.W.—Erection of Two Chapels	Guardians of St. Pancras	A. and C. Harston, 15, Leadenhall-street, E.C.
" 22	London, E.C.—Patent Office Extension	Commissioners of H.M. Works	H. Tanner, H.M. Office of Works, Storey's Gate, S.W.
" 22	Corwen, Wales—Bridge Works	Edeyrnion Rural District Council	H. C. Johnson, Egerton-street, Wrexham.
" 22	London, S.E.—Repairs, &c., to Casual Wards	St. Saviour's Guardians	G. D. Stevenson, 13 and 14, King-street, E.C.
" 23	Leicester—Erection of Dwellings	Estate Committee	T. H. Fosbrooke, Architect, Market-street, Leicester.
" 24	Dartmouth—Repairs, &c., to Guildhall	Town Council	T. O. Veale, Surveyor, Castle View House, Dartmouth.
" 27	Blaenau Ffestiniog, Wales—Police Buildings		J. J. Morris, Clerk to the Justices, Blaenau Ffestiniog.
" 28	Burghall, Hereford—Asylum Works	Visiting Committee	Giles, Gough, & Trollope, 23, Craven-st., Charing Cross, W.
" 30	Willenhall, Staffs.—Greenhouse	Urban District Council	C. J. Jenken, Engineer, Town Hall, Willenhall.

COMPLETE LIST OF CONTRACTS OPEN—continued.

DATE OF DELIVERY.	WORK TO BE EXECUTED.	FOR WHOM.	FROM WHOM FORMS OF TENDER MAY BE OBTAINED.
BUILDINGS—Continued.			
1899.			
Jan. 3	Nottingham—Superstructure of Workhouse	Guardians	A. Marshall, King-street, Nottingham.
" 7	Plaistow, E.—Enlarging Hospital	County Borough of West Ham	E. T. Hall, 57, Moorgate-street, E.C.
" 7	West Ham—Enlargement of Hospital	Town Council	F. E. Hilleary, Town Clerk, Town Hall, West Ham.
" 9	Horsham—Infirmary Block	Union Guardians	C. H. Burstow, 6, West-street, Horsham.
" 16	Knowle, near Fareham, Hants—Infirmary Wards, &c.	Committee of Visitors	W. J. Taylor, County Surveyor, the Castle, Winchester.
No Date.	Batley—Four Cottages		W. Crawshaw, Architect, Branch-avenue, Batley.
"	Brigham, Cumberland—Out Kitchen, &c.		A. Thompson, Brigham.
"	Kidderminster—Additions to Lyndholm	W. Adam, jun.	J. M. Gething, Architect, Oxford-chambers, Kidderminster.
"	Leeds—Erection of New Premises	Symingtons, Limited	W. H. Hobson, 82, Albion-street, Leeds.
"	Llandrindod Wells, Wales—Pump Room, &c.		A. B. and W. S. Deakin, Architects, Shrewsbury.
"	Manningham, Bradford—Shop		H. Hardaker, Architect, New Ivetgate, Bradford.
"	Thornhill, Dewsbury—Eighteen Houses	Pioneer's Industrial Society Limited	Holton and Fox, Architects, Westgate, Dewsbury.
"	London, E.—Erection of Synagogue		F. W. Woolf, 23, Charles-street, Stepney, E.
"	Buxton—Electric Lighting Station	Urban District Council	W. R. Bryden, 1, George-street, Buxton.
ENGINEERING—			
Dec. 17	Beckenham—Electric Lighting Plant	Urban District Council	Wilson and Storey, 66, Victoria-street, S.W.
" 17	Galway—Ironwork for Bridges		J. Perry, County Surveyor, Galway.
" 19	Kingston-on-Thames—Cooking Apparatus	Union Guardians	W. H. Hope, Architect, Union Offices, Kingston-on-Thames.
" 20	Manchester—Station Works	Lancs. and Yorks. Railway Co.	Engineer's Office, Hunt's Bank, Manchester.
" 21	Ulverston—Water Supply Works	Rural District Council	Surveyor, Union Offices, 3, Benson-street, Ulverston.
" 28	Bucharest, Roumania—Two Tubular Wells	Town Council	— Radu, 9, Strada Mihai-Voda, Bucharest.
" 29	Bucharest, Roumania—Supplying Town with Water	Town Council	— Radu, 9, Strada Mihai-Voda, Bucharest.
" 31	Cairo—Steam Boilers	Administration of Ports & Lighthouses	Commercial Department, Foreign Office, S.W.
" 31	Ramsgate—Beam Engine	Corporation	W. A. Valon, Engineer, Corporation Offices, Ramsgate.
" 31	Rotherham—Sludge Pressing Plant	Sewerage Committee	R. E. W. Berrington, Bank Buildings, Wolverhampton.
1899.			
Jan. 2	Quebec, Canada—Bridge		Quebec Bridge Company, Canada.
" 6	Johannesburg—Carburetted Water Gas Plant	Town Council	R. Whyte and Co., 22, Bury-street, St. Mary Axe, E.C.
" 24	London—Tunnel	London County Council	Engineer's Department, County Hall, Spring-gardens, S.W.
Feb. 1	Townsville, North Queensland—Supply of Crane	Harbour Board	Chairman, Townsville Harbour Board, Townsville.
March 15	Belem, Para, Brazil—Water Supply Transfer	Government	Brazilian Consulate, England.
" 15	Rio de Janeiro—Waterworks		Commercial Department, Foreign Office.
" 15	Shanghai, China—Electric Tramways	Municipal Council	J. Pook and Co., 8, Jeffreys-square, St. Mary-axe, E.C.
" 31	Shanghai—Telephone System (thirty years)	Municipal Council	J. Pook and Co., 8, Jeffreys-square, St. Mary-axe, E.C.
No date.	Brighton—Heating Schools		J. Norton, Alliance-chambers, George-street, Sheffield.
"	Falmouth—Erection of Crane, &c.	Docks Management Committee	J. B. Tilly, Falmouth Docks.
"	Ipswich—Drinking Fountain		F. Wheeler, 6, Staple-inn, London, W.C.
"	London, E.—Artesian Well, &c.	Bow Vestry	Superintendent at the Baths, Bow-road, E.
"	North Gawber Colliery, nr. Barnsley—Driving Heading		Manager, North Gawber Colliery, near Barnsley.
"	Grantham—Well Boring		J. Brailey, Avenue-road, Grantham.
"	Wrexham—Railway Sidings, &c.	Brymbo Steel Co.	Secretary's Offices, Hook Norton, near Wrexham.
FURNITURE—			
Dec. 16	Christchurch, Hants—Furniture and Fittings	Workhouse Guardians	J. Druiett, High-street, Christchurch.
No date.	Manchester—Library Bookcases	Public Free Libraries Committee	Chief Librarian, Free Reference Library, King-st. Manchester
"	London—Supply of School Furniture	School Board	The Clerk, Offices, Victoria Embankment, W.C.
IRON AND STEEL—			
Dec. 17	Galway—Ironwork for Bridges, &c.		J. Perry, County Surveyor, Galway.
" 19	London, S.W.—Rails, &c.		Agent-General for Victoria, 15, Victoria-street, S.W.
" 19	Uxbridge—Supply of Cast-iron Pipes, &c.	Rural District Council	J. Anstie, 10, Marchwood-crescent, Ealing, W.
" 19	London, E.C.—Railway Stores	Burma Railways Co. Ltd.	Offices, 76, Gresham House, Old Broad-street, E.C.
" 20	London, E.C.—Railway Stores	South Indian Railway Co. Ltd.	H. W. Notman, 55, Gracechurch-street, London, E.C.
" 29	London, S.W.—Carriage and Waggon Stock	Uganda Railway Committee	Crown Agents for the Colonies, Downing-street, S.W.
" 31	Dundee—Cast-iron Pipes	Water Commissioners	G. Baxter, 93, Commercial-street, Dundee.
" 31	Ramsgate—Supply of Iron Pipes	Gas and Water Departments	W. A. Valon, Engineer, Ramsgate.
PAINTING AND PLUMBING—			
Dec. 16	Blackhill, Durham—Cleaning, &c., Offices	Consett Iron Co. Ltd.	Consett Iron Co. Ltd., Blackhill, Durham.
" 28	Manchester—Painting, &c.	Art Gallery Committee	City Surveyor, Town Hall, Manchester.
ROADS—			
Dec. 16	Hull—Improvement Road Works	Corporation	A. E. White, City Engineer, Town Hall, Hull.
" 17	Longton, Staffs.—Supply of Granite Setts	Town Council	J. W. Wardle, Borough Surveyor, Court House, Longton.
" 17	Northallerton—Widening Road		W. Stead, County Surveyor, Northallerton.
" 19	Galway—Making New Road		J. Perry, County Surveyor, Galway.
" 19	London, W.—Supply of Gravel, &c.	Paddington Vestry	F. Dethridge, Vestry Clerk, Vestry Hall, Harrow-road, W.
" 19	London, N.—Road Works	Hornsey Urban District Council	E. J. Lovegrove, Engineer, Southwood-lane, Highgate, N.
" 19	Morley, Yorks.—Street Works	Corporation	W. E. Putman, Borough Surveyor, Town Hall, Morley.
" 20	Walthamstow—Supply of Kerb, &c.	Urban District Council	G. W. Holmes, Engineer, Town Hall, Walthamstow.
" 20	Tottenham—Street Works	Corporation	A. W. Lawson, Surveyor, Municipal Offices, Rawtenstall.
" 21	Blackpool—Kerbing, Channelling, and Paving	Urban District Council	P. E. Murphy, 712, High-road, Tottenham.
" 21	Blackpool—Street Works (Fourteen Contracts)	Corporation	J. Wolstenholme, St. John's Market-buildings, Blackpool.
" 21	Wicklow—Supply of Stones	Harbour Commissioners	F. W. MacPhail, Secretary, Town Hall, Wicklow.
" 21	Woking—Supply of Road Stone	Urban District Council	G. J. Woolridge, Surveyor, Bank-chambers, Woking.
" 22	Reading—Road Works	Sanitary Authority	J. Bowen, Borough Engineer, Town Hall, Reading.
" 31	London—Supply of Materials, &c.	St. George's, Hanover-square, Vestry	G. Livingstone, 1, Piccadilly-road, S.W.
No date.	Winchester—Road-making, &c.		H. J. Weston, 24, Portland-street, Southampton.
SANITARY—			
Dec. 17	Banbury—Stoneware Pipes, &c.	Town Council	N. H. Dawson, Borough Surveyor, Town Hall, Banbury.
" 18	Lowestoft—Removal of Refuse	Rural District Council	A. Smith, District Surveyor, Carlton Colville, Lowestoft.
" 20	Frimley—Sewering Roads	Urban District Council	Surveyor's Office, High-street, Camberley.
" 21	Blackpool—Sewerage Works, &c.	Corporation	J. Wolstenholme, St. John's Market-buildings, Blackpool.
" 22	Elstree—Extension of Sewer	Hendon Rural District Council	Surveyor's Office, Stanmore-hill, Stanmore.
" 22	Portslade-by-Sea—Construction of Sewers	Urban District Council	C. O. Blaber, 64, Ship-street, Brighton.
" 28	Glasgow—Outfall Sewer	Corporation	City Engineer, 64, Cochran-street, Glasgow.
" 31	Melton—Rearranging Drainage	Suffolk County Asylum	A. T. Cobbold, County Hall, Ipswich.
1899.			
Jan. 1	Taunton—Construction of Sewer	Town Council	J. H. Smith, Borough Surveyor, Taunton.
No date.	Leavesden, near Watford—School Drainage	St. Pancras Guardians	C. P. Ayres, 14a, High-street, Watford.

COMPETITIONS.

DATE DESIGNS TO BE SENT IN.	DESIGNS REQUIRED.	AMOUNT OF PREMIUM.	BY WHOM ADVERTISED.
Dec. 31	Stockholm—New Stations		Secretary, Royal Administration Swedish State Railways.
1899.			
Jan. 1	Hull—Public Library	£50, £30, £20	Public Libraries Committee.
" 2	Harrogate—Pump Room, &c.	£50, £30, £20	Corporation of Harrogate.
" 2	Harrogate—Alterations to Old Pump Room	£30, £20, £10	Samuel Stead, Boro' Surveyor, Municipal Offices, Harrogate.
" 2	Bradford—Fire Brigade Station	£100, £50, £30	Corporation of Bradford.
" 14	Burnley—Higher Grade School, &c.		Burnley School Board, Ormerod-road, Burnley.
Feb. 1	Bradford—Central Fire Brigade Station	£100, £50, £30	City Surveyor.
" 10	Dartford—Three New Schools	£31 10s., £10 10s.	Dartford School Board, Kent.
No date.	Nelson—Plans for Erection of Church		H. Duerden, 180, Barker House-road, Nelson.

Property and Land Sales.

PERIODICAL SALES.

ESTABLISHED 1843.

MESSRS. H. E. FOSTER & CRANFIELD (successors to Marsh, Miller, and Co.) conduct PERIODICAL SALES of

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Mortgage Debts and Bonds, and
Kindred Interests.

the FIRST and THIRD THURSDAYS in each month throughout the year, at the MART, Tokenhouse-yard, E.C. Remaining date for 1898:—
December 15th.

The following are the appointments fixed for 1899:—

January 5th	May 4th	September 7th
February 19th	May 18th	September 21st
February 2nd	June 1st	October 5th
February 16th	June 15th	October 19th
March 2nd	July 6th	November 2nd
March 16th	July 20th	November 16th
April 6th	August 3rd	December 7th
April 20th	August 17th	December 21st

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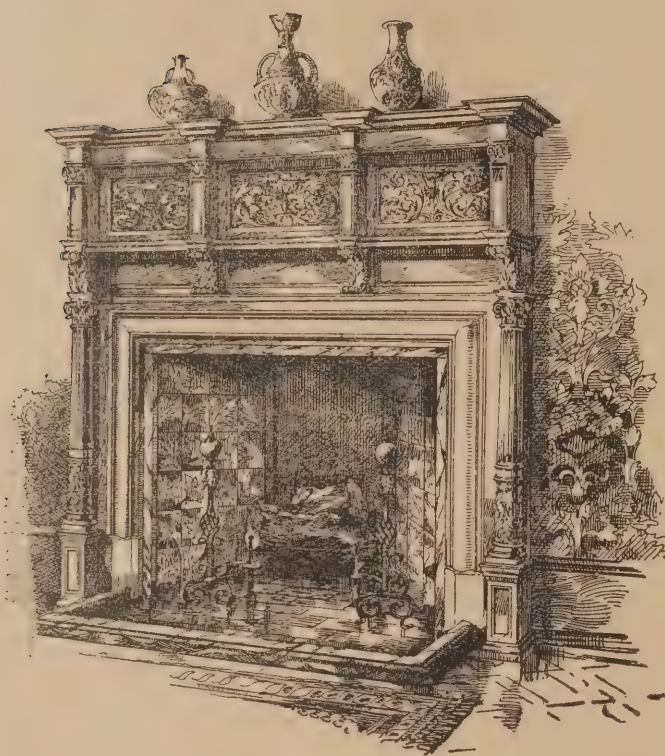
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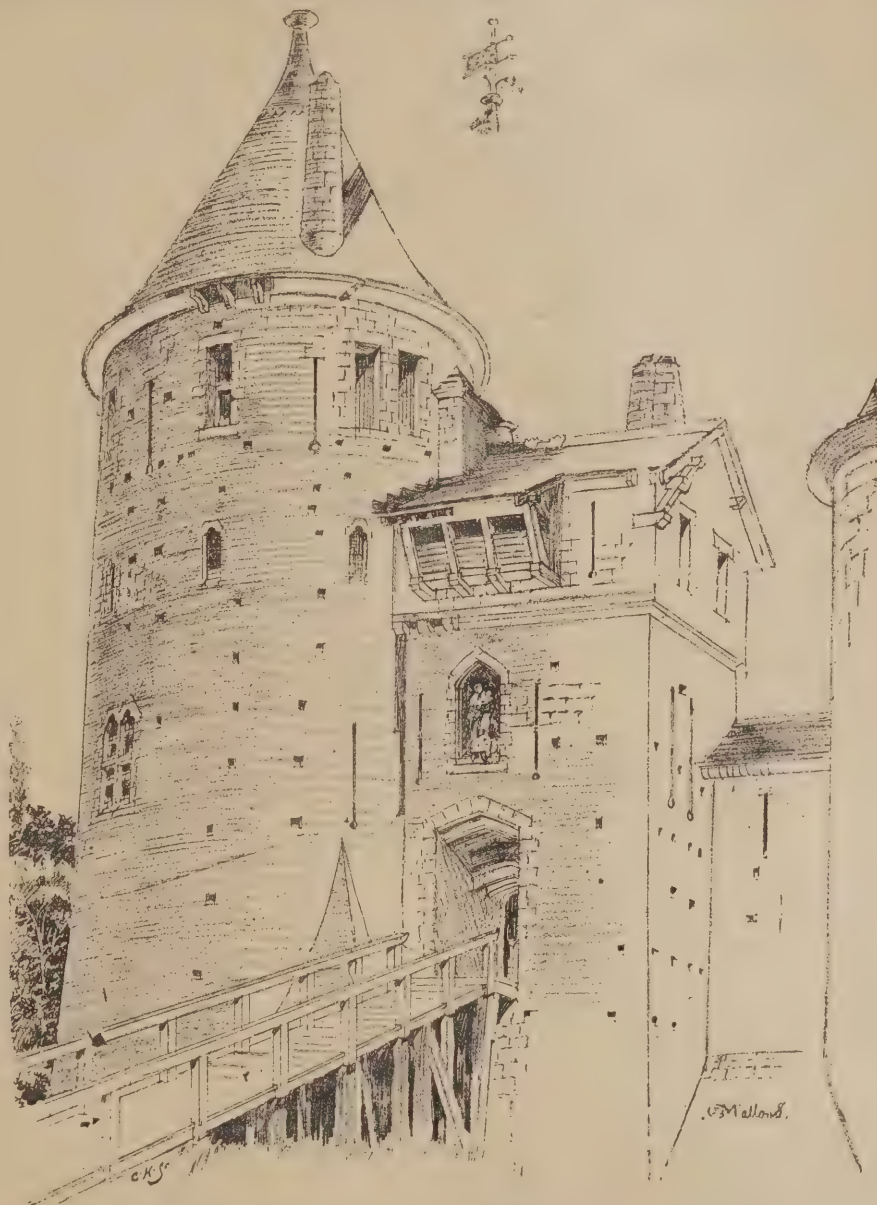
Though these are both subjects of controversial interest, on certain aspects of which there probably will always be as many opinions as there are controversialists, yet, on certain other aspects, the great majority of those best qualified to know are gradually coming to be of one mind. With regard to education, the idea is more widely spreading that it should be purely and simply a training of the mind and faculties, and not the acquisition of formulæ and facts; that as regards the mental powers, that man is educated who has been trained to think logically for himself, however ignorant he may be of certain facts or opinions; while, on the other hand, the man who has taken all knowledge as his portion, and has made himself a perfect encyclopædia of facts and methods, may yet be a man of no mental education whatever. When we think of the methods employed in the various institutions for the teaching of Architecture, we must come to the conclusion that there is little real education—that is, training of the reasoning and perceptive faculties—to be obtained in them. Unless, therefore, a boy comes to them with faculties already trained by one of the great educators—the Classics, the Mathematics, or the Natural Sciences—there is a great danger of his going through life with a mental equipment which can best be described, in the language of the auctioneer, as a “choice assortment of oddments.” As a necessary consequence, the same definition will apply to his architectural productions. Of course it may be said that the preliminary education is taken for granted, that the boy is supposed to arrive with a logical mind, capable of grappling with and sorting and arranging the mass of miscellaneous information with which he will be crammed. But to present Architecture to the student in this way is very hard on him, when it could just as easily be presented to him as a continuous and complete system, which would be easily and quickly grasped and understood. There is always the opposite view of education to be reckoned with—the view of the man who expects his son to be taught book-keeping at school, so that it may be useful when he puts him in a merchant's office, and who calls the acquisition of such useful information—education. It is to be feared that this point of view still lingers among us to a very great extent. The student is always keen to design in the schools, a subject which he is likely to meet with in his future practice, so that when that day arrives he may have it at his fingers' ends, and be saved the trouble of thinking for himself, thus defeating the whole object of his education, which is to force him to think for himself. If in the schools the only subjects set were those which we rarely or never meet with in practice, we should find ourselves—on being

called on to design something in every day use—compelled to think and to apply the principles which we have learnt in the schools to the new problem before us. And if more attention were paid to principles and reasons than to features and facts, though we might not leave the schools with a very extensive knowledge of everyday requirements, so necessary to the successful practitioner, yet we should take with us well trained and balanced minds capable of grappling with every difficulty as it might arise. Everyday requirements are quickly picked up in everyday practice. In our public schools and Universities the examination system is largely responsible for the

ON REFLECTION.

Defalcation at Spring Gardens.

THE Progressivist's policy of exploitation of labour is likely shortly to bring the party into such another disrepute as that which followed the report of the special committee on the “Works Scandal.” After that report, the leader of the Moderates, Lord Onslow, urged that as the Department's work was no better than that of the contractor, and was, moreover, conducted at a loss, the Works Department should be swept away. The Progressivists, however, satisfied themselves by appointing a new manager,



THE ENTRANCE TO CASTLE COCH. SKETCHED BY C. E. MALLOWS.

immense amount of cramming which has taken the place of education. While entrance to the army, navy, and civil services is by examination, parents will insist that their sons acquire the necessary information, and schoolmasters have no alternative but to supply it. In Architecture, however, though the introduction of examinations has doubtless had its bad effect on education, yet it can hardly be accounted responsible altogether for the present system. Before the days of examinations, the acquisition of rule-of-thumb methods and practical facts was considered education. All that examinations have done has been to intensify this, and to lead to a more systematic acquisition of the desultory information necessary to pass—a process of cramming fatal to all true education.

A. R. J.

under whom the losses have been proportionately greater, although there is no doubt that all has been done that was possible to mend the state of affairs. It is reported that a loss of £22,000 has been incurred in the matter of the construction of the Lewisham sewer, and this will swallow up any incidental saving that may be presented in the return of the completed works, which it is expected will be laid before the Council at the next sitting. Commenced in July, 1895, at an estimated cost of £63,850, the work has only been completed at a cost of some £85,000. This is inexplicable when we recall the statement of Sir A. Binnie that he always allowed a wide margin in his detailed bills of prices for underground work, on the principle that the Council ought to insure its own risks. The real explanation seems to lie in the con-



FROM A SKETCH BY L. EDMUNDS.

spired indolence of the workmen employed, and it would appear that this is only another case to point the accuracy of the imputations lately brought against the building trades in the daily press, and reviewed at the time in these columns. We learn from *The Globe* that on more than one occasion letters were addressed to the editor complaining of the way in which the men engaged on the Lewisham sewer loafed about smoking and talking. This, we think, might be prevented by appointing overseers and foremen with discretionary powers as to the employment of the individual workmen, such as is done in private firms.

The Modern Craftsman.

SIR CHARLES ROBINSON, Her Majesty's Surveyor of Pictures, in a somewhat commonplace article on Art Museums in the current issue of the *Nineteenth Century Review*, tells a story which is a typical illustration of the influence which the trades unions exert to repress and crush down, not only the revival of craftsmanship, but the personal ambition of the individual worker. A young plumber, Sir Charles Robinson tells us, came to him one day with an oil painting he had made, and asked his assistance to the pursuance of his Art studies at the Royal Art College at South Kensington. The picture was a meaningless daub, lacking indication of any ability in the painter, and Sir Charles' advice to the young

man was that he should stick to his trade, and make himself a first-rate plumber. "What's the good of that, sir," was the reply, "however clever I might grow to be, the trades unions would never let me get a shilling more money." The plumber, no doubt, made the most of his wrong, for although his statement may be true for the generality, the exceptional man will always make an exceptional case. The evil is that to excel should be difficult and prejudicial to a craftsman, and that the scant reward which Art at best offers in exchange for the self-denial and devotion by which alone it may be attained, should be made more difficult and irksome by external circumstances. In our issue of the 7th inst. we published a letter from a correspondent, who pointed out the inadequate opportunities a craftsman has to improve himself or to cultivate his special abilities in the employ of ordinary builders, and how the foremen are rarely selected from the ranks of the competent workmen.

Vestry Irresponsibility.

A SHOCKING "drain" case was lately tried before Mr. Justice Lawrence and a special jury. The plaintiff was a dress-maker, living and carrying on her business in Fulham Road. Without notice the defendants, the Fulham Vestry, entered her house, drove her and her furniture to the upper rooms, dug trenches, tore up the floor,

smoked, littered the place with *débris*, and allowed foul earth to lie on the premises for a period stated variously at "three weeks" and "as short a time as possible"; thereby creating a stench of which a vestry workman could only say that "he had been in a worse," driving away plaintiff's business, killing her mother, undermining her own health so that her doctor was in daily attendance for three weeks, and at intervals for some months, and infecting her with blood poisoning to such an extent that a year afterwards she had not recovered her health. The work was in progress for a period variously stated at from three to over five weeks, although on the evidence of Mr. Williams, architect, the work should have been completed in not more than fifteen days. Plaintiff's own drains were in good order, the drains of her neighbour, which ran under the house occupied by her, being the cause of the trouble. The defence of the Vestry for all this reputed ill they had occasioned does not strike our lay mind as pertinent or sufficient. It seems to us to lack humanity. Its case was that this drain was not really a drain at all. It was a sewer. And the jury found that, in point of fact, it was a sewer all the time, though they disagreed on the question of "unnecessary annoyance." Being a sewer, the Vestry's outrage is justified at law, and the plaintiff no doubt is by this knowledge consoled for her bereavement, her ruined fortunes, and shattered health.

A Strange Inadvertence!

THE Standard, in its account of the laying of the foundation stone of a church in Brixton by Princess Christian last week, makes a curious slip in neglecting to omit the name of the architect, Mr. Beresford Pite. It commits a further irregularity also in introducing a mention of the design of the church, but no doubt the writer of the article would excuse himself by pointing out that his report was half a column in length; that his description of the church was brief and quite vague, as he only remarked that it was built in the "Early Christian Style"; and that as an offset he introduced a full description of the marquee, and the platform, and the red floor cloth, and a full and detailed account of every visible article of clothing worn by Her Royal Highness. It is, of course, no business of ours, but we may warn the Standard that these innovations will endanger its reputation as a leading English daily paper, and we would point out that its action in mentioning the architect's name in the *first* paragraph, and those of the churchwardens in the *last*, and in bracketed parenthesis, is, to say the least, daring. The vicar, in an address to the Princess, which embodied an account of the parish and the church, used all care not to refer either to the design or the architect, and was eminently successful in his attempt.

Two Late Decisions.

REPORTS from the Arbitrator's Court at Leeds present a case which is worthy of notice. A claim was made by a widow for compensation under Sec. 7 of the new Act, against a firm of house painters. Her husband was employed by the firm in painting a house front, and when standing either on a ladder, or on a plank reaching from it to a window sill, a rung of the ladder broke and the poor fellow was killed. The arbitrator, in giving his decision against the claimant, made two new precedents under the Act. First, that a ladder, or a plank resting thereon, could not be construed as a "scaffold." Second, that painting, plastering, or puttingty could not be included in the term "repairing." Leave to state a case for the County Court judge was granted to claimant. It is to be hoped that these decisions will be reversed, or men employed in the precarious business of house decorating will not be able to benefit under the Act.

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CASTLE COCH: VIEW FROM THE CORRIDOR. SKETCHED BY J. M. STANFORTH.



VIEW FROM COURTYARD LOOKING TOWARDS ENTRANCE. SKETCHED BY J. M. STANIFORTH:

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AN OLD WELSH CASTLE.

By J. M. STANIFORTH.

CASTELL Coch (Red Castle) is about five miles north of Cardiff, and is picturesquely situated on the side of a wooded mountain. Little is known of the history of its early days, but it is supposed to have been commenced in the reign of Henry II., and probably completed in the time of Edward I.

There are various traditions concerning it, but a great deficiency of recorded information. Being the key of the upper country, it must have witnessed many an inburst of the native Welsh, from the Norman Conquest to the days of Owen Glyndwr, who is supposed to have descended by this pass when he burned the episcopal palace of Llandaff and ravaged Cardiff.

The ruined castle descended with the rest of the De Clare estates to the Marquis of Bute, who, with the assistance of the late William Burgess, has restored it to, as near as possible, its original state.

In general plan it is a triangle, each angle capped by a drum tower; its general divisions are the south, east, and northern towers, the gate tower, the curtains, and hall. It has also a drawbridge, portcullis, and courtyard. The internal decorations are in the Mediaeval style, and are of a most gorgeous character.

The River Taff, from its origin under the Brecon Beacons, after a course of about twenty-six miles through the northern and mountain district of Glamorgan, escapes by a deep and narrow ravine across the last elevation, and rolls its course, unfettered, to the Bristol Channel. The ridge which it thus finally clears, and which divides the hill country from the plain, is part of the great southern escarpment of the coal basin of Glamorgan-shire, supported there by the mountain lime-

stone rising from below, and, in its turn, reposing upon the old red sandstone, the denuded surface of which forms, under the later horizontal rocks and drift gravel, the basis of the plain. The escarpment, extending for many miles along the contiguous counties of Monmouth and Glamorgan, is traversed in this immediate neighbourhood by the three passes of the Ebbwy, the Rhymney, and the Taff. The heights bounding the latter river, though in actual elevation below some other parts of the chain, produce a very striking effect from the abruptness of their rise from the plain. These heights on each side of the pass must always have been regarded by the inhabitants of the county as places of great security. On the right bank of the river the huge lumpish sandstone mass of the Garth rises to 980ft. above the sea, and is crowned by two remarkable tumuli well-known as landmarks in the Vale, and visible even from the distant shores of Somerset.

The elevation of the left bank, though lower, is more precipitous. It presents, in



CASTLE COCH: THE ENTRANCE. FROM A SKETCH BY J. M. STANIFORTH.



CASTLE COCH: A GENERAL VIEW. FROM A SKETCH BY J. M. STANFORTH.

the lichen-stained crags about its summits, and the rich verdure which clothes its sides and base, all those features so well known to geologists as characterising the scenery of the mountain limestone.

Nature has rendered the west and south sides of this height—those exposed to any foe from beyond the sea—nearly inaccessible. Across the north-eastern side lines of circumvallation have been hewn out of the rock, the dimensions of which show the value attached to the place, as a fortress, by the Cymry.

There was reason in the choice. From hence the long ships of the Danish rovers could be seen while yet distant from the shore, and timely notice given and protection afforded to the people of the plain, should the ravagers extend their sweep far inwards from the coast. A beacon fire upon the headland of Penarth—celebrated in Anglo-Norman verse for its ancient oak, and now marked by its prominent church—answered here, or on the opposite Garth, would be repeated from the summits of the distant mountains of Brecon and Carmarthen, and would at once spread the tidings of invasion over the whole of the southern coast.

The Normans, within a century and a half after the conquest of Glamorgan, had completed a chain of castles along the plain country, from Chepstow to Pembroke, and were only exposed to the invasion of the Welsh from the mountain tracks upon the north. To check these, they threw up a number of fortresses, either upon or within the verge of the hill country, of which Cærrhyll on the Rhymney and Castell Coch on the Taff may be cited as adjacent examples.

The site of the Cymry Camp was far too difficult of access to allow of the ready transport into it of provisions, or munitions of war, or of a constant and rapid communication with

the chief castle of Cardiff. Lower down the scarp, though still high above the plain, the Norman engineer selected a natural platform on the limestone rock, separated from the main scarp by a natural depression, and sufficiently removed from the summit to be out of reach of any military engines with which the Welsh were likely to be acquainted, or which, from their want of organisation, they were likely to be able to bring, with their forces against the castle. There is an easy approach to this platform from the east, which probably communicated with the old road, called Roman, and no doubt Cymric, which leads direct from Cardiff to Rheubina, and close upon which is the circular mound which appears to have been the site of a tower, at Whitchurch and the Celtic tumulus of Tympath. Upon this platform was erected the fortress of Castell Coch.

For detailed description of the old castle when in ruins, see *Archæologia Cambrensis* or *Mediæval Military Architecture* by Clark.

The Vinyard at Castell Coch is the only one in England where real wine is produced successfully.

LORD ROBERTS has laid the foundation stone of the Soldiers' Victoria Hall, Western Heights, Dover.

THE Scotch Education Department have awarded four Queen's Prizes, value £2 each, to students of the Architectural Department of the Glasgow and West of Scotland Technical College, namely, one in Architectural Design to James M. Alexander, one in Architecture to John M. Arthur, and two in Building Construction—one to James A. Ferguson and one to Robert Park. These prizes are awarded to those students whose papers are considered best in the May examinations.

MR. HERBERT J. FINN'S DRAWINGS.

THE reader of this brief notice will have opportunities during the next ten days of testing the value of our opinions, for the Modern Gallery remains open until the end of the current month. It may be mentioned, moreover, that paintings by the same artist are exposed in the same manner each year, so that he who fails to see them now will be able to do so later. The lover of Architecture who thinks the painter should be his servant will probably look most attentively at the views of English cathedrals and buildings, remarking that the portions presented are generally the most picturesque, and that the work has the indescribable "summat" which gives the distinction of style to what might otherwise seem mechanical. Said one in our hearing, who referred to the artist's manner of painting: "It has a fluttery feathery look," a defect, if so we must call it, which at any rate impoverishes the reproductions given on pages 314 and 315. To the writer it seemed that his friend should have looked twice before speaking once, for there is absolute truth in these drawings, and they might have looked hard if handled another way. It appears that Mr. Finn, during the last few years, has traversed pretty much of the country, for the collection contains scenes from a good many parts of it, coast scenes more especially, but the feature of this exhibition is the series of paintings in and about Winchester, Canterbury, and St. David's. It may be news to some that there is a "Mint" remaining at Shrewsbury, which, from our point of view and that of the painter, is a very beautiful object. There are fifty-three works altogether, including landscapes pure, and some homely domestic subjects.

The Position of Architecture among the Fine Arts.*

BY EDWIN T. HALL.

(Continued from page 296.)

I SUGGEST that a good plan, well thought out on the lines I have roughly endeavoured to sketch, is a work of Architecture, although the exterior may be absolutely plain—nay, even uninteresting. If, however, the exterior is to be ornamental, this effect should not be attained by added ornament having no relation to the interior, but

THE DECORATION SHOULD HARMONISE

with and suggest the interior and its occupants, just as in a work of sculpture the exterior of a figure suggests the internal framework—the well-developed muscles, the network of nerves, and, above all, the impulse which actuates them. To attempt a work of Architecture by first settling the exterior and then designing the plan and general interior to lead up to it is fatal. As an illustration of the correct principle of design, let us consider the idea of a Town Hall. It is first the centre, the heart of municipal life, whence all other parts of the municipality are governed. It should thus be placed in the centre of a town, in an open square or place. Its various departments—or, to use a conventional phrase, its cells—should be emphasised externally and internally. The emotions pertaining to each should be considered and depicted, or rather suggested; the relative importance of each to the other should be weighed in locating them; the prison cells, the Courts of Law, the offices, the entrance and assembly halls, the suite of reception rooms, &c.; simplicity of plan and easy access to the departments being essentials. The physical proportions of each group should evolve from these considerations, and, in the mind of the architect, the exterior should grow *pari passu* with them, and should express each group and

THE UNITY OF THE WHOLE.

The design of the exterior should also stamp with expression the mechanical functions of the several parts of the construction, and thus, as the various members of a human body are fitly joined together, the whole conception will convey to him who has eyes to see and mind to appreciate, the idea sought to be expressed. In times not long past these principles were ignored, and the exterior was designed, or rather copied, from a Classic temple—from a building which externally expressed faithfully the one cell which it contained, the abode of the god. Such an exterior has no relation to the complex buildings of to-day. Or let us take, at the other end of the scale, the idea of a workman's small dwelling. My friend Dr. Godfrey Sykes, a well-known medical officer of health, remarked to me lately that the solution of the problem of housing the million should be regarded from the sanitary, social, and ethical standpoints. Now the backbone and basis of our social policy in England is the home. The idea of a home is lost when a family is compelled to live in one room. What, then, is the idea of a home? Its central feature is the place of reunion of its various members—the living or common room—well lighted by windows and warmed by a stove or open fire. Where outlay must be restricted we cannot waste money on passages, and there can be no objection to let the common room be

A CENTRAL HALL,

with bed rooms opening from it on two sides, the third side containing the scullery, water-closet, &c., disconnected by a ventilated lobby. Each bed room should have a window and a ventilating flue, while the heat from the common room stove will be sufficient to warm the bed rooms, and save the cost of fireplaces and of fuel. Such a humble dwelling will be a home, and a congeries of such homes may

be placed side by side in the country or one upon another in a town. In the latter case the staircase should, of course, be external to the houses. The æsthetic in such a dwelling as we have described can be expressed in simple ways, in little thoughtfulnesses of detail, in showing consideration for the housewife's wants and aspirations, making windows that will take flowers, in provisions for fostering modesty, &c. In considering the expression of construction let us compare two types of buildings, and see the relation of the construction to the design. Take a barrel-vaulted church. This vault, having an equal thrust at all parts of its bearing on the wall, demanded and received for its support a massive wall equal in thickness throughout its length, with relatively small openings. In such a case, buttresses at any points would be out of place. By contrast, take a groined vault; here the weights and thrusts are concentrated on points, the wall between these points is but a screen, and can be light in treatment, and may be pierced with windows of any size.

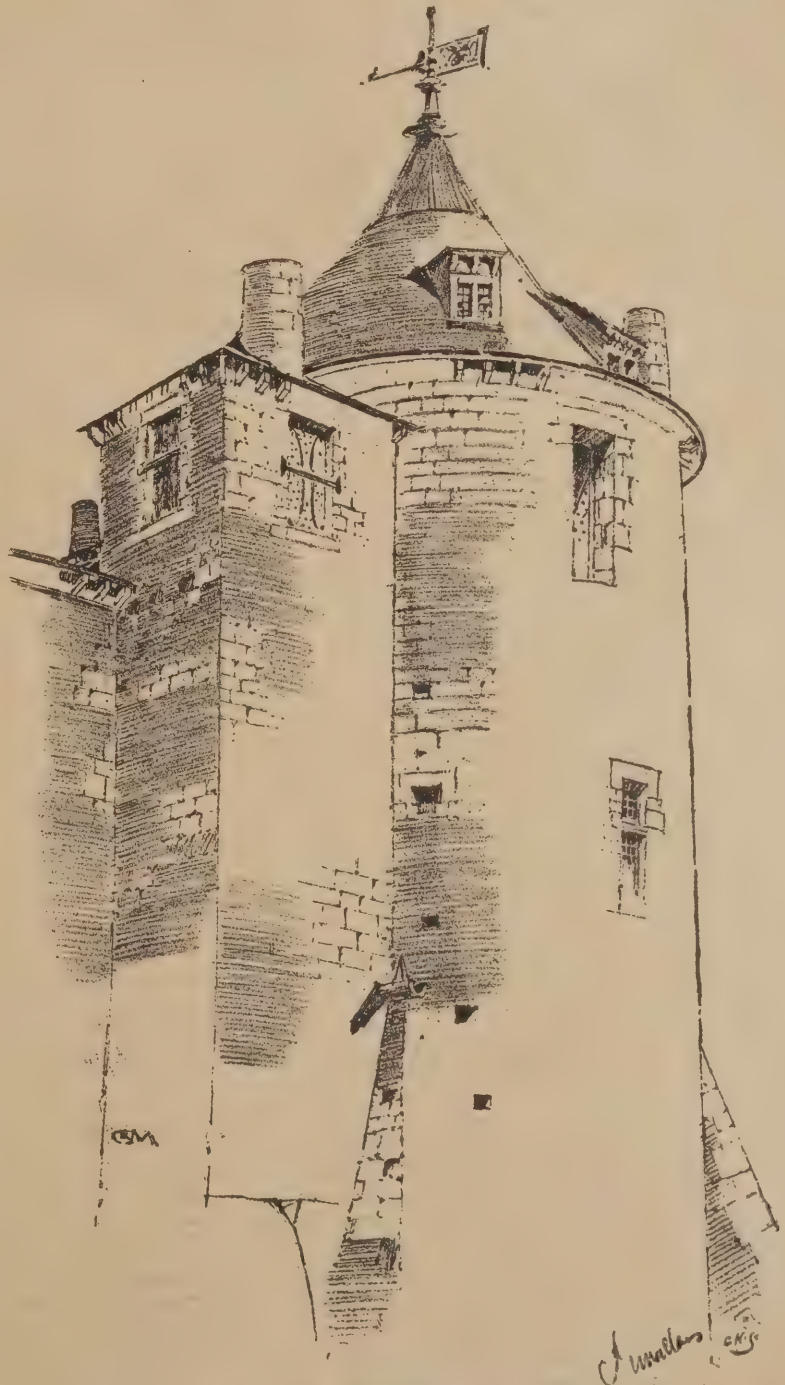
THE POINTS OF SUPPORT,

however, require to be of large horizontal section, and buttresses become necessities evolved from the construction. Did time

permit, we could trace how this groining and concentration of loads led to all the characteristic features of Gothic design. In Viollet-le-Duc's "Rational Building" we have the whole scheme worked out. It has a peculiar bearing on the subject of our paper, because it shows how practically a new Art development was laboriously worked out from construction. It teaches us that "Art is the result only of sober, cool, intelligent thought and technical knowledge, which is acquired by hard, persistent, and long-continued labour," and further, that that labour evolved a result not otherwise to be attained. M. le Duc shows that practically the Romanesque builders had before them the remains of Roman vaulted buildings in their country and nothing else. They were not travelled men, they were too poor to import architects from abroad, and not having the command of unlimited labour and wealth like the Romans, they set their intellect to work to devise some means of getting similar results with home material and home labour. Our author shows how, in the earlier part of the eleventh century, they built

BARREL-VAULTED CHURCHES

and halls which half a century later fell down; how, profiting by their failures, they again set



CASTLE COCH. SKETCHED BY C. E. MALLOWS.

* A paper read before the Architectural Association on Friday, Dec. 9th, 1898.



CASTLE COCH FROM THE RIVER TAFF. FROM A SKETCH BY J. M. STANFORTH.

to work with renewed energy and experience, and gradually, by slow but certain steps, evolved the Gothic-groined vault; how this in turn led to the plans of piers, how the capital became a corbel, instead of being, as it was in many Egyptian, Grecian, and Roman buildings, not a support but only an ornamental termination to a column. This may be seen at Edfoo, where the abacus is of the same width as the diameter of the column, while the capital is projected far beyond it, or in other examples, where, instead of abacus, there is a square shaft between the capital and the entablature; and, again, in the groined vaults of some of the Roman thermæ, where the plan of the vault abutment is a square of the same dimension as the diameter of the column supporting it; above the capital and below the vault springing is placed the complete entablature of the Classic order. In some churches, both in Normandy and in England, capitals are dispensed with, but this appears to give weakness to the design. A mark of separation between the function of the arch and that of the pier is of great phonetic value, and as such the capital or impost moulding has commended itself to the great majority of our buildings. Reverting to

THE GOTHIC ART-CRAFTSMEN,

we note how they carried down their arch mouldings into shafts on the face of the reduced piers, and so step by step and line by line a new art development—a new Architecture—grew out of and was determined by the construction which it boldly displayed. Gwilt says: "There is more constructive skill shown in Salisbury and others of our cathedrals than in all the works of the ancients put together." It is not out of place to note in this connection

that while the Gothic shaft grew downward from the moulded arch, the shafts or fillets on the angles of Egyptian pillars grew from below and terminated in the non-functional capital. We hear of taste in Architecture, we hear of genius, but neither one nor the other could have dispensed with the more sterling and laborious qualities which evolved the new Gothic art, an art which has commanded and still commands the admiration of all who see its harvested fruits. And here it is pertinent in parenthesis to remark on this much misused word taste. It is often spoken of as an intuitive gift, and many who arrogate to themselves its possession, dogmatise on matters of Art as though the appreciation and knowledge of Art

NEED NO TRAINING WHATEVER.

Artists are not so easily made. Taste to be of any value or authority must be the outcome of wide observation, of judicial power of comparison, and of education in its widest sense. And even then it is a variable standard which each sets up for himself, the result of his study or environment, and therefore in no way a standard of universal application. To a devotee of Classical Architecture, the proportions of a Classic column are in the best taste, while those of a Gothic shaft are barbarous, and *vice versa*. Of genius in Architecture we may say, as Mr. Froude says of the gifts of strength, of wealth, of rank, of worldly power, "It is a splendid instrument if nobly used, but requiring qualities to use it nobler and better than itself." The architects and craftsmen of our most beautiful mediæval cathedrals evolved their masterpieces, as we have seen, by laborious

study of the materials they had to deal with, of the forces exercised by their material employed in different ways; and the constructive features arising therefrom became the motives on which their design was based. The various phases and incidents of Christian worship and ritual then led to the general planning of their building; the nave, the aisles, the transepts, the chapels, the choir, the chancel, the sanctuary—all made subservient to, or rather based on, the Cross, the great emblem of their faith—and subsidiary to these, the chapter house, the library, the offices, the cloisters, &c. In every part we see

PLAN AND CONSTRUCTION EMPHASISED

as integral parts of the Art expression. In them there is no room for talk of the work of the engineer and builder first, and the clothing of Architecture added to this. Architecture as a fine art is everywhere, and the Art atmosphere pervades the building not only in Architecture, but in painted walls, windows, and roofs, in sculptured figures, traceries, and canopies, in music, in stately processions of men, in waving banners, in adoring congregations—the whole having its main aim in rendering glory to the invisible God, a God whose majesty and mystery, as revealed by Christ, led to the soul's uplifting in a way that must have been unknown to the Greeks, whose gods were but deified mortals of whom their votaries could have had but a measurable appreciation. These were days when Art permeated the masses, in dress, in pageantry, in village festivals, in guild processions. Be it remembered, I speak of the period when the priesthood of the Christian Church were self-denying men, living in a chosen poverty, the teachers, the guides, the protectors of their flocks, drawing to them all that was good and great and generous in rich and poor alike; and before

THE GREAT CANKER OF WORLDLINESS,

of wealth, of lust of power, of intrigue and immorality had sapped their influence for good; before the Pope had in 1489 commissioned the Cardinal Archbishop Morton, his legate, to make inquisition into the charges made against the monasteries, resulting as it did in such a condemnation by the legate as justified beyond question the worst of the accusations. In the earlier times Art was a power to raise men. In the degenerate days towards the early part of the sixteenth century it not only lost its power over men, but it came to stink in their nostrils as associated with the falsity of those who had been its leaders and patrons. And with this loss of faith in the Catholic Church, the cult of Gothic Architecture as a living and growing Art fell into a trance, and so remained for centuries. The moral shock not only brought about the Reformation, it chastened the laity, hardened their natures, made them puritanical. Their reverence of God was indeed intensified. The virility of the people asserted itself, and the horrors perpetrated in the western hemisphere by the most Catholic Spanish nation sent such a thrill throughout England that no wonder the gentle and refining

INFLUENCE OF ARCHITECTURAL ART

was replaced by zeal and hatred against the system with which it was most closely related. The energy of the nation was diverted. It became the instrument of Spain's destruction, and in fulfilment of that mission the great men of the Elizabethan era—Drake, Frobisher, Gilbert, Davis (whose name is perpetuated in Davis' Straits), Hawkins, Raleigh, and many others became the pioneers of that colonial empire of which to-day we see the development. The lives of these men are most interesting studies. That they were impressed with a firm belief that they were doing God's work is beyond question. They were human, and some of them blunt, unlettered men with faults grave enough, judged by our standards of to-day; but Froude, Charles Kingsley, and Towle give us pictures of the purity of their lives, of their chivalry, their devotion to duty. It was in such an atmosphere, and with these heroic surroundings that Shakespeare—as we are reminded by Froude—found living models for the finest and noblest of his dramatic

characters; so that if Art in one of its phases was banished, in another it blossomed in a way that has never been surpassed. But while Shakespeare in immortal drama wrote of men and manners of history and philosophy, Architecture remained

THE HISTORY IN STONE

of the past and passing ages; of the life of the nation from generation to generation. Take an old church begun in the early centuries of our English civilisation; and see how the gloomy interior of the earliest period is opened up to light by large windows of a later period; modified in other respects from time to time; the rood screen, once the line of demarkation between the clerical and the lay, now denuded of its titular ornaments, often removed from its normal position to inclose a side mortuary chapel or a secular lord's pew. Such a church tells us of the evolution of our history and race—whether upwards or in decadence—of sacerdotalism, of puritanism, of the autocratic king or the revolutionary rabble. The beautiful building—the emanation of man's aspiring soul, the offspring of his highest faculty—the creative—breathes of man's high mission, "its tenderness, its heroism, its regrets, its aspirations," as Oliver Wendell Holmes expresses it. What so grand as the interior of Westminster Abbey? Her Architecture, itself marking epochs in the nation's life, scarred but not marred with monumental records of her son's self-sacrifice to duty; of their energy, their learning, their great endeavour in all the paths of

PHYSICAL AND MENTAL ACTIVITY.

In what gallery of painting or of sculpture can such sublimity be found? Here the sculptor's Art appears as handmaid to attend the sister Art. Sculpture is most sublime when, as here, it seeks not its own glory but to minister to hers; when it adds the grave and chaste beauty, so peculiarly its own, to the solid qualities of her reposeful dignity. But while this is true, it is also true that each of the arts has its separate identity, a personality as distinct and as responsible as that of any member of a human family. Each must work out her own salvation, aim for her own ideals and in such aim she may, and too often does loosen the ties which bind her to her sister arts. Yet let us again insist that Architecture is organic. Sculpture is a representation of organic; painting is inorganic, illustrative only. In Architecture sculpture may organic part of the structure, as figures in a Gothic doorway or as the caryatides in a Classic temple, but in such relation it is an accessory to Architecture, a blossom on the tree. In a somewhat different category we may cite

THE SCULPTURE ON THE PARTHENON.

This is organic, and I particularly wish to refer to the frieze. It has often been conjectured how this frieze came to be placed in the shadow close up to the cornice of the cella within the peristyle. It seems to me this stately procession in such a position, viewed from a short distance, broken up as it is by the columns, appears unending, mysterious, and perhaps was intended to be symbolical of the march of conscious life through all the ages. Detached works of sculpture are best seen to advantage within or in juxtaposition to a building. Viewed with a natural background of foliage, disassociated from anything Architectural, they appear lifeless; but on a background of man's architectural creation they become instinct with life; they are then like jewels of price on the neck of a fair woman, embellishing and embellished. I have referred to our Valhalla, but the Loggia de Lanzi of Florence will be recalled by all as another illustration. A painted picture is different. It needs, it is true, to be housed, owing to its

RELATIVELY PERISHABLE NATURE,

but for its appreciation as a picture, it demands exclusive attention, to be separated from its surroundings, the vision to be bounded by its frame, and the mind of the beholder to be detached from all else. It is true that painting sometimes elects the position of handmaid to Architecture when it is employed decoratively—it may be in a series of historical

records locally appropriate to and fitly forming part of the architectural monument it embellishes. In this case each picture has some harmony with its fellow pictures and with the sombre neutral hues of the stone. In such case painting becomes broader, more Catholic. The same applies to painted windows. They form part of the architectural composition; they enrich and beautify it; their detail is there, inviting careful attention, but, like the surface carving on the exterior of a Venetian palace or the walls of a Gothic church, they are primarily the mosaic incrustation giving brilliancy to the whole structure. Returning to our survey of Gothic Architecture, we find that with the downfall of the monastic orders in England, and the Conti-

might decorate than works of Architecture. They built, it is true, large buildings, but in few of them is the art a natural outcome of the construction. Many are frankly but backgrounds for painting. As an illustration, we may cite the Chapel of the Arena at Padua, painted by Giotto. It is a plain, rectangular room having a painted wagon-vaulted ceiling with windows on one side, and not a moulding on the surface of walls or ceiling. As

A WORK OF THE PAINTER'S ART

the interior of the building is acknowledged to be of the greatest beauty. The Sistine Chapel at Rome was commenced 1473, finished 1541, and Mr. Fergusson, in order to show the difference between the arts north and south of the



CASTLE COCH: COURTYARD FROM THE ENTRANCE. SKETCHED BY J. M. STANFORTH.

mental upheaval brought about by Luther; with the revolt of the laity against the priesthood,

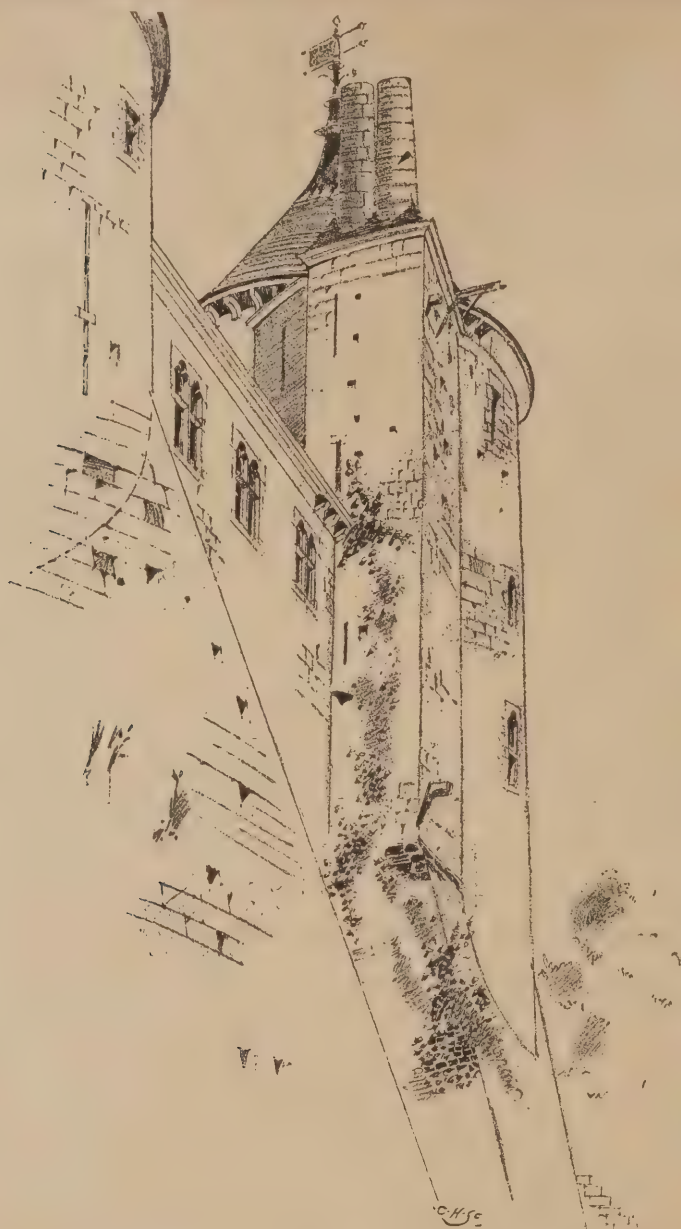
GOthic CHURCH BUILDING CEASED,

and closely following on its cessation the army of Craft Freemasons was disbanded, or, rather, dissolved to atoms. The revolt was so complete that Gothic Architecture in England was banned as associated with oppression and licentiousness, the virtue and self-abnegation of its artistic founders being forgotten. Meantime, the revival of the study of Greek literature disclosed to the student, as a new revelation, a people free, untrammelled, heroic, artistic, and god-like, the authors of pure and beautiful architecture, and cultured Europe turned to this fount for inspiration in all its art life. In Italy a demand for architectural monuments based on Classic lines found no school of architects at hand trained in the principles of their art, in the sense that the Gothic architects were trained. The sculptors and painters who were called to design the new Renaissance buildings were not hampered by preconceived theories of design, or, indeed, by technical knowledge of old buildings, and, although they sought to create, they were more anxious to build palaces which they

Alps, makes a comparison between it and King's College Chapel at Cambridge, built at the same time, 1479-1530. The Roman Chapel externally was a barn, internally it was almost devoid of architectural mouldings or decoration. It had a barrel-vaulted ceiling, groined over the semicircular-headed windows at the sides. Its walls were covered with paintings by several artists. Its ceiling was painted by Michael Angelo, and later the wall over the altar was filled with his great work "The Last Judgment." The Cambridge Chapel, on the other hand, externally has a rhythmic division and a rich architectural treatment, while internally it is a web of architectural detail, all growing out of and

EXPRESSING THE CONSTRUCTION.

It has its pictures, but they are transparencies in glass. The Sistine Chapel has been well and often described by able men, but if it has not already been noted I should venture to make a criticism in regard to its ceiling. This is a plain surface semicircular in section, divided into compartments by painted mouldings. As is well known, the central flat compartments from end to end are occupied with subjects ranging from the Creation to the Deluge, all illustrated with colossal figures,



CASTLE COCH. A SKETCH BY C. E. MALLOWS.

A spectator looking towards the altar sees the figures, it is true, in their proper or intended position, but seen from the altar end they are upside down and grotesque. Now, had all these compartments, instead of being flat, been constructed as shallow domes, either circular or square on plan, no such defect could have been possible, all figures that could be seen from either end or from the sides would have appeared natural in a partially upright position on the concave surfaces, and would not have looked as if they would fall. None could have been seen upside down, and from the art side we should have had the idea that each of the subjects forming

THE DECORATION OF THE DOME

separately sent up its praise and adoration to the Most High. In St. Paul's Cathedral Wren had evidently this aspiring idea in mind when he treated his ceilings with shallow domes throughout. In Sir W. Richmond's beautiful decorations of the choir we lose the painful impression of the Sistine Chapel, and do not feel that his figures will fall while each compartment raises its pæan to heaven. In St. Peter's at Rome, there are domes in the aisles, but the nave is a long plain vault. I do not propose to enter here into any comparison between St. Peter's and St. Paul's, except in so far as it relates to my subject, but in that relation I would remark that, if the Sistine Chapel ignores Architecture, St. Peter's on the other hand misuses it. At least three designs were made for it, and the conception appears to have eventuated in the idea of obtaining a

building with architectural features and details on a colossal scale, but instead of the resulting effect being a beautiful monument, the immense dimensions of which could at once be grasped, the mark has been overshot. All scale is lost. The Gothic cathedral architects kept their detail—their shafts and mouldings, and even their stones—small, and, judged by the scale of these, their buildings looked very large, while it is stated as a fact that some of the largest are but of the dimensions of an aisle of St. Peter's. Is it possible that this error arose from the fact that the Glory of God was not the only or

MAIN OBJECT OF THE BUILDING,

but rather the Glory of the Pope, who wished to emphasise the majesty of his power among the nations? In St. Paul's Wren avoided the error of colossal detail; his internal proportions became in consequence better, and there resulted a vista of imposing dimensions which the mind could grasp. The internal grouping, too, became more graceful; the double order, instead of the single one of St. Peter's, appears to lift up the roof; the domical compartments in the ceiling, to which I have already alluded, added to this effect, and led up to the great transeptal lantern and dome, the whole a conception of aspiring lines leading the eye and the soul ever upwards. Externally, in almost every part it appears to be superior in grace of proportion.

(To be continued.)

LONDON COUNTY COUNCIL.

At the meeting held on Wednesday last, it was agreed, upon the recommendation of the Finance Committee, to lend the Hammersmith Vestry £11,020 for electric lighting purposes; the Newington Vestry £10,000 for the same purpose; the St. Giles' District Board £17,160 for land for a depot; and the Wandsworth Guardians £3000 towards the cost of additions to the workhouse.

THE WORKS DEPARTMENT: HEAVY LOSS.

The Finance Committee reported that the works completed by the Works Department during the half year ending September last showed a loss of £21,000. The greatest loss was on the Lewisham main sewer, the final estimate for which was £54,092, and the actual cost £77,016. A further statement was put in showing that since the department was established the "loss" had been £40,866 on work costing £793,722. The jobbing works showed a net saving of £6185 on works costing £82,139.

WATER BILLS.

The Parliamentary Committee brought up a report with the draft Bills to be introduced in the ensuing session. The first was the London Water (Purchase of Companies) Bill, the arbitration clause being known as the "Plunket" clause; the next was the London Water (Welsh Reservoirs and Works) Bill; and the next the London Water (Aqueducts and Works) Bill.—Mr. Cornwall, in moving the adoption of this report, said there was only one alteration in the estimates for the Welsh scheme. Sir Alexander Binnie had asked that the estimates should be raised from £16,500,000 to a round figure of £17,000,000. It had been found impossible to get the whole of the plans of the aqueducts finished in time to comply with the Standing Orders, but it was hoped that Parliament would see its way, after learning the circumstances, to suspend the Standing Orders and allow the Bills to proceed.

THE HOLBORN TO STRAND SCHEME.

The Parliamentary Committee brought up a draft Bill in relation to London improvements (Holborn to Strand, Southampton Row widening, High Street, Kensington, and other works), and asked for the approval of the Council.—Mr. Campbell opposed the financial proposals of the Holborn to Strand section of the Bill on the ground of the excessive cost of the scheme.—Mr. Benson said he thought that few had realised the cost in interest to the ratepayers on the enormous sum proposed to be spent. The cost of the improvements would be £4,900,000. The four millions, however, would be required for the purchase of land and houses, the value of which would come back again into the pockets of the Council as capital returned. The net cost of the improvements would be about £900,000. In short, he argued that the interest on the sum for the improvements should be raised as capital expenditure. If they did not, it would mean an immediate increase of three farthings in the rates.—Mr. W. W. Bruce said the Chancellor of the Exchequer had agreed that there should be practically no charge upon the ratepayers until the work had been finished. Then the whole of the properties acquired would be in the hands of the ratepayers. The amendment was lost by seventy-two to forty.

THE PARLIAMENT STREET IMPROVEMENT.

The Improvements Committee submitted a long report on the subject of the great street-widening scheme now being carried out by the Government in Parliament Street. The Government had asked for a contribution towards the cost, as a considerable quantity of the cleared land would be given up for pavement purposes. The Office of Works estimated the cost of paving works to be £4000, but the Council's engineer thought that £8000 would be the more likely figure. If the paving of Charles Street were included, the committee thought the Council might contribute £12,000 towards the cost of the improvement.—Eventually the recommendation was agreed to.

ELECTRIC LIGHTING IN COUNTRY HOUSES.*

BY BERNARD M. DRAKE, M.I.E.E.

MR. DRAKE said that to the multifarious knowledge of the architect must now be added a grasp of the "practice" of electric lighting and its attendant paraphernalia. He should confine himself to the practical points which crop up daily in an architect's office, and are searched for in vain amongst the text-books at his disposal. In lighting a country house, the first question concerns the provision to be made for the generating plant, and where it shall be put.

THE VARIOUS DEVELOPED METHODS AT DISPOSAL

are:—1, steam engine; 2, petroleum engine; 3, gas engine; 4, water wheel or turbine; 5, wind engine; 6, primary battery. The advantages and disadvantages of each method were fully considered by the author, whose own experience was that a combination of gas and petroleum, or turbine and steam engine, gave the best results. Each case, however, required an individual study of the local conditions and working requirements before deciding what would be best; it was not a matter which could be safely left to the decorator or hot-water engineer to diagnose. From whatever source the power is obtained, the dynamo for ordinary requirements is the same, except that it requires to be fitted with a fly-wheel for use with petroleum and slow speed gas-engines, providing the engine has to be run while the lights are used. Where only required for charging the accumulators, this may be omitted, as it wastes power. The most important features in the

DYNAMO FOR COUNTRY HOUSE LIGHTING

are:—1, Absence of sparking, which wears out both brushes and commutator; 2, perfect balance of the armature or revolving portion of machine, vibration being one of the causes of what are known as flats on the commutator; 3, strong shaft and wide bearings; 4, good automatic lubrication, the best form being a loose ring revolving in an oil bath; 5, absence of heating—undue heating of the armature and magnets causing unnecessary loss of efficiency. The accumulator is a necessity in every country-house installation, and the position of the room for its accommodation requires careful consideration. For reasonable distances up to 150 yards the engine and accumulator rooms should be placed alongside each other, so that the attendant can see that each cell charges up equally, which is essential to success. Where the current is brought from a distance, or where the light will always be supplied from the accumulator alone, a considerable saving can be made in

THE COST OF CABLES

by separating the engine and battery room. There must be no direct communication between the dynamo and cell room, or the cotton insulation will be found to rot off the dynamo after a few years. In selecting a type of accumulator, the main question is absence of attention, which can only be obtained by having the plates well apart, say half an inch, so that any detached portions fall away, instead of bridging across and exhausting the cell. The author considered that a clear space between the plates was also preferable to enclosing them in any form of celluloid bags or wrappings, which soon become clogged with oxides. The use of a registering meter is recommended in the engine room as the best check on the amount of coal, oil, or gas consumed. The engine house should be placed with due regard to prevailing wind, and not less than fifty yards from the main building. The author next considered the questions of first

cost and working cost, giving data applicable to average country house installations, from which also could be determined the class of motive power to be adopted. Results were also given of a week's recent test with a modern generating plant, for a large installation of 2000 lights. In discussing the lighting of rooms, the author emphasised the necessity of having light and dark portions and, as it were, semi-tones. A room lit equally throughout gives a flat effect, and is neither artistic nor restful. A bright light causes an involuntary contraction of the pupil of the eye, and causes a tired feeling which may ultimately result in eye troubles.

THE IGNORANCE OF ELECTRICIANS

concerning this simple fact is probably responsible for the complications ascribed by oculists to the electric light itself. The secret of a restful light is the illumination of a large surface with an absence of any dazzling spots of small area. In a room thus lit the pupil of the eye expands to its full limit, and the weakest eyes can read with comfort. To get this result either the rays must be diffused by transmitting them through a large shade, or reflection must be resorted to and the direct rays be projected on the walls and ceiling from some hidden source. The illuminated surface is then greater than that of even the largest shades, and the effect more restful. This treatment in the case of light-coloured walls and ceiling is capable of wide adaptation. A combined shelf and picture rail containing a row of hidden lamps for reflected light had been employed by the author, and pretty effects could also be produced with small lamps concealed in the overmantel and in china cabinets. Coming to the question of

FITTINGS IN OLD HOUSES,

the existing candle fittings have often to be adapted, as being in accordance with the style of the room. As regards the objection that imitation candles are inartistic, it must be remembered that the designer had the candle in view as the basis of his outline, and without it the proportions are wrong, and the drip cups and other parts meaningless. An incandescent lamp springing direct from a candle socket is a squat abortion that has nothing to commend it. In these cases every effort should be made to get the precise effect of candles without their disadvantages, and as far as possible to conceal the fact that electric light has been employed. Examples were shown of the way in which old fittings may be treated without detriment to their appearance, and attention was called to the economy of shading only the front of lamps placed against a wall, for thus the full advantage of reflection is obtained, and an eight candle-power lamp will take the place of a sixteen candle-power if totally enclosed. There were also shown

A FEW TYPICAL FITTINGS

made expressly for electric light. Having touched upon the fittest materials for shades, the colours of which should be tested before making a selection; the objections to working the lamps into plaster-work in the ceilings instead of using metal fittings; the precautions to be taken to avoid risk of fire from the heated lamps, the author concluded with some hints on the treatment of the different rooms, passages, and staircases. In adapting candle fittings to a dining room table the wires are distributed by a patented connector lying under the table centre, and neither the table nor the cloth is pierced. One of the best effects produced by the author was in the dining room at Chatsworth, where powerful lamps were hidden in reflectors at the base of the pictures all round the room—thus pictures and ceiling were illuminated and the rest of the room remained in repose. In drawing rooms, which should be brilliantly lighted, the author preferred to light principally from the walls and from standards, as a top light is unbecoming to ladies, causing dark shadows under the eyes. In picture lighting top as well as base reflectors are frequently necessary with large pictures. Lantern slides were then shown of compartments in several houses where the author had been responsible for the

electric lighting. The photographs were taken with very sensitive plates by the electric light itself, and gave the appearance of the compartments when lit.

Mr. Arthur Cates, at the meeting of the R.I.B.A. on Monday night, announced the decease of Mr. Henry Bridgford, of Manchester—elected Fellow in 1888; and Professor Hayter Lewis—elected Associate in 1845, Fellow in 1852. He had served as Hon. Sec. of the Institute for a period, and was twice elected Vice-President, serving that office from 1865-67, and 1878-82; and it was only on account of ill-health, added Mr. Cates, that he had not occupied the presidential chair.—The President, Prof. Aitchison, R.A., proposed a vote of condolence with the family of the late Professor Lewis. Mr. Aitchison said he had known Mr. Lewis for many years; he was a most accomplished architect and a perfect friend and companion.—Mr. John Slater seconded the vote, and alluded to Professor Lewis having claim to their respectful and grateful remembrance by reason of his having held the Professorship of Architecture at University College. The speaker attended Mr. Lewis's classes for several years, and although he did not regard the Professor as an ideal lecturer, yet he could truthfully say that his one desire was to give as much help as possible to the students attending his classes. The vote of condolence was carried in silence, and it was then announced that the Institute had voted £10 to the fund for erecting a monument to the late M. Charles Garnier. They all knew his work, said Professor Aitchison in making the announcement, and he was bound to say that he thought his Opera House in Paris one of the most extraordinarily clever pieces of Architecture that had been done in his time.—Mr. Drake's paper was followed by a second paper by Mr. H. R. J. Burstall, M.Inst. C.E. on "Practical Applications of Electrical Power," of which an abstract will be given in our next issue.

The annual dinner of the North East Coast Institution of Engineers and Shipbuilders was recently held in the Assembly Rooms, Westgate Road, Newcastle.

ABOVE £3000 has been subscribed or promised towards a fund for restoring the parish church of Holy Trinity, Hull, one of the historic edifices of the county of York.

A new organ was opened last week at Weston Church, Runcorn, by Dr. Bridge, of Chester. The organ is the gift of Mr. Thomas Spencer, of Ryton, near Newcastle. Messrs. Young and Sons, Manchester, are the builders.

It has been reported to the Public Health Department that No. 2, Cannon Street is in a dangerous condition. The whole of the cement work of the coping, the pediments, and the architectural decorations is said to be in a dangerous condition, and to require pulling down forthwith.

In consequence of the increasing rents and the additional difficulty of the working classes to obtain houses in the East End, the Bow vestry has passed a resolution calling on the County Council to acquire the Grove Hall site, Bow, on which to erect workmen's dwellings. It is estimated that over 1000 persons could be housed on the site, and provision made for a small recreation ground.

At the monthly meeting of the Metropolitan Public Gardens Association, held at 83, Lancaster Gate, W., the Earl of Meath, chairman, presiding, progress was reported with regard to the laying-out of the Paragon, New Kent Road; and Albion Square, Dalston. It was agreed to plant trees in Upper Street and Ilamford Street, Islington, and to offer trees for certain sites in the Strand and the City. It was agreed to offer seats for the churchyard of St. Andrew Undershaft, to memorialise the Metropolitan vestries and district boards respecting tree-planting in London, to urge the Hornsey District Council to preserve the Queen's Wood in its natural state, and to continue negotiations with respect to the proposed opening of Finsbury Circus, Christ Church Churchyard, Blackfriars, and other spaces.

*Abstracts of a paper, entitled "Some Practical Hints on the Production and Use of Electricity for Lighting Country Houses," read before the Royal Institute of British Architects, on Monday, December 19th, 1898.

The Destruction of Florence.

TO cultivated men and women all over the globe Florence has a special interest. They have been used throughout their lives to look to her with reverent affection as the birthplace of much in our modern culture and civilisation which they most deeply cherish. She is to them a second Athens which in evil days received and handed down all that had survived of the spirit of the first. They venerate her as the cradle of modern literature, as the home of an Art surpassed only by the Art of ancient Hellas, as the hearth where the first sparks of modern thought were kindled from the dying embers of classical antiquity. She is, says the Times, in their minds, a sacred city haunted by memories which mankind can never let die. They visit her in the temper of pilgrims, and as they walk her ancient streets and gaze upon her stately palaces and yet nobler temples they love to people these in fancy with the shades of the mighty dead. The fame and the achievements of her citizens are immortal. They brought about and guided the great movement of the Renaissance—the new birth of the human intellect after the long slumber of the Middle Ages. Nobody who is acquainted with the feelings of the cultivated Florentines of to-day can doubt that their love and enthusiasm for the history and antiquities of their city are at least equal to those of the most ardent amongst the foreign admirers of Tuscan learning and of

TUSCAN ART.

The affection and the care which men like Professor Villari and Professor Mazi, to mention two names out of many, devote to the study of bygone Florence is a sufficient proof that the Italian inhabitants prize, at least as highly as any strangers, the glories of the city in which they dwell. There are many members of the old noble houses of the Tuscan capital not less alive to the incomparable artistic charm of their home as it has come

down to them, and even amongst the people, as the interest they took in the completion of the façade of the Duomo some years ago shows, the old instinct for beauty and the old pride in the loveliness of their surroundings are by no means dead. It must be owned, on the other hand, that recently there have been symptoms of the activity of another spirit amongst the inhabitants of Florence. Some years ago the municipality undertook and carried out a scheme of demolition in the heart of the old town which has filled with dismay all who remember and who love Florence as it stood before this "improvement" was carried out. The then "Sindaco" of the city, Prince Corsini, and other cultivated members of the municipality protested, but their protests were in vain. The "centro" of to-day, with its "ostentatious and dreary square," remains as a startling proof of the things of which the majority were capable. There does not appear to be any dispute that improvements of some kind were absolutely needed in this part of the city for sanitary reasons. All that is urged against the works actually executed is that the demolitions were unnecessarily extensive, and that the new constructions upon the area cleared are ugly in themselves and wholly out of keeping with their surroundings.

THE NEW PIAZZA

is a permanent eyesore, but the lovers of historic Florence would be glad to feel secure that it is not to be enlarged or imitated elsewhere. It must, we think, be owned that a perusal of the letters signed "Vernon Lee" as representing "The Society for the Protection of Old Florence" and the Marquis Torrigiani, is not exactly reassuring. Nothing, it is true, can exceed the courtesy of the Sindaco's answer to the memorialists. He acknowledges indeed a certain degree of surprise that it should have been thought necessary to address him on such a subject at all, and he protests emphatically against the suspicion that the civic representation of Florence is indifferent to its own historic and artistic monuments.

But he assures the signatories to the address that he is proud to see that these monuments are so well known abroad, and that men of such eminence should be concerned for their preservation. He is able, too, to make some statements of a reassuring kind. He declares, for example, that the commune "for the moment" has no intention of doing more than the requirements of modern life in the way of hygiene, communications, and commerce demand. He follows up this somewhat elastic formula by a positive denial that anybody has contemplated the destruction of the Ponte Vecchio or of the houses upon it. He adds that in the quarter across the Arno, about the Via Maggio, where improvements are needed, there is

NO INTENTION OF DESTROYING

"any such houses or characteristic towers as can be preserved in the interests of hygiene." In the conversation which he had with "Vernon Lee" he went further. He stated that the Palazzo di Parte Guelfa would not be touched, that all the threatened towers in the Borgo S.S. Apostoli and the neighbouring streets would be preserved, and that there never had been any idea of pulling down the river side of the Borgo San Jacopo. But, as "Vernon Lee" points out, the Marquis Torrigiani was mistaken upon this last point, and however good may be his personal intentions he cannot bind the hands of his successor. He admits, too, it will be noted, that the appalling project for a colonnade from the "centro" to the Ponte Vecchio still exists in a state of suspended animation. In these circumstances the foreign lovers of old Florence will do well to strengthen the hands of the Italians who are trying to preserve the old monuments of the town. To be efficacious, their efforts must be conducted with judgment, tact, and good sense. The appearance of interference in what is in one sense primarily the affair of the citizens of Florence must be studiously avoided, and allowance must be made for the modern requirements of the city.



RUINS OF THE BISHOP'S PALACE, ST. DAVID'S. FROM A DRAWING BY H. J. FINN.

Bricks and Mortar.

EFFINGHAM HOUSE, ARUNDEL STREET,

December 21st, 1898.

"I know what it is to live in a cottage with a deal floor and roof, and a hearth of mica slates; and I know it to be in many respects healthier and happier than living between a Turkey carpet and a gilded ceiling, beside a steel grate and a polished fender. I do not say that such things have not their place and propriety; but I say this, emphatically, that the tenth part of the expense which is sacrificed in domestic vanities, if not absolutely and meaninglessly lost in domestic discomforts and incumbrances, would, if collectively offered and wisely employed, build a marble church for every town in England; such a church as it should be a joy and a blessing ever to pass near in our daily ways and walks, as it would bring the light into the eyes to see from afar, lifting its fair height above the purple crowd of humble roofs."—JOHN RUSKIN.

SOME interesting facts are to hand as to the condition of Japanese prisons. These buildings are constructed of inflammable materials, are lighted by paraffin, are greatly overcrowded, and are practically destitute of sanitary appliances. A representative deputation of foreigners, who recently inspected two of the houses of detention, found as many as thirteen persons confined in a cell 12ft. by 9ft. The flooring was covered with thin straw mats, and so closely were the inmates packed that it was impossible for them to lie down at night. All the fittings of the prison were of wood, so that in case of fire a grave disaster would be inevitable. A punishment cell had a door so small and so low that it could be entered only on hands and knees. The cell was perfectly dark, and the only ventilation was half a dozen narrow slits in the ceiling. The Japanese are not to be accused of inhumanity. They recognise the antiquated nature of their prison accommodation, and are rebuilding the houses of detention as fast as circumstances permit. But it might have been as well if the European Powers had waited until the rebuilding operations had been completed before assenting to the abolition of the capitulations.

As a preliminary to filling in with mosaic work one of the three vacant spaces in the central hall at St. Stephen's, the panel over the entrance to the corridor leading to the commons lobby has just been opened up for the reception of Sir Edward Poynter's cartoon of St. David. This will immediately face the presentment of St George, by the same artist, which was erected some years ago, and the brilliant colouring of which is always a source of admiration when the hall is lighted. It is expected that by the time Parliament re-assembles in February next the work will have been completed, leaving only the panels to the right and left, in which are to be placed to plate Mr. Albert Moore's designs of "St. Andrew" and "St. Patrick," to be filled in.

At a special meeting of the East Sussex County Council recently, the members had before them a report from the Visiting Committee giving estimates of cost of the new asylum, and another from the Finance Committee recommending application to the Local Government Board for additional borrowing powers, in view of the large expenditure probable during the next few years. The former committee has approved of the preliminary plans prepared by the architect, Mr. G. T. Hine, and recommends that in the first instance accommodation be provided for 1055 lunatics, 60 idiots, with a view to ultimate extension. The cost for the smaller number is



WINCHESTER COLLEGE, CHAPEL, AND CLOISTERS. FROM A DRAWING BY H. J. FINN.

estimated at £267 per bed, a total of £297,582, and for the higher number £248 per bed, equal to £261,602. Unfortunately, space will not permit of our giving the full text of the report of the Asylum Committee.

THE Site Committee's Report contains the following passages: "The Site Committee wishes to express its recognition of the manner in which Mr. Hine has met its views and suggestions. It is much impressed with his determination to make the efficiency of the asylum the chief consideration, having due regard, however, to saving of unnecessary expense. The Site Committee also submits the finished estimates prepared by Mr. Hine, and has the satisfaction of reporting that notwithstanding a large increase in the expense of building since August, 1897, when the committee informed the Council of the probable cost per bed of a complete asylum, the estimates of Mr. Hine do not exceed the limit then given. The total cost, however, will exceed that mentioned to the Council, the

excess arising from the fact that the committee decided, with the concurrence of the Site Committee, to increase the number of patients for which the asylum was to be planned."

AN interesting paper on the lonely group of Caroline Islands, in the South Pacific, was read before the Geographical Society last week by Mr. F. W. Christian, who has recently spent some months there. Apart from their political importance at the present moment, the Carolines have a claim upon geographers and anthropologists on account of the gigantic memorials which they retain of a prehistoric race of builders. In the harbour of Ponape, one of the easternmost islands of the long-drawn-out archipelago, is a group of artificially-constructed islets, forming a perfect Venice of waterways and buildings, known as Metalanim. On these are the tombs of the departed race, walled round with massive structures of columnar basalt stripped from the cliff thirty miles away, and carried across the lagoon.

These ruins, overgrown with masses of dense jungle and creeper, have been known to exist for many years past. They were visited by Admiral Bridges in 1883, and ten years previously by Mr. Woods.

MR. E. J. VAN WISSELIINGH has opened at the Dutch Gallery, 14, Brook Street, Harover Square, W., the first exhibition of Original Wood Engraving. The seventy-one examples in this admirable exhibition are specimens of the work of J. F. Millet, T. S. Moore, William Nicholson, L. Pissarro, C. Ricketts, R. Savage, and C. H. Shannon. The three drawings by A. Legros, engraved by C. Ricketts, are particularly striking. Early in the nineteenth century the use of the graver superseded that of the engraving knife, and this change happened in the hands of an Englishman. Ever since, it has been in England that we find the greatest number of original wood engravers, and, on the whole, the keenest sense of the resources of the medium. The names of Blake, his pupil Calvert, and Bewick, have become household words. The woodcuts collected in this exhibition have been done during the last ten years, which time has been given up almost to process work. Contrary to the popular belief, only two foreign artists can be certainly associated during almost two centuries with an original wood-cutting, namely, Altdorfer the German and Livens the Dutchman. In recent times, Jean François Millet made some experiments with his brother.

MR. A. J. HUGHES, engineer to the Calcutta Corporation, has (says the Times of India) published a pamphlet which is a strong indictment of the sanitation in cities of India. "It has become impossible," he writes, referring to the sanitary conditions of Calcutta and Bombay, "that a civilised Government can continue to permit these great cities of commerce to remain, as they are at present, literally plague spots, in which are fostered, and from which proceed, such deadly diseases as cholera and plague." At the end of the pamphlet he says especially of Calcutta:—"The city is a first-class trading centre, and its sanitary condition is a standing menace to the health of the world."

IN connection with the noble gifts to Derbyshire in the name of the late Sir Joseph Whitworth, Bart., the millionaire inventor, the Duchess of Devonshire has performed the inaugural ceremony of the Whitworth Hospitals, at Darley Dale. This is part of the scheme carried out by the devisees of the late baronet, Mr. Chancellor Christie and Mr. R. D. Darbshire, which has resulted in buildings to the value of £150,000, comprising an institute, a park, and now a couple of hospitals, being handed over to locally-constituted trusts for ever, together with ample endowments.

At a meeting of the Executive Committee of the National Trust, held at 1, Great College Street, Westminster, the question of the ownership of the mediæval well of St. Winifred, at Holywell, Flintshire, was discussed, and it was decided to ascertain in whom the right of taking water from the well was vested. The proposed enclosure of the public recreation ground at Alfriston in Sussex was also discussed, and the chairman (Sir Robert Hunter) said he was advised that the Parish Council had no legal right to enclose the Tye or consent to its exchange for other land. Canon Rawsley read a letter from Herr Zahringer of Lucerne, explaining how the rumour had arisen that the old Kapell Brücke was to be pulled down. The origin of this is that a footbridge was to be built across the Reuss near by it. A letter was enclosed from the chairman of the Town Council of Lucerne, giving an assurance that the old bridge would be in no way interfered with.

ON Wednesday the Metropolitan Tribunal of Appeal had before them a matter under the London Building Act involving the question of the extent of the County Council's authority

over the construction of corner houses in the laying out of streets. Mr. Seaman, the appellant, secured in 1886 the sanction of the Board of Works to a contract by which he became the builder of houses upon freehold property in Mozart Street, Paddington, and under it he now proposed to erect a building at the corner of Mozart Street and Bravington Street. The London County Council, however, decided that under the Act the two frontages of the house must be uniform with the respective streets to which they were adjacent. The view of the builder, however, was that corner houses should be treated as having a frontage in only one of the streets. The Tribunal decided that the house would have to be regarded as being in both streets, and the decision of the London County Council and their superintending architect was upheld.

OUR Peterborough correspondent reports that much interest has been created in that city by the discovery in the yards of the Peterborough New Bricks Company, at Fletton, of the skeleton of a pre-historic animal of prodigious size. The bones were encountered in the clay deposit, nearly 20ft. below the surface of the ground. Mr. A. Keeble, member of a well-known Peterborough firm who have to do with the brickyards named, at once communicated with Major Leeds, of Eye, who is looked upon as a specialist in regard to these fossil remains, and he has been carefully superintending the recovery of the remains. What the discovery really amounts to is not at present definitely known; but local geologists are agreed that it is the remains of some prehistoric monster, which measures some 50ft. from the tip of its tail to its mouth. The tail is 16ft. long, and one of the foreleg joints is 4ft. long and about 2ft. in diameter. If anticipations are verified, the find will prove of great scientific interest, inasmuch as it is thought it may possibly be the first complete fossil remains of its kind yet discovered in the country.

THE old house, No. 19, Fleet Street, another piece of ancient London, will disappear in the course of a few days. Now in the occupation of a hairdresser, the house, which is known as the old Palace of Henry VIII. and Cardinal Wolsey, is generally believed to have been the office of the Duchy of Cornwall in James I.'s reign. It was built by command of Cardinal Wolsey by Sir Amyas Paulet, and it is related that when Wolsey was a young man he had offended Sir Amyas, who promptly had him placed in the stocks. Later on, the house was turned into Nando's Coffee House, and it was here that Lord Thurlow, then an impecunious barrister, picked up his first brief. The workmen have commenced to pull down the house. It is to be rebuilt by Mr. Carter. The most interesting room in the house is on the first floor. It is gorgeously decorated, and contains some very valuable specimens of antique carving. In this room Henry VIII. and Wolsey met on several occasions, and the chair in which the Cardinal sat still stands in the room.

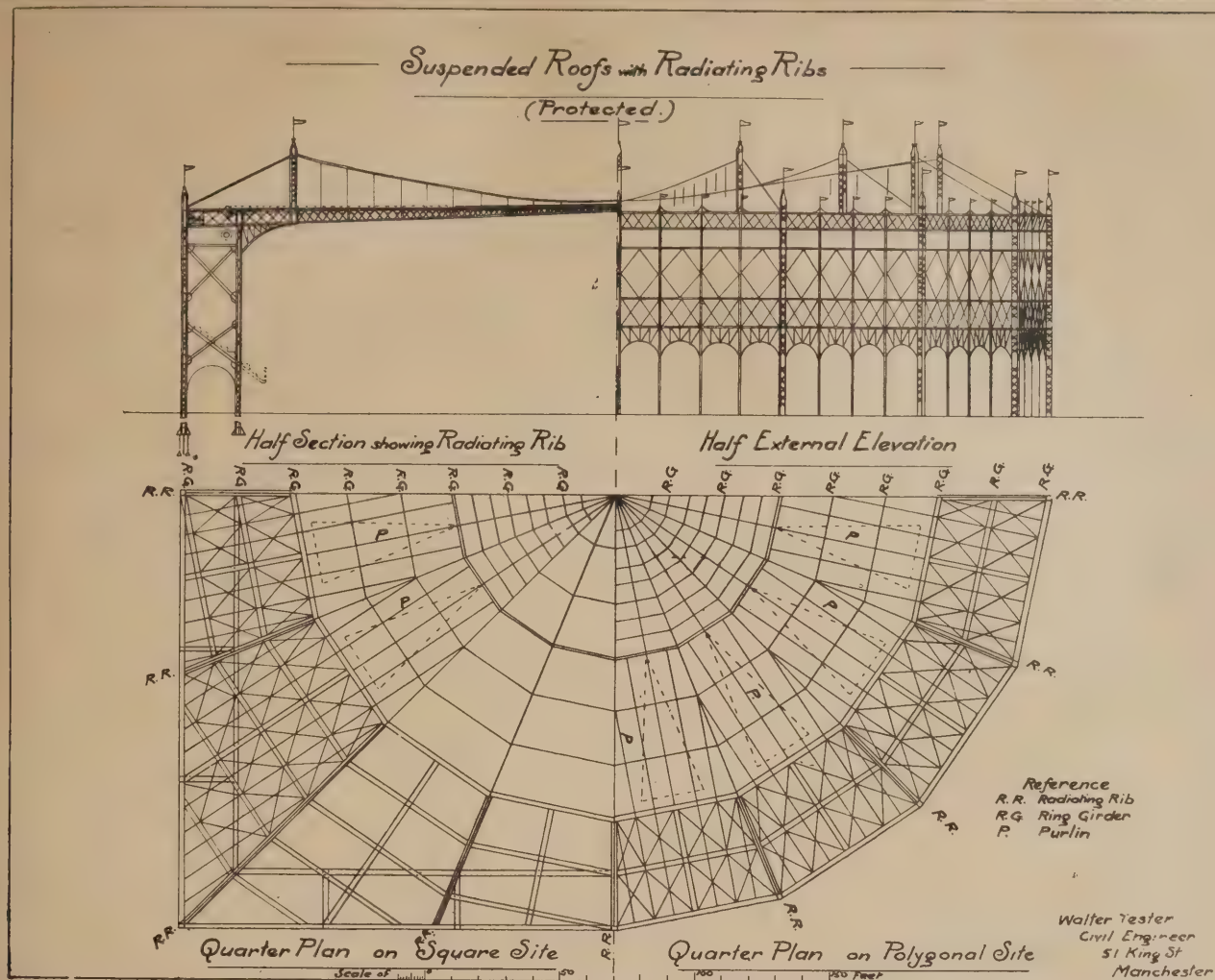
"WHAT gives new hope for the generation to come is that ecclesiastics have arisen with a new sense of the value of living Art, and a small number of young artists have thought it high time to combine to denounce the prevalent taste, and try to serve religious thought with designs of original conception." Such was the pregnant language of Mr. Holman Hunt on the formation of the Clergy and Artists' Association for the improvement of Art in churches, of which Mr. John Ruskin and himself are patrons. The Bishop of Rochester presided over the first conference of the Society at Bishop's House, Kennington, when Mr. Reginald Hallward enlarged upon the difficulties and dangers of Art work in religious edifices. To supply Art on a commercial system was, he declared, next to impossible. An artist, not a house of business, was needed for the production of a work of Art. Quite recently he had seen a dozen churches which had been decorated at large cost, but the expenditure had no relation whatever to the artistic results achieved. The money, in fact, had been thrown away.

Much bad work arose from the carelessness of committees, who allowed personal and local considerations to outweigh the claims of Art. The whole path was paved with commissions, and where that was the case inferior workmanship must not be wondered at. The tradesman's ideal was not high enough, and that association wanted to give the artist's ideal a chance.

PRINCESS LOUISE attended a meeting in Grosvenor House last week in aid of the new building fund of the Victoria Hospital for Children. The Victoria Hospital was founded in 1866 in a famous old mansion named Gough House, but the structural deficiencies of the institution have always militated gravely against the efficient working of the charity. The wards are in inter-communication, the ventilation and the cubic space available for each patient are insufficient, and the means of isolating suspicious cases very deficient. A proposal was made for a new and complete building, divided into wards, to be erected on the ground adjoining the present building, at an estimated cost of £25,000. Affiliated with this excellent institution is a commodious convalescent home at Broadstairs, provided at a cost of over £8400, with accommodation for fifty children.

CONTINUING his course of University Extension Lectures on famous cities at the Cemetery Road Vestry Hall, Professor Anderson took the City of Venice as his subject. He said Venice was once a great sea power, and her dominion was largely in the East. She had a Government Republican in form, but aristocratic in principle, which lasted for eleven centuries, outliving all the dynasties of Europe. Her wealth and power depended directly on trade, and when her trade declined she lost both. Three causes brought about her decline—the conquests of the Turks, the discovery of a trade route round the Cape of Good Hope, and the growth of the kingdoms of Western Europe, which shifted the centre of gravity in commercial matters from Central Europe westward. In our own days, owing to the poverty of Europe, the general revival of trade has scarcely touched Venice, and the shipping of the Adriatic has passed her by, and gone to Trieste and Fiume. Nowadays, she is a tourist resort, a city of the past, where the palaces built more than two centuries ago remain untouched. To Sheffielders the Art of Venice is indissolubly connected with the name of Mr. Ruskin, and in the Ruskin Museum we can gain glimpses of the gorgeous richness of ornament and colour that mark it out from other schools. It was throughout the Art of the wealthy, displayed in churches and palaces built on a grand scale and in grand style. The artists who decorated its ceilings with frescoes and paintings provided its churches with altarpieces, and portrayed its inhabitants, rejoice in showing the pride of rich raiment set off by precious jewels. The forms they choose are those of beautiful women, with all the soft, sensuous gradations of rose and lily shown on a smooth and dimpled skin, with well-rounded arms and luxuriant hair, all speaking of good living and freedom from drudgery. Their men are of the same mould, dignified, resolute, and aristocratic, but without the spiritual air of the ascetic or the weather-beaten, scarred face of the warrior or man of action. The student, as a rule, turns with greater pleasure to the earlier masters, who had not as yet fallen victims to the charms of wealth, and thinks almost regretfully of such painters as Leonards, in whose work the spiritual dominates the temporal. Yet for examples of how a brush, paint, and canvas can render the play of light and shade on rich colours, the whole world of Art turns to Venice, and recognises the supremacy of her great painters—Bellini, Titian, Veronese, and the rest.

A CONFERENCE took place at the Council Hall, Rotherham, last week, between representatives of the Corporation and the Board of Guardians to discuss the proposal for the erection of a sanatorium for the borough of Rotherham.



SUSPENDED ROOFS WITH RADIATING RIBS.

THE accompanying drawing shows a design for large span roofs on the suspension principle. Stiff radiating ribs are hung from steel wire ropes or chains, anchored down to the ground in the ordinary way. Between the radial ribs are arranged parallel ring girders, increasing in depth with their spans, the outer ones being double, and strongly braced together by the steel joist purlins and radial and diagonal bars at top and bottom. The radiating ribs on the polygonal plan rest on and into strong double pillars, braced together in all directions, the outer ones being anchored down.

When the plan of the building is square or oblong, the radial ribs run over inner girders parallel to the outer face and into girders on the face of the building. The inner and outer face girders are supported by double pillars, as before. The top booms of the radial ribs are made channel section, so as to act as gutters to carry the water off the roof, being given sufficient fall for the purpose, and the water is collected in tanks at the outer ends. A large central portion may be made moveable in sections, to slide on rails, with wheels attached to the framing, which is well stiffened, each portion being wound in and out by a windlass and wire rope. In addition, large portions at the circumference can be made to slide in a similar manner, and ordinary small moveable skylights can be arranged.

The roof may be covered entirely or partially with glass (protected with wire netting where required), boarding, or any other ordinary roofing materials. The front of the building may be filled in with boarding, brickwork, &c., or may be left partially open. Galleries can be arranged around the circumference as shown. It is quite practicable on this system to roof in large areas for cricket, football, or athletic sports, racing, &c., for a sum of between £20,000 and £30,000, making the games independent of the weather. It is applicable

to any shape of roof for pavilions, warehouses, exhibition buildings, drill halls, stations, market halls, &c., and is far the most economical form of construction for large spans—saving from 20 to 50 per cent., according to the span, over the arched system. In point of cost it compares favourably, area for area, and height for height, with the ordinary method of covering large spaces by several moderate spans supported on intermediate columns and girders, especially where considerable height is necessary. These roofs can be executed on the suspension principle in one span and can easily be made as lofty as required.

The inventor and patentee is Mr. Walter Tester, Civil Engineer, 51, King Street, Manchester.

"IMPROVING" AN OLD SCOTTISH TOWN.

A REMNANT of seventeenth century antiquity has been obliterated at Burntisland. The improvements which are being carried out at the East Port of the ancient burgh, by the proprietor of the old tenements there, are the suggestion of the Corporation, and provide for a handsome block of buildings, from designs prepared by Messrs. Swanston and Legge, architects, Kirkcaldy, and open up a wider access to the High Street. The property now being taken down includes a portion of the old wall, which formed a simple fortification of the town dating anterior to the Protectorate. Like other Scottish burghs of the period, Burntisland was a walled town, and had a port or gate which was closed at night, and opened in the morning. The wall which has been taken down was erected in 1635, and stretched across the east end of the street, with an arched gateway in the centre. The restricted opening existed at the beginning of the present century, but the gates had disappeared. About the year 1825, when Burntisland began to be used in connection with the Fife and Mid-Lothian Ferry, this gateway was found too

narrow an entrance to the town for the four-horse coaches which at the time were the daily means of communication between the Forth and the Tay. The Road Trustees accordingly approached the burgh authorities, and induced them to consent to their widening the access, promising to substitute something ornamental and worthy of the town. They took down the gateway, put back the wall, and erected two rough square pillars surmounted by round stone balls on the coping, which stand at the present day.

THE ORIGINAL GATEWAY

had no pretensions to architectural beauty. It gave the town a venerable appearance to those entering it from the east, and formed a shelter from the easterly winds as well as from troublesome neighbours. The Town Council of to-day, in desiring to preserve the pillars, look with more affection on them than did their predecessors, who thought that they had been imposed on by the Road Trustees, and refer with quiet sarcasm in their records to the pillars as "showing what were these gentlemen's ideas of handsomeness." Interesting traditions cluster round the East Port and its old wall, now no more, says the Scotsman. On the north side of the arched gateway a public well stood against the wall, which was a rendezvous for the burghers; and it was possible, when the gates were shut, to mount by means of the well to the top of the burgh wall, and observe what was going on outside. On the south of the gateway was a recess in the wall, in which were hung for public exhibition parts of the bodies of persons martyred or "murdered by law" at Edinburgh.

An appeal has been issued on behalf of the church schools at Arundel. These schools were granted and endowed in 1853 by Henry Charles, 13th Duke of Norfolk, and about 1867 they were described by Her Majesty's inspector as some of the very best in Sussex. The Education Department has decided that the premises are in an unsatisfactory state, and that they must be entirely rebuilt.

AN ADDRESS TO ARCHITECTS.*

By MR. FRANK W. RICH, F.R.I.B.A.

(Continued from page 298.)

THE new material, if indeed we are to have one, must have a further quality beyond being fire-resisting; it must be proof against all influences as to wetness or dryness, it must not shrink when the fires are lighted, or swell in a damp building, for, as I have said before, men will not wait nowadays for natural materials to season. How different all this is from the time in which they took to erect the mansions of the time of Elizabeth or James, Burghley, Montacute, Crewe, Audley End, Burton Agnes, and many others, in which twenty years were frequently spent in the erection and completion of these houses; but, then, look at the glorious results! If wood ever ceases to be one of our prime materials in building construction, it will be with a great twinge of regret that we shall part company with it, for has it not been associated with us since time was? Have we not fashioned our dear old British Oak into all the uses of our lives? Do we not look with pardonable pride on its sympathetic grain, as it encases our cosy panelled rooms, and think of its great traditions, immutably bound up with some of the most glorious events in our national history? I do believe, fire-resisting considerations notwithstanding, that

THE OAK WILL NEVER LEAVE US.

There is another circumstance in our practice I must refer to. I allude to the testing of materials. The scope of this subject is endless, as all experimenters know. It is too vast a subject to be undertaken by a private individual, and no Government will undertake it. We have not the advantages that our friends the Civil Engineers possess, in frequently having the wealth of a huge company behind their backs to conduct experiments without limit. No, our works are not of such a colossal size as our friends', and will not justify such an expenditure. How, then, can this thorough, far reaching, and absolutely authentic series of experiments be carried into execution? There are, and have been, men who have devoted much expense and time to these matters, and to whom we are much indebted, but the information is frequently fragmentary, and not easy to reach. There have been no thorough series of experiments for architects on materials in purely architectural construction. The Institute has very lately carried out some experiments, as to the

STRENGTH OF BRICKWORK,

which are most valuable; but I do not think the expense of the system I am now foreshadowing should fall on only a part of the members of our profession—I think a much greater grasp should be taken of the situation. All our building materials, as used in the ordinary building manner, should be subjected to exhaustive tests of every kind, not only with regard to strength or endurance, but also to that "fire resistance" to which I have before alluded. I do not mean that every piece of brick, stone, concrete, wood, or iron should be tested, but sufficient experiments be carried out to establish a reliable data. All this would be a matter of hard facts. There would be no question of design or other debatable ground to interfere with the steady carrying out of this scheme. After we are in possession of the mass of facts such a scheme would bring out, we could, from the knowledge then acquired, design accordingly. And who can tell what school of design or style of Architecture this would produce? But, as I said before, all this will cost money, and it will be a continuing expenditure. I am not going to say who should move first in this matter, or to say how it is to be brought about. I shall leave that to the

COLLECTIVE WISDOM OF THE MEMBERS

of our Profession. All I would suggest is that, in such a scheme, the control should be

in the hands of the Institute, and all members of the Profession, whether members of the Institute or not, all members worth the name, should contribute in annual subscriptions such a sum as to make it worth while for the best men to give us the benefit of their services. I should like, before I finish, to say a few words on architectural practice, and with your permission, to offer a few words of advice. I may have again to use plain language, but, I think, I can rely on your forgiveness. I intend these remarks only for those of our friends in practice. It is, of course, delightful to speak of

ARCHITECTURE AS AN ART,

and of all the glorious traditions belonging to it, when the imagination is floated on ethereal waves of the poetry of Art. But no such angelic existence is vouchsafed to us. The hard fact remains, that we must descend to the ordinary things of life. We have our livings to make. We are not like the chameleon, who was said to live on the air. We have to earn our bread and butter like the rest of ordinary mortals. We all know that the practice of Architecture is about the most ill-paid of all the polite professions. I think we should all do something to remedy this state of things. There are several ways by which this could be accomplished, but all must tend to the same end. We are not blind to the signs of the times. We cannot have failed to observe that nearly all the great captains of industry have lately placed their backs to the wall, and the tendency of the age is all that way. Our friends of the legal and medical professions have had their backs to the wall for a long period, and take care they keep there. But we are yet too much disjointed—too wide apart in our charges.

UGLY RUMOURS

reach us now and then of architects working for half the acknowledged fee, and other shady performances. If there be any truth in these rumours, I should like to advise our "brothers in Art" to be firm, and toe the line, for, depend upon it, cheap services merit their own reward. The public will always place most reliance on services of most value. We are sometimes confronted in our practice with a disaster that may entail investigation in the courts, and we may be called to support or contest, by evidence, the matter in question. Our only straight and open course is to maintain truth and justice, and, if matters terminated there, all would be well. But all who, in any way, have perused the proceedings, or attended the enquiries in the courts, cannot have failed to be struck by the direct conflict of evidence. It is here the professional witness flourishes, and it is here we hear the scathing criticisms of the judges denouncing architects as men beneath contempt. May I again plead that architects stand together not to burk the truth, but to help it? Not to "extenuate or set down aught in malice," or the dire day may come when they themselves are in the same boat, and need their professional brethren's advice. There is yet another matter to which I should like to say a word, I allude to

THE QUESTION OF STATUS.

This is a matter concerning only the ways of the world, but a very important matter to us. We have heard of the judges' opinion of us in the courts, and we know too well the opinion the public form of the profession. Looking to the immense field covered by the profession of Architecture, the important results upon our existence as an educated people, and the life-long study to master it. Is it right, I say, that such an important profession should be belied and in such disrespect? I believe the members have it entirely in their own hands. I have already indicated some lines that would lead to a different state of things. Members will easily perceive others that will lead still further on. The men who employ us are generally wealthier men than we are. Respectability is a potent factor, and, I think I would say, be a gentleman first and an architect afterwards. Let us have no more such definitions as that of the man who said: "An architect is that man who rides first-class at other people's expense, and third at his own."

Professional Items.

ABERAVON.—The sum of £550 has been raised at St. Mary's Church towards restoring the tower. Mrs. Llewellyn, Baglan Hall recently gave £1600 towards erecting a new wing for the same church, which is now in course of erection by Mr. David Jenkins Swansea. The architect is Mr. Halliday, of Cardiff.

LONDON.—A branch of the London Joint Stock Bank Limited, which has been erected on the site of St. Michael's Church, was opened last week at the corner of Wood Street and Gresham Street. The new premises cover a superficial ground area of about 3600ft. About two-thirds of the ground floor, and about one-half of the basement, are in the occupation of the Bank, while the remainder of these floors and the whole of the upper floors will be let as offices, access to which will be obtained by a separate staircase. The new buildings possess a commanding appearance. The front to Wood Street also faces down Gresham Street, from which the façade of the new Bank will be seen to great advantage. It is entirely of Portland stone, the entrance being enriched by Swedish red granite. This façade is a treatment of the Italian Renaissance, and the design includes an enriched stone corbel that enables the clock that for so many years has been a conspicuous object to reoccupy its sphere of usefulness. The counters and desks are of the finest polished mahogany, the electric light has been fitted throughout, and the windows have been furnished with a patent lattice-work shutter which offers ample protection without excluding the light, or preventing the police from keeping a watchful eye upon the premises after business hours. The desks have been equipped with time-saving fittings, the drawers of the cashiers for instance, running on rollers. The manager's room and waiting office immediately face the entrance. There is a special room in the basement for the convenience of the staff, and lavatories. The building, which has been constructed throughout of fire-resisting materials, has been erected from the designs prepared by and carried out under the direction of Messrs. Davis and Emanuel, architects, of 2, Finsbury Circus. The internal fittings have been designed and carried out by Mr. Harrison, the architect to the Bank. It may be added that the substructure was executed by Mr. John Greenwood, builder, of Arthur Street West, and the superstructure by the general contractors, Messrs. Ashby and Horner, 8, Aldgate. Messrs. Dennett and Ingle supplied the iron and steel construction and the fire-resisting floors.

MATLOCK.—The Duchess of Devonshire opened on Wednesday the Whitworth Hospitals, near Matlock. They are the gift of the devisees of the late Sir Joseph Wentworth, the millionaire inventor, and have cost over £20,000. With them there is an endowment of £500 a year in perpetuity. The hospitals were originally proposed by Lady Wentworth, and are part of the great project which has given to Darley and Matlock various munificent gifts, the others being a park and an institute.

SHEFFIELD.—St. Augustine's Church was formally consecrated on Wednesday afternoon by the Archbishop of York. The church has been built subsequent to Easter, 1897. Its early English style and the clean-looking stone of which it is composed make it a fair landmark as viewed from the adjacent roads. The church is 133ft. long, 50ft. wide, and the height of the interior is the same distance. It is well lighted and seated, and the exceptionally broad nave imparts a free and open appearance to the interior. The tower rises to a height of over 100ft. The church is not yet quite completed, as transepts are to be added. There will then be seating accommodation for 750 worshippers, or 100 more than can at present find seats. The architect is Mr. J. D. Webster.

* The inaugural address of the President of the Northern Architectural Association, delivered at the opening meeting of the session 1898-1899, held in Newcastle-on-Tyne.

Under Discussion.

THE A.A.

At the fifth meeting—Mr. H. J. Leaning in the chair—of the Discussion Section of the Architectural Association, held at 56, Marlborough Street, W., last Friday evening, Mr. S. W. Cranfield, A.R.I.B.A., read a paper on "Technical Institutes," in which he described the uses and planning of the Polytechnics or Technical Institutes, referring particularly to those in London.—Mr. Satchell proposed a vote of thanks to Mr. Cranfield, and Mr. E. W. Mountford, the special visitor of the evening, seconded the vote, which was passed with acclamation.—At this meeting it was stated that the Council of the R.I.B.A., in consideration of the Owen Jones studentship for 1898 not being awarded, has awarded a further prize of £50 to Mr. Arthur Edward Henderson, the prizeman of 1897.

BRITISH ARCHÆOLOGICAL ASSOCIATION.

The third meeting of the session was held at the rooms in Sackville Street, on the 7th inst., Mr. Blashill Hoy, treasurer, in the chair. Mr. Badger, of Peterborough, exhibited a silver penny of Offa, recently dug up in Castor churchyard, also a styca of Eanred, King of Northumbria A.D. 808-848. He likewise exhibited some portions of tiles of elaborate pattern with the Tudor rose, recently discovered in pulling down the Angel Hotel, Peterborough. Mr. Irvine sent for exhibition careful drawings of the leaden chalice preserved in the chapter library at Peterborough, and some measured drawings of the coffin lid, or tombstone, lately found in excavating under the diagonal buttress of the "new work" at the Cathedral. A series of twenty very beautiful sepia drawings of antiquities in Boston and the neighbourhood, executed by William Brand in 1808, were also exhibited by Mr. Badger. Mrs. Day showed some rare examples of early printed books, including a real Aldine "Cicero," dated 1592. Mrs. Collier laid upon the table an interesting bronze medallion of Oliver Cromwell and other Cromwellian memorials. Rev. H. J. D. Astley, hon. editorial secretary, exhibited on behalf of Mr. Donally some further graphic sketches of various objects found in the Crannog recently discovered near Dumbarton, showing the construction of the wet dock for the great war cause, and the weird looking objects called totems, carved out of cannal coal, etc. A paper entitled "The Ancient University of Britain" was read by the author, the Rev. W. S. Lach-Szyrma, M.A. He said the question, "Which is the oldest University in Britain?" is one of considerable interest. Modern criticism tends to cast doubt upon the long accepted theory that Oxford is the oldest because it derives its origin from the age of Alfred the Great, while many Cambridge men claim that their University is the elder of the two. With that question the paper was not concerned, but with a far older institution than either of them, for even before the birth of Alfred the Great—there was in Britain a university some 400 years old which, in the time of Alfred, after a long period of usefulness, and being a centre of light to Celtic Britain had already passed its acme, and from political causes was verging to decay. This was the University of Llanilyd Fawr or Llantwit Major, as it is now called. The university was founded in the age of Theodosius II. It was burnt by Irish pirates in 440, but was restored and rebuilt by the Great St. Iltyd, Knight, hermit and teacher, who established it as a seat of light in an age of profound darkness. The students numbered at one time more than 2000, the sons of British nobles, foreign princes, and the youths of various nations, who came for study, rest and peace, from the turmoil of Western Europe in the tumultuous times of the barbarian invaders. The discipline was monastic, the culture, the decaying culture of the old

world, mingled with elements of Christianity and, perhaps, the memories of Druidic traditions and philosophy. For the archæologist, Llantwit at the present day presents one of the most striking groups of British monuments—a museum, as it were, of edifices or monuments *in situ*, including a wonderful Pagan British Altar Pillar, carved over with Celtic ornament and with groove for the sacrificial blood, the menhir of St. Samson, the ancient crosses, and in the churchyard the pillar reared by King Howell in the ninth century, together with monastic ruins and foundations of college buildings, all grouped around the church and churchyard.—In the discussion which followed the paper, Mr. Park Harrison raised the question as to the language spoken in the university, and was understood to suggest that the institution should not be regarded as a university in the modern acceptance of the term, but that the word *Schola* would more accurately describe it.

EDINBURGH ARCHITECTURAL ASSOCIATION.

A meeting of the Edinburgh Architectural Association was held on Wednesday evening last in the Royal Institution, Princes Street.—Mr. Thomas Ross, the president, occupying the chair. The Chairman, referring to the death of Mr. Hamilton Beattie, said he was one of the oldest members of the Association, having joined so far back as 1861, and was president for session 1866-67. Mr. Beattie, in his public capacity, had a very difficult duty to perform, requiring tact and knowledge of men. To say that he pleased everybody would be paying his memory a poor compliment, but he (the Chairman) had every reason to believe that the difficult services he rendered to the town were highly appreciated by the Magistrates and Town Council. He was making for himself a great name in the Profession, and, especially in all questions relating to property, his advice was sought for far and near. There appeared to be before him a long life of professional prosperity and usefulness, when, without a moment's warning, he was taken away, to the grief of all who knew him. He proposed that a letter of condolence should be sent to the family of Mr. Hamilton Beattie, and this was agreed to.—Mr. Edwin Forbes then delivered a lecture on a year's work in Galloway in connection with the School of Applied Art Studentship, which had been gained by him. After stating that it was scarcely possible to over-estimate the boon which the School of Applied Art was to those who had chosen Architecture as their life-work, he proceeded to describe Dundrennan Abbey, Glenluce Abbey, Lincluden College, Sweetheart Abbey, and Caeraverock Castle, giving history, traditions, and dates in connection with each of these buildings.—The lecture was illustrated with limelight views.

BAD VENTILATION.

The mystery of bad ventilation which from time to time is heard of from the Houses of Parliament, like an evil spirit that defies conjuration, was recently explained quite simply to the Institute of Civil Engineers by Mr. Francis Fox. It is no mystery at all. True, the system is elaborate, providing for the extraction of vitiated air by furnaces in the roof and the admission of pure air through cotton wool, though not in sufficient quantities. But the pure air in question, after this very careful treatment, ascends through open matting on the floors, on which everybody wipes off the mud and dust from his feet. That sufficiently accounts for the influenza epidemics, and even for certain cases of blood poisoning in the servants of the House. But as for the corridors, they are not ventilated either one way or the other. Mr. Fox affirmed that, although it would be costly to remodel the whole system, it is possible vastly to improve it even before Parliament meets again—by altering the position of the admission grids and supplying all committee-rooms with quick-running electric fans. Worse ways of stimulating Her Majesty's Opposition to the transaction of business have been tried.

Enquiry Department.

A POINT IN PRACTICE.

To the Editor of THE BUILDERS' JOURNAL.

DEAR SIR,—I shall be extremely obliged if you will kindly help me in the position as stated above. A gentleman tells an architect he is prepared to speculate in housebuilding if plans are forthcoming, the cost of erecting such buildings to be such as to yield at least 6 per cent. The architect accepts the terms and produces absurd plans which would only yield less than 3 per cent. Naturally the client refuses, and the architect coolly sends in an account for 1½ per cent. commission on the estimated cost. Has he any legal right to this or any other payment therefor?—Thanking you, I remain, yours truly,

X.

Stroud, Gloucestershire.

If the architect undertook to prepare plans for a building which should return a fixed percentage to the investor, and failed to fulfil his contract, he can have no legal claim for payment.

CARPENTRY & JOINERY EXAMINATION.

To the Editor of THE BUILDERS' JOURNAL.

DEAR SIR,—Can you kindly inform me (1) What book will cover the whole of the course (and that only) required for the ordinary grade examination in carpentry and joinery held by the City and Guilds of London Institute? (2) If there is no book covering this course exclusively, can you mention a work that will direct my studies into the proper channel without covering much unnecessary ground?—Yours truly, "STUDENT."

We would suggest Allen's "Building Construction." It covers a good deal more than the necessary ground, but it is easy to see what to omit.

COTTAGE BUILDING.

To the Editor of THE BUILDERS' JOURNAL.

DEAR SIR,—Your correspondent who wrote asking for a book on Cottage Building might read with advantage a work entitled "Sketches of Village and Estate Buildings," by James Williams, architect. It is published by Macmillan and Co. at 16s.—Yours, &c.,

R. K. J.

BRICKS.

To the Editor of THE BUILDERS' JOURNAL.

SIR,—Could you inform me of a reliable and cheap work on "Brickmaking?" Thanking you in anticipation, yours truly,

Bostal Hill, PERCY N. DANIELS.
Whitstable,
Kent, November 28th, 1898.

We advise you to get E. Dobson's "Treatise on the Manufacture of Bricks and Tiles," or C. T. Davis' "Practical Treatise on the Manufacture of Bricks, Tiles, and Terra Cotta." The Article, "Bricks and Tiles," in Gwilt's "Encyclopædia of Architecture," affords an excellent epitome of the various methods of manufacture.

INTRODUCTION TO ARCHITECTURE.

To the Editor of THE BUILDERS' JOURNAL.

DEAR SIR,—Would you kindly let me know of any book on Architecture that would be useful to me for discriminating various classes of same, with illustrations. I am often at a loss to know what period many styles I see in my journeys belong to.—Yours truly,

"NORTH LONDON."

We can recommend any of the following books as affording a good general introduction to the study of Architecture: Tarver's "Guide," Mitchell's "Manual," Statham's "Architecture for the General Reader," Smith and Slater's "Classic and Early Christian Architecture."

Views and Reviews.

FIRE TESTS.

An interesting and profusely illustrated report of experiments carried out by the Committee on Fireproofing Tests in New York, edited by Mr. Edwin O. Sachs, has been recently published. The most important test was tried on a cast-iron column, with a jet of water thrown upon it through a $\frac{1}{2}$ in. nozzle. The column was first raised to a heat of 775 deg., and then cooled by water without injury. The heat was then slowly raised to 1075 deg., and the column, which then glowed with a "dull redness," was again cooled by water. Lastly, the column was heated up to 1300 deg., when it was again drenched with water. The column began to bend just before the last application of the water. The column was apparently unaffected by water, although it failed by bending under the load. The book is made more interesting by the capital illustrations and diagrams.

"Fire Tests with Unprotected Columns." Edited by Edwin O. Sachs. British Fire Prevention Committee, London.

LEADLESS GLAZES.

Mr. W. J. Furnival, the author of this excellent book, has endeavoured to assist in the solution of a complex trade problem. He submits not only the results of his own experiments, but also those of other investigators in similar subjects, hoping thereby to see the speedy general adoption of non-poisonous glazes and aiding the advance towards more hygienic methods of manufacture. The whole subject is exhaustively treated, and we should strongly recommend all interested in the work to at once obtain a copy of the book. The printing is good, and the type used clear and readable, paper excellent.

"Researches on Leadless Glazes." By William J. Furnival, Silver Medallist of the City and Guilds of London Institute for Pottery and Porcelain. W. J. Furnival, 16, Granville Terrace, Stone, Staffordshire. Price 5 guineas.

It is proposed to restore St. Mary's Church, Chelmsford, at a cost of £3500. It was stated at a recent meeting that part of the roof was too bad to be repaired.

A HANDSOME wrought-iron chancel screen has been erected in the parish church, Kelvedon Hatch, by Mrs. Puxon. The screen has been made by the Upton Park Metal Works, under the superintendence of Mr. J. B. Tompkins, and is a good example of highly ornate English ironwork.

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TENDERS.

Information from accredited sources should be sent to "The Editor." No results of tenders can be accepted unless they contain the name of the Architect or Surveyor for the Work.

BAILDON (Yorks).—For the erection of a house, stabling, lodge, &c. Messrs. Isitt, Adkin and Hill, architects, Prudential-buildings, Bradford.

Masonry and Joinery.—W. Foss and Co., Gatehead Works, Spley, £6,124
Plumbing.—Slater & Son, Bond-street, Leeds, 1,779
Stating.—J. Smithies, Great Horton-road, Bradford, 245

Plastering.—F. Dean, Stott Hall, Clayton Heights, Bradford, 680
Painting (lodge and stabling only).—J. Hankins, Heidelberg-road, Manningham, 18

CASTLE DONINGTON (Leics).—For the execution of sewerage works, for the Rural District Council. Mr. H. Walker, C.E., Newcastle-chambers, Angel-row, Nottingham.

Quantities by engineer:
Richd. Lomax, £9,377 16 1
Herbert Weldon, 8,400 16 7
W. Meredith, 6,965 6 2
J. D. Nowell and Sons, 6,780 1 0
Walker & Slater, 6,750 0 0
R. Holmes, 6,750 0 0
Cope and Raynor, 6,700 0 0
C. E. Cox & Son, 6,485 16 3
H. H. Barry, 6,400 0 0

COVERACK (Cornwall).—For erecting the "Headland Hotel." Mr. Sampson Hill, architect, Redruth.
Cook, £3,399 0 0
Hill, 3,322 0 0
George and Son, 3,317 0 0
Pooley, 2,884 0 0

DARTMOUTH.—For rebuilding the "Criterion" restaurant, The Quay, for Mr. J. C. Dawe. Mr. J. Arthur Brand, architect, 3, Victoria-road, Dartmouth. Quantities by Mr. Louis Jacob, 423, New Cross-road:—
T. Brown, £1,349 0 0
R. T. Pillar, 1,250 0 0
W. R. Howe, 1,200 0 0

DONINGTON (near Spalding).—For alterations and additions to Komani House, for Mr. W. Royce. Mr. Edward A. Jolly, architect, Donington:—

Part 1. Part 2.
S. Sherwin, £427 0 0
F. Pattinson, 317 17 2
Ruskington, 822 17 9

EASTRY (Kent).—For the execution of water-supply works, for the Rural District Council. Mr. F. S. Courtney (Easton and Anderson, Limited), engineer:—
A. Green, £1,840 0 0
Bostel, Sons, and Peattie, 1,800 0 0
Semark & Hudson, 1,620 2 6
S. White and Son, 1,599 0 0

HARROGATE.—Accepted for laying two and a half miles of surface water drains, for the Corporation. Mr. S. Stead, Borough Surveyor, Municipal Offices, Harrogate:—
J. L. Hampton-Matthews, Kent-road, Harrogate, £5,620 9 10

LEEDS.—Accepted for the erection of two shops, Land's lane, for Messrs. Gibbs and Co. Messrs. W. Hill and Son, architects, 25, Park-square, Leeds:—

Masonry.—J. T. Wright, Leeds, £1,370 0
Granite.—Bower and Florence, Aberdeen, 182 13
Joinery.—H. Atkinson and Son, Leeds, 554 0
Stating.—Pickles Bros., Leeds, 39 7
Plumbing.—E. Wooler, Leeds, 166 0
Plastering.—J. W. Watson, Leeds, 105 0
Painting.—Wales and Son, Leeds, 24 5

LEEDS.—For laying sewers, &c., Old Park and other roads, for the Corporation. Mr. E. J. Silcock, C.E., 10, Park-row, Leeds:—

Henry Wilson, £2,170 7 9
J. Scholefield, Sons and Co., 2,059 8 4
A. Branton and Sons, 2,055 2 0

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LONDON.—For the separate items required in connection with the erection of working-class dwellings on the Borough road site, for the London County Council:—

General Works.
W. Johnson and Co., £18,791
Lim., 18,764
Foster and Dicksee, 18,528
F. Lawrence and Sons, 18,400
H. L. Holloway, 18,250
Kilby and Gayford, 18,250

Foundations.
J. Chessum and Sons, £18,250
W. Downs, 18,178
Holloway Bros., 17,918
T. Gregory and Co., 17,475
J. Brown, Son, and Bloomfield, 17,400

Granolithic Work.
J. Bickley, £810 2 5
B. Ward and Co., 780 10 5

Chimney Pieces.
Yates, Hayward and Co., £498 10
W. T. Allen and Co., £825 0

Iron Railings.
A. J. Tatham, £652 7 3
B. Finch and Co., £378 18
Doulton and Co., 315 0

Bank's Fireproof Construction Syndicate, Ltd. £2,303
Downers.
F. Braby and Co., Ltd., £150
LONDON.—For the formation of a road, &c., Bruce-grove, Tottenham. Messrs. Tuckett and Son, surveyors, 2, Basinghall-street, London, E.C.

W. Neave and Son, £2,800
S. Kavanagh, 2,705 0
E. Wilson, 2,620 0
A. J. Catley, 2,596 0
C. W. Killinback & Co., 2,580 0
J. A. Dunmore, 2,575 15
Cliff Ford, 2,500 0

LONDON.—For alterations and additions to Messrs. Glover's van works, Half Moon-crescent, Canonian-road. N. Mr. George Waymouth, architect, 23, Moorgate-street, E.C.:—
Mattcock Bros., £1,320
Stevens Bros., 1,230

LEVENSHULME.—For sewerage, &c., several streets and passages, for the Urban District Council. Mr. J. Jepson, surveyor, Guardian-chambers, Tiviot Dale, Stockport:—
Rowlands, £2,382 1 10
Briseoe and Sons, 2,381 6 7
Geo. Boden, 2,284 19 4

MANSFIELD.—For new schools, &c., Rosemary-lane, Mansfield, for the Mansfield School Board. From plans and specifications and bills of quantities prepared by Messrs. Vallance and Westwick, architects, Mansfield:—
A. Eastwood, £13,450
J. Greenwood, 12,200
H. Vickers, 11,995
J. F. Price, 11,687

MANSFIELD.—For proposed house, West Hill-drive, and shop, Clumber-street, Mansfield, for Messrs. Wright Bros. Messrs. Vallance and Westwick, architects, Mansfield:—
Gilbert and Gabbitass, £1,205
S. B. Frisby, 1,187
Brailsford and Son, 1,177

MANSFIELD.—For proposed two houses, The Park, Mansfield, for Mrs. W. J. Dean, from plans, quantities, and specification by Messrs. Vallance and Westwick, architects, Mansfield:—
J. H. Vickers, Ltd., £1,780
J. F. Price, 1,750
H. Vickers, 1,700
J. Greenwood, 1,692

MARKET DRAYTON.—For the erection of vagrant wards at Market Drayton, Salop, for the Guardians. Mr. G. A. Craig, architect, Market Drayton:—
Wood and Son, £1,739 0 0
Garratt, 1,713 16 10
Matthews, 1,688 0 0
J. Harding, 1,675 0 0

For Heating Apparatus for the same.

Hughes, Market Drayton (accepted) £55 5

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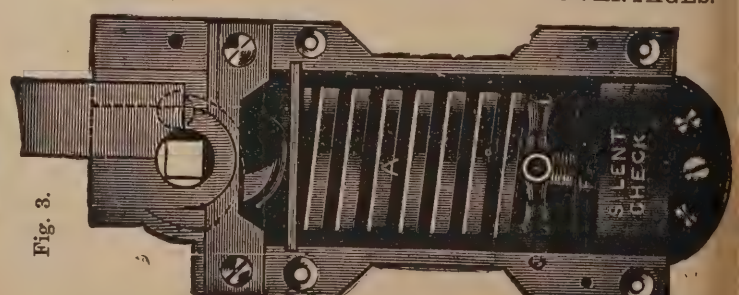
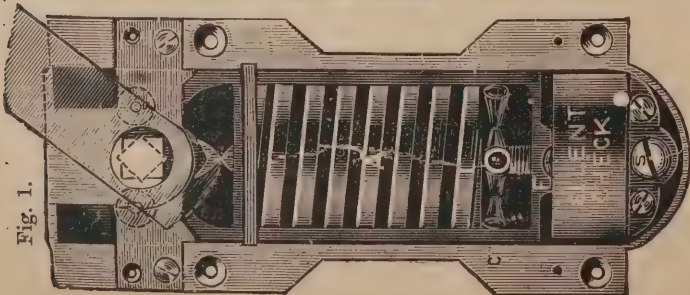
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A Double-Action
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It opens to and closes
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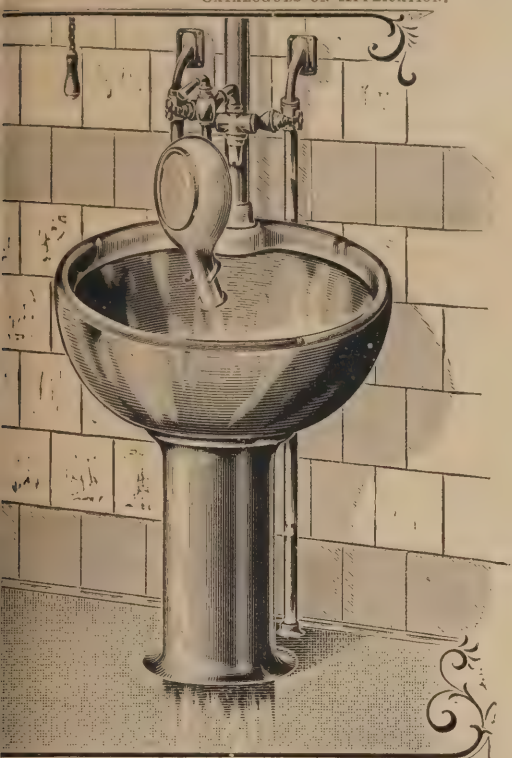
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THESE GREAT
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NUMEROUS NEW AND IMPROVED DESIGNS IN
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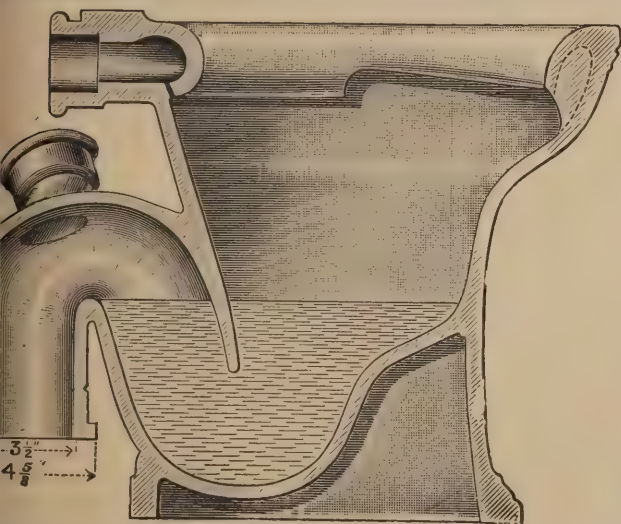
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NEW PATENT BEDPAN AND URINAL WASHING APPARATUS,
AND PEDESTAL FLUSHING RIM SLOP HOPPER.

This system of washing bedpans, &c., is very simple, cleanly, and inoffensive. In the act of washing, the hands need not touch the pan, it is only necessary to turn the swivel arm to see that pan is perfectly clean before lifting it off spray hook.

MORRISON, INGRAM & CO. LTD., MANCHESTER.



SHANKS' PATENT "COMPACTUM" WASH-DOWN CLOSET.

LARGE WATER SURFACE, 8½ in. by 6½ in.
DEEP SEAL IN TRAP, 3 in.

THOROUGHLY FLUSHED WITH TWO GALLONS OF WATER

PERFECT SEAT EXTENSION.

PORCELAIN SOLDERED JOINT.

Made in "Vitro-Porcelain," a new body, vitreous throughout, non-absorbent, and non-crazing. The best material for Sanitary Appliances ever introduced.

Prices and Particulars on Application.

SHANKS & Co., Tubal Works, Barrhead, near Glasgow.

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Have EXTENSIVE SHOWROOMS at

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ARTISTIC FIREPLACES,

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FAIENCE for internal or external decoration.
Fireplaces, &c.

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BRICK & TILE MANUFACTURERS,

HANLEY, STAFFS.

NANTYDERRY.—For alterations and additions to Nantyerry House, near Abergavenny, for the Misses Evans. Mr. Edgar G. C. Down, architect, City Chambers, Queen-street, Cardiff:—

J. Linton ... £1,338 0 | S. Shepton and Son £1,193 16
W. Thomas and Co. 1,247 0 | Jones Bros., Cardiff* 1,100 0
*Accepted.

ORPINGTON.—For the erection of six cottages at Crofton, Orpington, Kent. Mr. St. Pierre Harris, architect and surveyor, 8, Ironmonger-lane, E.C., and Orpington:—

Smith and Son ... £2,120 | W. Owen ... £1,990
T. Knight ... 2,029 | Stebbings and Pannett 1,839
PONTYFRIDD.—For the erection of a chapel, &c., Clydach Vale, for the Welsh Independents. Mr. Frank B. Smith, architect, Port Talbot:—

Hunt and Co. ... £3,890 0 0 | Spratt Bros. ... £2,850 0 0
Griffiths and Co. 3,325 0 0 | T. P. Stephens, ...
Charles Bros. ... 2,980 0 0 | Swansea* ... 2,647 6 10
*Accepted conditionally.

SALFORD.—For new school in Greelan-street, for the Salford School Board. Mr. H. E. Stelfox, architect, 100, Mosley-street, Manchester. Quantities by the architect:—

C. H. Normanton ... £11,728 | W. Southern & Sons £11,400
F. and E. Haynes ... 11,604 | G. Macfarlane ... 11,400
Peters and Sons ... 11,561 | Wilson and Toft ... 11,357
J. Byrom ... 11,516 | R. Neill & Sons, Man-
J. Ramsbottom ... 11,422 | chester (accepted) ... 10,930

For Caretaker's House.

C. H. Normanton ... £869 | J. Ramsbottom ... £906
Wilson and Toft ... 646 | G. Macfarlane ... 596
Peters and Sons ... 645 | J. Byrom ... 591
Southern and Sons ... 614 | R. Neill & Sons* ... 575
F. and E. Haynes ... 614 | *Accepted

WALTON-ON-THE-NAZE.—For the execution of road works, for the executors of the late Mr. R. Warner. Mr. T. H. Nixon, surveyor, 5, Lessar-avenue, Clapham Common, S.W. Quantities by the surveyor:—

B. W. Glenny ... £2,507 1 9 | J. Moran & Son £1,925 0 0
Geo. Double ... 2,516 0 0 | Hector Stone ... 1,899 9 6
H. J. Linzell ... 2,439 0 0 | D. Mackenzie &
F. Bedford Pit- | Son, Clacton
cher ... 2,075 0 0 | on-Sea* ... 1,795 0 0
*Accepted.

CONTRACTS OPEN.

CITY of HULL TRAMWAYS.

CONTRACTS Nos. 16, 20, and 21.
TO ENGINEERS, BUILDERS, AND OTHERS.
The Corporation are prepared to receive TENDERS for the following WORK in connection with the Tramways, viz.:—

Contract No. 16.—Pipes and Fittings for Power Station, and Condensing Main from Dock.

Contract No. 20.—Builder's Work for Two Car Sheds and other Buildings (area about 4000 square yards).

Contract No. 21.—Steel Roof Trusses, Steel Columns, &c., for above Car Sheds.

Forms of Tender and other particulars may be obtained from the City Engineer. A deposit of £1 for each contract will be required in respect of the forms of Tender, &c., for Contracts Nos. 16 and 21. The Deposit will be returned on receipt of a bona-fide Tender.

In case of Contract No. 21, Tenders from firms who would not construct the trusses at their own works will not be considered.

A limited number of the blue prints of the plan for Contracts Nos. 16 and 21 will be supplied on payment of 1s. each Contract (not returnable), but the Corporation do not undertake to supply all applicants.

Remittances to be made payable to Mr. T. G. MILNER, City Treasurer.

Tenders, endorsed as directed on the form of Tender, are to be addressed to the Chairman of the Works Committee, and delivered at the Town Clerk's Office before NOON on FRIDAY, DECEMBER 30th, 1898.

The Corporation do not bind themselves to accept the lowest or any Tender.

By order,
A. E. WHITE,
Town Hall, Hull,
December 12th, 1898. City Engineer.

TO BUILDERS.

The Asylums Committee of the Worshipful Company of Watermen and Lightermen of the River Thames invite TENDERS for RENEWING the DRAINAGE SYSTEM and for other SANITARY and sundry WORKS and REPAIRS at the Royal Watermen's Almshouses, Penge, S.E.

Persons desiring to Tender may obtain bill of quantities and form of Tender upon application to Mr. LOUIS JACOB, Architect, of 423, New Cross-road, S.E., and depositing with him the sum of Three Guineas, which will be returned to persons sending a bona-fide Tender.

Tenders must be signed, sealed, and delivered to me at the Hall on or before SATURDAY, DECEMBER 31st, 1898.

The Committee do not bind themselves to accept the lowest or any Tender.

LOUIS S. WHITE,
Clerk to the Company.

Watermen and Lightermen's Hall,
No. 18, St. Mary-at-Hill, E.C.,
November, 1898.

COUNTY of SOUTHAMPTON.

COUNTY LUNATIC ASYLUM.

KNOWLE, near FAREHAM.

CONTRACT No. 1.

TO BUILDING CONTRACTORS.

Persons desiring of TENDERING for the CONSTRUCTION OF CONCRETE FOUNDATIONS, the ERECTION OF BRICK, STEEL, and CONCRETE SUPERSTRUCTURES OF NEW INFIRMARY WARD, SANITARY BLOCKS, BOILER HOUSE, TAIL CHIMNEY SHAFT, and SUNDRY OTHER WORKS connected therewith, at the County Lunatic Asylum, Knowle, Fareham, may see the plans and specification and obtain bills of quantities and all other information on application at the Office of Mr. W. J. TAYLOR, County Surveyor, The Castle, Winchester, between the hours of NINE a.m. and FIVE p.m. SATURDAYS between NINE a.m. and ONE p.m.

A deposit of one Ten Pound Bank of England Note will be required for each bill of quantities and will be refunded on receipt of a bona-fide Tender.

The foundations are to be commenced in FEBRUARY, 1899, and the superstructures in MARCH as the weather may permit.

Tenders, strictly in accordance with forms supplied by the County Surveyor, to be delivered to me on or before MONDAY, JANUARY 16th, 1899.

The Committee of Visitors do not bind themselves to accept the lowest or any Tender.

JOHN R. WYATT,
Clerk to the Committee of Visitors.
Knowle,
November 30th, 1898.

VESTRY of ST. MARY, ISLINGTON.

TO BUILDERS.
The Electric Lighting Committee of the above mentioned Vestry is prepared to receive the names and addresses of Builders desirous of TENDERING for WORK in connection with the ENLARGEMENT of the ELECTRIC LIGHTING STATION, Eden-grove, Holloway, N. (near Holloway Station, Great Northern Railway), according to plans which have been prepared by the Vestry's Architect, Mr. A. HESSALL TILTMAN, F.R.I.B.A., 6, John-street, Bedford-row, W.C.

Such names and addresses, enclosed in envelopes, endorsed "Application to Tender," must be sent so as to reach the undersigned not later than FIVE p.m. on WEDNESDAY, DECEMBER 28th, 1898, and reference should be made to works already executed.

Bills of quantities will be supplied, when ready, such firms the Committee may select.

WM. F. DEWEY,
Vestry Hall, Upper-street, N.
December 15th, 1898. Vestry Clerk.

PARISH of ST. GEORGE, HANOVER-SQUARE.

TO CONTRACTORS AND OTHERS.

Such persons as are willing to CONTRACT with the Vestry of the said Parish for the following WORKS and MATERIALS for One Year, from MARCH 25th, 1899, viz.:—

Supply of Guernsey Granite and other suitable Granite or stone.
Masons' Works.
Supply of Paving Materials.
Supply of Hogging.
Supply of Bess Brooms.
Supply of Drain Pipes.
Oil and Candles.
Ironmongery, Steel, and Files.
Paints and Painting Materials.
Lime and Cement.
Timber.
Coals and Coke.
Supply of Uniforms.
Hire of Horses and Carts.
Repairs to Hose Pipes.
Thames Ballast and Sand.
Lamp Columns and Cast-Iron Works.
Lamps, Gas and Gas Fittings.
Printing and Bookbinding.
Books and Stationery.

May deliver in proposals, sealed up, at the Vestry Hall, Mount-street, Grosvenor-square, W., on or before ONE p.m. on SATURDAY, DECEMBER 31st, 1898.

Persons Tendering are desired to take notice that all proposals must be made upon, and strictly in accordance with the printed forms of Tender, to be obtained either at the Vestry Hall, Mount-street, or the Parish Offices, No. 1, Piccadilly-road.

Further particulars may be obtained on application to Mr. G. LIVINGSTONE, Surveyor, at the Parish Offices, No. 1, Piccadilly-road, any morning between the hours of NINE and ELEVEN o'clock.

Contracts to be prepared by the Parish Solicitors at the expense of the Contractors, and the Vestry do not bind themselves to accept the lowest or any Tender.

By order,
T. N. NESBITT,
November, 1898. Vestry Clerk.

BRICKS.

LIME.

CEMENT.

EASTWOOD & Co. Limited,

47, BELVEDERE ROAD, S.E.

234.—WASH-OUT.



SAMUEL HUNT ROWLEY, Swadlincote, nr. Burton-on-Trent.

PATENTEE AND MANUFACTURER OF THE

"WASH-OUT" CLOSET

(PATENT).

Three Awards at the International Medical Sanitary Exhibition, South Kensington, 1881.

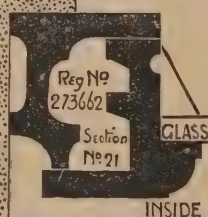
Specialities in Closets, Traps, Urinals, Lavatories, Sinks, and other Sanitary Fittings.

Price Lists and Full Particulars on Application.

Telegrams:—"ROWLEY, SWADLINCOTE."



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METAL WORK
GAS &
ELECTRIC
LIGHT
FITTINGS



WARDY WORKS
SALFORD
MANCHESTER
LONDON 22
SURREY STREET
STRAND W.C.



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SIEMENS-MARTIN AND BESSEMER STEEL JOISTS.

MEASURES' JOISTS ARE THE BEST AND CHEAPEST IN THE MARKET.

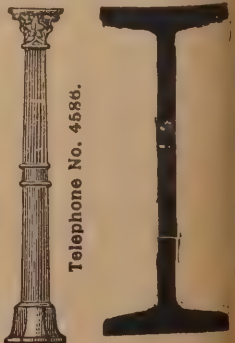
Have now in their Town Stock 6500 tons of STEEL JOISTS, 3in. to 20in. deep; also 1000 Tons of Iron Joists, Channels, Tees, Angles, Plates, &c. Riveted Girders, Fireproof Floors, Stanchions, Columns, Chequered Plates, Rails, Bolts, &c.

SECTION SHEETS AND ESTIMATES ON APPLICATION.

Prompt Delivery from Stock. Steel Joists specially adapted for Pit Props and Colliery Work.



Telegraphic Address:
"MEASURES, LONDON."



Telephone No. 4586.

From 3in. to 20in. deep.

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SURVEYORS • BUILDERS • SANITARY ENGINEERS.

DECEMBER 21ST, 1898.

BOYLE'S PATENT "AIR-PUMP" VENTILATOR.

THE LATEST PATENT HAS DOUBLE THE EXTRACTING POWER OF EARLIER FORMS AND IS ONE-HALF THE COST.

ROBT. BOYLE & SON, LTD., 64, Holborn Viaduct, LONDON; & 110, Bothwell St., GLASGOW.

See Large Advertisement, Back Page, Monthly.

INTRODUCTION OF NON-FLAMMABLE WOOD INTO EUROPE.

The British Non-Flammable Wood Co. Ltd.

Beg to announce that their Works in London, the first erected in Europe, are now completed, and they are prepared to

Take Orders for the supply of "NON-FLAMMABLE WOOD" in large quantities.

"NON-FLAMMABLE WOOD," as produced by the Company's process, is now in use on the following

UNITED STATES WAR VESSELS:—

BATTLESHIPS.—"IOWA" and "OREGON." MONITOR.—"MIANOT." CRUISERS.—"BROOKLYN," "CHICAGO."
GUNBOATS.—"HELENA," "WILMINGTON," "NASHVILLE," "ANNAPOLIS," "WHEELING," "MARIETTA," "NEWPORT," "VICKSBURG."

And is being used for the Battleships "KEARSAGE," "KENTUCKY," "ALABAMA," "WISCONSIN," and "ILLINOIS," now being built.

"NON-FLAMMABLE WOOD" has also been used for all the Carpentry and Joinery Work in the following well-known
colossal Buildings in New York:—

THE COMMERCIAL CABLE BUILDING, THE QUEEN'S INSURANCE BUILDING, and THE R.G. DUN BUILDING,
(each of which is over eighteen stories high).

"NON-FLAMMABLE WOOD" has been tested by H.M. Admiralty, and Large Orders have been given to the Company
by the Government.

Quotations will be furnished on receipt of Specifications.

Address all applications to the General Manager,

BRITISH NON-FLAMMABLE WOOD CO. Limited,

2, Army and Navy Mansions, Victoria Street, London, S.W.

MUNICIPAL ABATTOIRS.

IT is probable that the County Council affords the nearest approach to complete municipal government which London is likely to receive for the present. No one who desires to avoid injustice to its critics will deny that their work has been well done, and in some cases, perhaps, a trifle overdone. In spite of adverse criticism, however, the Council still exists, and still persists in the endeavour to carry out many much needed reforms. Amongst other subjects now under deliberation, one involving the adoption of public slaughter-houses is not the least either in importance or desirability. In times of arcadian simplicity, unsound or diseased meat would hardly form a constituent part of the ordinary dietary, because even assuming that tuberculosis and other disorders had then been invented, no one would be likely to inflict unwholesome food upon himself or upon his friends. Concurrently with the growth of civilisation and with the development of complex social ramifications, it is to be feared that the sense of personal responsibility in many directions has become undesirably attenuated. The financier who would hesitate to profit knowingly by the losses of his friends, is, nevertheless, usually gratified by the successful issue of a Stock Exchange operation, where the losers possess no apparent personality. Similarly those providing meat for markets, and especially for foreign markets, are exceedingly apt to find more interest in financial than in hygienic considerations. This aspect of the question has not been overlooked, notably by some foreign Governments, who not only insist upon the establishment of public slaughter-houses of the most approved description, but also upon the efficient inspection and marking of meat by qualified officials before it is offered for sale.

Several cities in Great Britain already possess excellent institutions of the kind, but Parliamentary powers are insufficient to provide for compulsory use. Consequently, private slaughter-houses of a very insanitary nature are frequently found in the midst of densely populated districts. Again, no obligation at all rests upon the trader with regard to inspection. Only two safeguards exist, conscience possessed by the butcher, and sporadic zeal exhibited by the inspector. As long ago as the early part of last year, the Public Health Committee of the London County Council were instructed to report "as to the desirability of establishing public slaughter-houses throughout London, and as to the facilities which such a system would afford for the better inspection of meat supply. Careful inquiry has consequently been made by the medical officer, whose report, presented last summer, recorded the fact that large quantities of diseased meat are regularly received in London, and urged that an adequate system of inspection is necessary for the protection of purchasers, and especially for the protection of the classes who purchase the cheaper kinds of meat.

Adequate inspection, under existing circumstances, is difficult, not to say impossible, as will readily be appreciated when it is remembered that there are some 450 private slaughter-houses in London, where between 10,000 and 11,000 animals are killed weekly, in addition to those dealt with at the City of London establishments at Deptford and Islington.

In advocating disestablishment as applied to private slaughter-houses, the medical officer very properly brought forward practical suggestions with the view of affording every convenience for butchers in making use of the proposed abattoirs to be equipped by the County Council. Further, the medical officer anticipated that "when butchers have learnt by experience the conveniences they will enjoy from the use of the slaughter-houses and cooling rooms in connection, these places will provide an acceptable alternate for private slaughter-houses."

At a recent Council meeting opposition, on behalf of the butchers of London was offered to the adoption of the report, but this is by no means surprising, for even if no other argument can be urged against any reform

there is always the objection to a new thing, that it is new.

London butchers, however, have another and newer reason. Like every one else in these days, they appear to be students of science, and if their argument is somewhat specious, it must be excused on the score that they are handling unfamiliar weapons. By the mouth of their representative in the Council the worthy butchers of London inaccurately contended that the consumption of foreign meat is responsible for the growth of anæmia amongst the people of England. Anæmia as a complaint is more likely to afflict the under-fed purchaser than the well-nourished purveyor. If foreign meat can be universally obtained under conditions pre-excluding the possibility of other and more deadly diseases, it is highly probable that the public will buy it and risk the anæmia. This, perhaps, is just what the butchers do not wish, but after all the health of a nation is too priceless a gift to be risked for the benefit of trade interests, and it is to be hoped that the inhabitants of London will duly appreciate urgency of this subject, and will join in supporting the application which will doubtless be made for further Parliamentary powers.

Besides the County Council, Parliament has also devoted some attention to the question of meat supply. The Report of the Royal Commissioners presented this year contains recommendations which appear drastic, but they simply represent regulations similar to those already found necessary in other countries, and which must inevitably be adopted here if the matter is to be dealt with effectively. Of course the question arises as to whether the establishment of public abattoirs and inspection stations will involve increased cost to the ratepayers. Naturally much will depend upon circumstances such as the position of sites and other local considerations. As to the buildings, it will be necessary for architects to make themselves fully conversant with the facilities furnished in places where such establishments already exist. Some of these have already been fully described elsewhere in our columns. In many Continental cities public abattoirs have been found to be financially successful, but this condition is scarcely likely to be fulfilled unless powers are granted for the compulsory closing of private slaughter-houses. In any case it should be borne in mind that the primary consideration is that of public health, rather than of profit, and the question generally is one deserving of immediate attention, not only from governing bodies, but from the community at large.

THE Great Northern Railway has recently obtained a remarkably successful result in some artesian boring operations they have had carried out at Werrington, near Peterborough Station, by Messrs. Le Grand and Sutcliffe, of London.

STEPS are being taken for an immediate resumption of the restoration of the great west front of Peterborough Cathedral. The south-west angle is to be treated in the same manner as the north-west, so far as restoration may be found to be necessary.

THE Painters' Company offers a travelling studentship of fifty pounds for the encouragement of the study of decoration. It is open to competition by students between the ages of twenty and thirty-five, in any recognised school of Art or other institution devoted to the study of applied art in any form, and situate within the limit of the larger metropolitan postal area. Particulars may be obtained from the clerks at the Painters' Hall, 9, Little Trinity Lane, E.C.

THE new Infectious Diseases Hospital, Burnley, for the Burnley Joint Hospital Board, is nearing completion. It is being erected from the designs and under the supervision of Mr. F. S. Button, M.Inst.C.E., civil engineer, Burnley. The whole of the wards are being warmed and ventilated by means of Shorland's patent double-fronted Manchester stoves, with descending smoke flues, Manchester grates, exhaust roof ventilators, and special inlet panels.

BACTERIAL TREATMENT OF SEWAGE.*

By GEORGE THUDICHUM, F.C.S.

(Continued from page clvii.)

PRACTICAL points requiring further investigation, and which can be elucidated only by the co-operation of engineers and more especially of borough surveyors, are the questions relating to the trapping of sand, the duration of the working life of the coarse beds, and the degree of fineness necessary for the screens. In the case of the septic tank process the last named requires no consideration, as everything that is organic may be permitted to enter the tank. The sand question, however, remains, and the study of the life of a bed is passed on, though in lesser degree, to the fine beds, since the effluent from the septic tank, taking Exeter as an example, contains considerably more suspended organic matters than that from a coarse bacteria bed. The duration of the active and useful

LIFE OF A COARSE-GRAIN BED

has not yet been determined; the original one at Sutton, which commenced working over two years ago, being still in excellent condition, and treating its proportion of crude sewage daily with results equally as good as those obtained after it had been in operation a couple of months. But certain important observations have been made which tend to show that the water capacity of a bed diminishes according to the time during which it is kept at work; increasing again when rest is allowed, but never equalling that of the bed in its early stages. A considerable portion of this loss in capacity is no doubt due to organic growths in the interstices of the material, and until a certain amount of such has taken place, the purifying powers of the bed are not fully developed. But there must also be a quantity of

MINERAL MATTER

from the sewage deposited in the bed, and much of this can never be brought into solution and thus carried away with the effluent water. Intimately connected with this question is that of trapping the actual sand carried by the sewage, and so preventing it from getting into the bed. This is not of very great importance in the case of towns provided with a separate system of drainage; but where such does not exist, and the water from the roads is removed by the same channel as that which carries the sewage proper, it assumes proportions which on some occasions are startling. This can be well seen by any one at the Barking Outfall Works, where there are thousands of tons of road sand which has been removed from the precipitation channels, having subsided almost as soon as the sewage had passed the penstocks into the channels, and had therefore ceased to flow at a high speed. The amount of such sand brought down and deposited after a single thunderstorm following a period of drought is some hundreds of tons. It is, of course, obvious that this could not be permitted to pass

ON TO A BACTERIA BED,

as the choking up would only be a matter of a relatively short time; and the question to be solved is, to what rate must the flow be reduced, or how long must the sewage be quiescent in settling tanks, in order that the sand may be deposited and the organic matters in suspension left. Too short a period will allow sand to enter the bacteria bed; too long a one will permit of the subsidence of organic matter, which will result in the production of sludge, a product by all means to be avoided. The life of a fine-grain bed is, of course, not affected by similar considerations. The coarse-bed effluent which passes on to the fine contains only a small amount of suspended solids, principally organic, and silting up of the fine bed would not occur. A certain amount of loss of water capacity, due to

* A paper read before the Society of Engineers on Dec. 5th, 1898.

growth, always takes place; but when the point of highest efficiency is arrived at, the capacity remains practically constant. An important point in connection with sewage treatment by any method is to minimise the attention required. In many recent cases where the Sutton system has been adopted attendance during the night hours has been dispensed with by providing a pair of beds, coarse and fine, each having a water capacity sufficient to take the whole of the night flow. Syphons are provided, so that if, owing to rain or other cause, the level of the water in the bed exceeds a certain height, it is automatically discharged from the coarse bed into the fine, or from the fine on to the land. For dealing with the

SEWAGE FROM A SMALL COMMUNITY,

such as a public school or an asylum or a small hamlet, one of two biological methods may be employed, according to the fall available. In the first method, which may be either on the lines of the Sutton or of the septic system, or a combination of the two, the sewage is passed continuously through the tank or for twenty-four hours on to a coarse bed, and then on to fine beds, where it remains for two hours and is then discharged. If bacteria beds only are employed, they should be four in number, viz., two coarse and two fine grain, each being of sufficient capacity to take a whole day's flow. The sewage, or the overflow from the cesspit where such exists, is allowed to pass into one of the coarse beds for twenty-four hours, and is then diverted to the second bed, the effluent from the first being discharged into the corresponding fine bed. Here it is allowed to remain during two hours, and is then finally removed. By this method there is no doubt far more anaerobic action in the coarse bed than is the case when the system is worked normally; but the rest, which is given every alternate day, gives an opportunity for the

DESTRUCTION BY OXIDATION OF THE ORGANIC MATTERS

retained by the bed. The attendance required is very slight, and can be readily given by a gardener; it consists merely in turning a few valves, with an interval of three hours between the first and second operations, and in an occasional raking of the surface. If the fall be sufficient to admit of the employment of two sets of beds, the septic tank and the fine beds only can be employed; and in this case the alternating gear used with the latter is essential, as otherwise the attendance would prove a severe tax. In the second method it is presupposed that the sewage cannot be delivered at or sufficiently near the surface to be passed on to a bed. In this case the best plan is to provide a storage tank, a coarse-grain and a fine grain bacteria bed, each of the three being capable of containing the sewage of an entire day of twenty-four hours. At a fixed time on each day the sewage should be pumped from the storage tank into the coarse bed, should remain there two hours and then be passed into the fine bed, and after a similar period of rest in the latter be finally discharged.

THE SEWAGE FROM THE CLAYBURY ASYLUM of the London County Council has been treated by a single pair of coarse-grain bacteria beds with perfect success for over three years. At Radly College an installation has recently been completed, in which the overflow from a cesspit is treated by two pairs of beds, viz., two coarse and two fine grain. These beds are constructed by excavating, the sides being of brickwork and the bottoms of clay puddle. The coarse beds are 16ft. by 10ft. by 3ft. deep each, and the fine 16ft. by 12ft. by 3ft. deep each. The bed material is coke, that in the coarse beds being all rejected by a screen having a $\frac{1}{2}$ in. mesh, and that in the fine having all passed a mesh of $\frac{3}{8}$ in., with the fine dust removed. The water capacity of each bed is 160 cubic feet, that being the maximum quantity of sewage which they have to deal with daily. It is a source of much gratification to the author that further experience has caused no alteration of the views expressed by him in the paper read before the Society two years ago regarding general principles and

methods of working. Much additional knowledge has been gained, and the applications of the bacterial method have been shown to be of wider scope than was at that time generally recognised; but the facts then related still form the basis on which such knowledge is founded, and the theories set forth have been only amplified and verified, without suffering any integral change. The method of working the beds, by alternately filling and emptying, allowing them to stand full for a limited time, and empty for as long a period as possible, has been proved over and over again to be the correct one. Where the method of constant flow through a filter is employed, the results have so far not been shown to be satisfactory. In many instances, as, for example, at Wimbledon, the effluent escapes from the burnt ballast filter, surface-choked and—being cut off from air by its covering of earth—in a semi-putrid and stinking condition. This fact was noticed by many members of the Society of Municipal and County Engineers on the occasion of their visit to the farm. Whatever be the first treatment, the final purification must be aerobic; and, so far as the author has yet seen, this is best accomplished on the lines laid down as a result of the Barking experiments between 1892 and 1896.

THE SEAFORD WATER QUESTION.

A MEETING of owners and ratepayers was recently held for the purpose of passing a resolution authorising the Seaford Urban Council to join with Newhaven in promoting a Bill to Parliament empowering the Councils to purchase compulsorily, or otherwise, the undertaking of the Newhaven and Seaford Water Company. Mr. E. J. Gorrington presided. The formal notices having been read, Mr. E. J. Gorrington moved the resolution, and gave a resume of the previous proceedings in connection with the last Bill. The Water Company took every technical objection they could. After the Bill was thrown out, the Councils opposed the Water Company's Bill, with the result that they obtained the insertion of a purchase clause.—Mr. Jack seconded the resolution, and made an exhaustive financial statement, putting the total cost of acquiring the Water Company at £66,000. The present Parliamentary costs of the united districts amounted to £3200, and if they did not go on they would have to pay a special rate of 2s. 3d.—Mr. Hutchings said he would prefer to pay that rate, and have done with the matter.—Mr. Jack: That is only one opinion. Having lost £3200 the Council now said if they did not go on they would have to pay a 2s. 4d. rate.—Mr. Hooper also spoke, quoting the case of Brighton, which, by having the control of its own water, saved in thirty years £70,000.—Mr. W. Lambe said he had a small interest in the Water Company, and he did not like partnership with Newhaven. He ridiculed the idea that Newhaven would go on with a Bill without Seaford. He referred to Mr. Hooper's statement as to the time and trouble he had given to the matter, and as to the enthusiasm he had in the matter.—Mr. Lambe was proceeding to condemn the way the public business was conducted, saying there were other things besides water that wanted attention, when he was ruled out of order by the Chairman.—The resolution was then carried, about half-a-dozen voting against it out of about 200 present.

THE tender for the erection of a fish market at Cardiff has been let to Messrs. E. Turner and Sons for £12,988.

ONE of the samples of water recently submitted to Mr. C. E. Cassall, the Kensington public analyst, is declared, in a report laid before the Kensington Vestry, on Wednesday last, to be unfit for the public supply and drinking purposes. The vestry has a sample of water taken, every month, from each of the three companies which supply the parish, and the sample which has just been declared unfit for drinking purposes was from one of the principal mains supplying the district.

LONDON'S WATER SUPPLY.

FURTHER evidence was given before Lord Llandaff's Commission at the Westminster Guildhall on Wednesday in opposition to the project of the County Council to supply the Metropolis with water from Wales. Mr. Walter Hunter, one of the joint engineers of the Staines storage scheme of the London companies, was re-called, and having stated, in reply to the Chairman, that in his opinion the Welsh scheme was not needed at present, he was asked by Mr. Porter whether he thought it desirable to secure an area in case of necessity arising hereafter. That, said the witness, would be going almost beyond an engineering opinion. It might be desirable in the interests of London to secure an area on the supposition that it might be wanted hereafter. It depended upon the growth of London. Some people thought that London would not increase in the future as it had in the past, and therefore that the Welsh water would never be wanted at all. The view he took with regard to the utilisation of the Thames in preference to taking water from a distant watershed might be summed up somewhat in the following way: "We have a river which has an average flow of something like 1,300,000,000 gallons a day. It is suggested that we should go to Wales and open up a supply from a watershed, which, according to the calculations of the County Council, would afford at most 415,000,000 gallons a day. Therefore, it has always seemed to me from the original intention of the promoters of the Welsh scheme, which was to

DISCARD THE THAMES

altogether, that what would happen would be that the 415,000,000 gallons a day would be used up within a certain period, and after having incurred all the expense of bringing the water from Wales, they would have to come back to the Thames, which previously they had affected to despise, and make up the additional water which would then be wanted from the Thames. I have always felt that it was chiefly a question of expense as between the two schemes, and that if the Thames could be developed and give good water at less expense, it was absurd to go to a distant watershed until you were compelled."—Cross-examined by Mr. Balfour Browne, Q.C., on behalf of the London County Council, Mr. Hunter admitted that he knew of nothing better than the Welsh scheme, if the supply of Thames water became exhausted.—Sir Frederick Bramwell, asked by the Chairman whether he considered the purchase of the undertakings of the Water Companies by one or more authorities was financially expedient, gave it as his opinion that it was not expedient that the Companies should be acquired, either in the interests of the water consumer or in the interests of the ratepayer, because he was convinced that the purchasing authority could not afford to make

LESS CHARGE FOR WATER

than was now made. That being so, there would certainly be no saving to the consumer, and as regards the ratepayer getting any benefit out of the transaction, that was extremely problematical. He did not see where economy of management was to come in, because London was so vast that in the case of not one of the eight companies was the management in excess of that which was needed for the population. The officials would have to be equally numerous, or the work would be worse done, and they would have to be equally well paid. The only saving he could foresee was in the shape of directors' fees, which, however, only amounted to 1-1-3 per cent. of the total receipts. He believed that a supply of 35 gallons of water per head per day was ample for the population of London, and under a continuance of the existing management he did not anticipate extravagance in the use of water similar to what he had seen in New York, Philadelphia, and other American cities. When the case of the East London Company, and the way in which they had been treated, came to be inquired into, he believed they would be entirely exonerated.

PARIS ABATTOIRS.

By R. STEPHEN AYLING, A.R.I.B.A.

(Continued from page cxvii.)

FACING the fountain, and in the centre of the site is the auction market (Fig. 34) for the sale of dead meat, J. It has a basement under the whole building for the storage of carcasses, and at the end nearest the entrance gates is a well-designed clock tower.

The building is lighted by a series of windows above the covered verandahs on the two long sides. The roof is in iron and wood, with red tiles. Fig. 35 shows the interior fittings on which the carcasses are hung for sale. At the sides of this market are two small buildings, K and L, the former being residences for employes, and the latter station for the firemen and Republican Guard.

When necessary, it is proposed to erect the two ranges of buildings as shown along the Rue Brancion and Rue de Dantzic, which would give the following accommodation: M M, residences for employes; N N N N, bouveries and bergeries; O O, killing courts and echaudoirs; P P, workshops for the preparation of intestines; Q, condemned meat and sanitary inspector; R, scavengers and disinfectants.

(To be continued.)

AN UNSOLVED PROBLEM.

THE BOUNDARY STREET ESTATE.

THERE are many who remember the district which used to be called "back o' Shoreditch Church," and which a writer lately christened the "Old Jago." Ten or twelve years ago it had a worse reputation than any other neighbourhood in London; it retained its disrepute long after Ratcliff Highway had been made passable. It was very near the main street—so near that one might have flung a stone from Shoreditch High Street or the Bethnal Green Road into the middle of it. But down the narrow passage, set across with posts, and called "the Pasties," which gave entrance on one end to Old Nicol Street, no respectable person—and the

police only on rare occasions—ever ventured. Its real name was not the "Old Jago," but the "Old Nicol;" and, with this alteration, one may quote this description of it.—"A square of 250yds. or less—that was all there was of the 'Old Nicol.' But in that square the human population swarmed in thousands. Old Nicol Street, New Nicol Street, Half Nicol Street, lay parallel east and west; Nicol Row at one end and Edge Lane at the other lay parallel also; foul ways all. What was too vile for Kate Street, Seven Dials, and Ratcliff Highway in its worst day, what was too useless, incapable, and corrupt—all that teemed in the 'Old Nicol.'" We do not know by whom the first steps for sweeping away this refuse-heap were taken; it remained there for generations, ignored by many who passed it by, and apparently irremovable; a disgrace which is one of the penalties of

LONDON'S OVERGROWN BULK.

But at any rate it has gone at last; nothing remains of it but the names of one or two of the streets on the walls of houses condemned, but not pulled down. Half Nicol Street still flaunted its squalid disrepute in this manner



FIG. 34.

on a ruined wall a few months ago. The "Old Nicol" has been swallowed up in the new "Boundary Street Estate" of the London County Council—an estate of tall houses and wide streets with a general aspect such as a stranger led there blindfolded might imagine that he was in Kensington. The "Estate" has been growing for fifteen years, and the Council is now the landlord of 503 tenements and workshops. As fast as the buildings are finished they are let off to tenants, for whatever is scarce in this neighbourhood it is certainly not people. The blocks when completed will number seventeen, and will then house, roughly, 3000 people. So far the scheme has housed 2500. Whether it has housed the people whom it dispossessed is a different matter. The area which has been rebuilt covers about fifteen acres, and from its centre the different blocks radiate, much as do spokes from a wheel. Perhaps nothing strikes one so much at a first glance as the

DIVERSITY OF THE BUILDINGS.

No two appear to be the same. As a matter of fact, they have been put up by three different builders and by the Works Committee. But even the plans were intended to aim at diversity, and it is not too much to say it has been achieved. The second great feature is the width of the courtyards separating the blocks, the airiness secured thereby, and the very handsome ornamental space in the centre known as the Mount, laid out with shrubs, trees, and flowers. Once it was thought the Council might put a bandstand in the centre and discourse sweet music to its loving tenants, but cold water was dashed on the proposal to such an extent that the Council has now decided to place a fountain where they yearned for a bandstand. The buildings are

SPLIT UP INTO LODGINGS

of all sorts and sizes, from a single room at 3s. 6d. a week to a four or five roomed flat at 13s. 6d. The "flats" are self-contained; the "single rooms" oblige their lodgers to share sinks and so forth with fellow tenants. Here, of course, one comes straight against the second of the two difficulties which have to be faced in any scheme for housing the poor. The first of the difficulties is the rent. The people who have paid 2s. 6d. a week for rent resent bitterly the extra 1s., and what they resent more is the absolute necessity of having to pay it promptly instead of owing it. In the second place, the people who have lived in 2s. 6d. rooms—perhaps with lodgers—cannot bear to be clean, and cannot be made so. There are decent and cleanly tenants in the "flats;" in fact, four clergymen tenants are to be found among the blocks, and some of the windows in the Boundary Street estate are decked with "art" curtains and flower boxes. But others are already embellished with what look

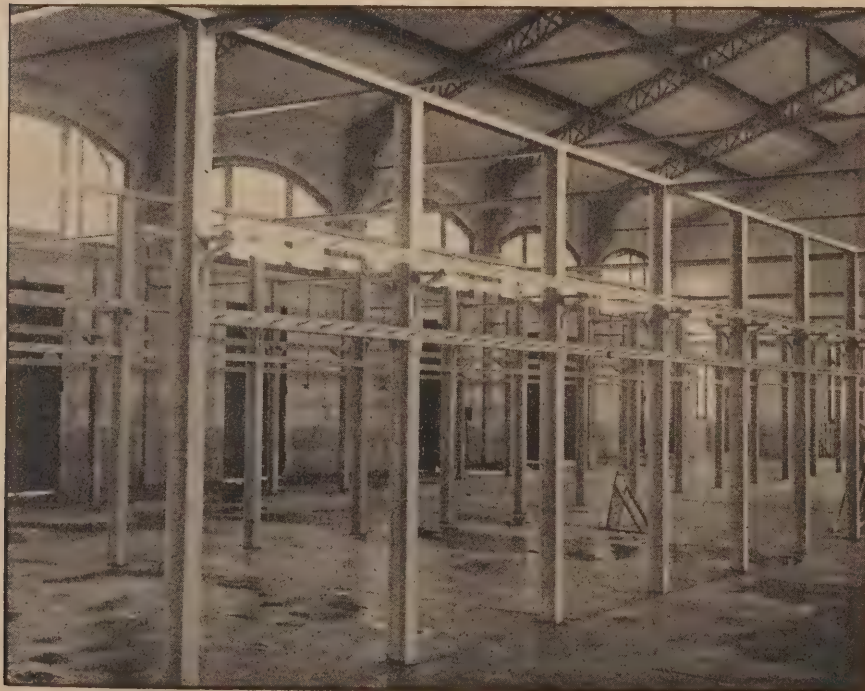


FIG. 35.

like old petticoats instead of blinds. It is the same with the courtyards and the staircases. Most of the courtyards are clean, but several are absolutely dirty; refuse has evidently been thrown down from upper windows. The very narrow space in which families are housed—a family of six in a small living room and two tiny bedrooms, though far removed from comparison with the pestiferous conditions of the "Old Nicol," is still not a pleasant thing to contemplate—has caused heaps of rubbish to overflow into balconies that were originally intended, doubtless, to be ornamental. Generally speaking, a living room and two small bedrooms cost 8s. 6d. a week, to be paid in advance; usually these little flats are self-contained. They are not really cheap; the full value of rents in the neighbourhood is charged. The Estate has also seventy-five workshops, varying from 3s. 6d. to 6s. 6d. They let readily, a fact which, though going to show that there is a real demand on the part of workmen and artisans for the accommodation which the County Council has provided, yet also proves that the dwellings do not house the tenants of the site. On account of the impossibility of getting water up to the top of the buildings, the Council has built a

LARGE CENTRAL LAUNDRY, with forty-two troughs, all numbered, with drying horses, hot and cold water, &c. The trough is partitioned, and in the back part the clothes are boiled by steam coming through a perforated pipe. There is a separate mangling and ironing room; the mangles are driven by steam, the irons heated by gas. The convenience of a laundry can be enjoyed for 1½d. an hour; but those who know the ways of tenants will not be surprised to hear that the sum is begrudged. There is also a club and reading-room for the use of the tenants; 6d. a month is the subscription for a man and his wife, 6d. for a single man, 4d. for a single woman. To sum up, one may say that the Council has not in the Boundary Street Estate solved the problem of providing for the disinherited slum dwellers; but it has done something to help those poor who are not wholly incapable of helping themselves.

It is suggested that a system of electric lighting will be instituted in Blairgowrie. A syndicate is now formed with a capital of between £8000 and £10,000. A HUGE steel gas tank belonging to the Consolidated Company, in Avenue A, New York, collapsed last week. The tank, which contained 8,000,000 gallons, was being subjected to the water test. The water in the tank poured in a huge wave, 10ft. high, over the surrounding district and caused great destruction. Six bodies had been found in the wreckage up to last evening, and one person was still missing. Twenty persons altogether were injured.

Trade and Craft.

STEAM ROLLER FOR SPALDING.

At a meeting of the Spalding Urban District Council, it was decided to purchase a steam roller at a cost of £360. The roller is to be one of ten tons, to be supplied by Messrs. Aveling and Porter, of Rochester.

ELECTRICAL MACHINERY AT DRURY LANE THEATRE.

The first section of the electrical stage appliances at the Theatre Royal, Drury Lane, designed by Mr. Edwin O. Sachs, has been completed. The area of the stage, moveable by mechanical power, now exceeds 1100 square feet. Mr. Sachs' installation primarily comprises a series of large "bridges," with the aid of which the finest terraces can be formed in a few seconds, or the deepest caves arranged for underneath the stage by simply pressing a button. Whole scenes can be rapidly raised or lowered, and transformations made with the greatest ease. The introduction of modern mechanism on these lines will open an entirely new era in the mounting of plays.

COPYING DESIGNS.

A statement comes from Berne which, if confirmed, will be likely to affect seriously the sending of goods to the Paris Exhibition. An embroidery manufacturer at St. Gall noticed that a design registered by him in Paris had been copied by a French manufacturer at St. Quentin. He brought an action against him, and the Paris Court of Appeal decided against him, basing its decision on a French law of 1806 and an Ordinance of 1825. The verdict has the following consequences: the designs and patterns of foreign manufacturers who send goods to the Paris Exhibition of 1900 may be copied with impunity by French manufacturers if the exhibitors do not possess a manufactory in France itself.

THE PHILOSOPHY OF HEALTH.

A new hospital at Newton Abbot was opened some days ago. The Right Honourable Charles Seale-Hayne, M.P., referring to the ventilation, which is on the Boyle natural system, said:—"I am a firm believer in what may be termed the Philosophy of Health. I believe also that it would be an excellent thing if in our primary schools greater attention was paid to instruction in hygiene. God has endowed us and blessed us with bodies that are wonderful machines, therefore it is our duty to take care that these machines are kept in proper working order. This hospital seems to be admirably designed and well constructed, reflecting credit on both architect and builder. In presence of the crowded and distinguished company which I have the honour of addressing, I need not

say, because the temperature attests it, that the ventilation of this hospital is upon the best and most scientific principles. I said just now how important was the subject of hygiene, and in no respects is it more valuable or necessary than in the subject of securing for our public buildings the necessary amount of fresh air. But if a pure atmosphere be necessary for us who are in health by the blessing of Providence, how much more necessary is it that our afflicted fellow creatures, stricken down by accident or disease, and denied for the time the blessings of outdoor exercise, should have secured to them the healthiest possible surroundings. I am glad, therefore, as I say, that in this new hospital the Committee of Management, or the architect acting in its behalf, has selected and adopted what I believe to be absolutely the best system of airing a public building that is known to sanitary science."

STRUCK OFF THE LIST.

The secretary of the Three Towns Trade and Labour Council informs us that at the fortnightly meeting great satisfaction was expressed on receipt of a letter from the town clerk of Plymouth announcing the close of a long controversy between the Works Committee of the Town Council and the Trades Council as to whether or not Messrs. Ellacott and Son, contractors for town work, were paying the standard rate of wages in the district. The Trades Council had contended they were not, in support of which evidence was submitted by letter and deputation to the Works Committee. Messrs. Ellacott met this with a denial. To prove the truth of their assertions the Trades Council requested that Messrs. Ellacott should submit their wage-sheet for inspection by the Works Committee. This they refused to do, and in consequence the Works Committee has decided that the firm be struck off the list of contractors for town work.

ALEX. BOYD AND SON'S NEW FIREPLACE CATALOGUE.

In the ordinary sense of the term this can hardly be called a catalogue, as, from the excellent information it contains upon warming and ventilation, one is disposed to regard it as a book of reference. The trade section, however, is carefully compiled, and all the stoves manufactured by the firm are well illustrated and described. Here one finds a section of a room warmed by an "improved descending warm-air stove," and here another showing the working of Boyd's automatic ventilating stove. In every case the important subject of ventilation has been carefully considered, and we have no hesitation in recommending those who appreciate the comforts of existence to use stoves manufactured by Messrs. Boyd.

COMPLETE LIST OF CONTRACTS OPEN.

DATE OF DELIVERY.	WORK TO BE EXECUTED.	FOR WHOM.	FROM WHOM FORMS OF TENDER MAY BE OBTAINED.
BUILDINGS—			
Dec. 23	Birmingham—Newspaper Offices	Midland Sporting News	Owen and Ward, 71, Colmore-row, Birmingham.
" 23	Birchcliffe, near Huddersfield—Inn, &c.		J. Berry, 9, Queen-street, Huddersfield.
" 23	Londonderry—Hotel	Mrs. Gibson	Forman and Aston, Queen's-bldgs., Royal-avenue, Belfast.
" 23	Shibden, near Halifax—Block of Houses		J. F. Walsh, Lancs. and Yorks. Bank-chambers, Halifax.
" 23	Leicester—Erection of Dwellings	Estate Committee	T. H. Fosbrooke, Architect, Market-street, Leicester.
" 24	Dartmouth—Repairs, &c., to Guildhall	Town Council	T. O. Veale, Surveyor, Castle View House, Dartmouth.
" 24	Cranford, Middlesex—Hospital	Committee	F. C. Greville-Smith, 172, High-street, Hounslow.
" 24	Wales, near Sheffield—Wall		Rev. G. L. M. Rees, The Vicarage, Wales, near Sheffield.
" 24	Whitehaven—Rebuilding Premises	Misses Adair	J. S. Moffat, 53, Church-street, Whitehaven.
" 24	Whitehead, co. Antrim—Villas		J. Russell, 16, Waring-street, Belfast.
" 27	Flixton, Lancs.—Brickwork Tanks	Drainage Committee	—Hooley, C.E., Council Offices, Urnston.
" 27	Morebattle, Scotland—Church		J. Henderson, Heritors' Clerk, Morebattle.
" 27	Wadebridge—Hotel Alterations		Manager, Commercial Hotel, Wadebridge.
" 27	Windermere—Offices	Urban District Council	R. Walker, Architect, Windermere.
" 27	Blaenau Festiniog, Wales—Police Buildings		J. J. Morris, Clerk to the Justices, Blaenau Festiniog.
" 28	Burghill, Hereford—Asylum Works	Visiting Committee	Giles, Gough, & Trollope, 23, Craven-st., Charing Cross, W
" 28	London—Enlargement of Electric Station	Islington Vestry	Vestry Hall, Upper-street, N.
" 28	Thorhill—Eighteen Houses	Dewsbury Industrial Society Ltd.	Holtors and Fox, Architects, Dewsbury.
" 28	Llandrindod Wells—Additions to Hotel		Scott, Deakin, and Co., Architects, Shrewsbury.
" 28	Devizes—Factory	Bacon Co.	Norris and Hancock, 16, Market-place, Devizes.
" 30	Denton, Sussex—Engine house	Newhaven and Seaforth Water Co.	F. S. Courtney, Broad Sanctuary-chambers, Westminster.
" 30	Willenhall, Staffs.—Greenhouse	Urban District Council	C. J. Jenken, Engineer, Town Hall, Willenhall.
" 31	Dartmouth—Erection of Boundary Walls, &c.	Urban District Council	T. O. Veale, Surveyor, Castle View House, Dartmouth.
1899.			
Jan. 2	Leamington—Entrance Lodge	Town Council	F. G. Cundall, 41, Parade, Leamington.
" 3	Birkenhead—Pier Pay Gates and Buildings	Corporation	C. Brownridge, Borough Engineer, Town Hall, Birkenhead.
" 3	Nottingham—Superstructure of Workhouse	Guardians	A. Marshall, King-street, Nottingham.

COMPLETE LIST OF CONTRACTS OPEN—continued.

DATE OF DELIVERY.	WORK TO BE EXECUTED.	FOR WHOM.	FROM WHOM FORMS OF TENDER MAY BE OBTAINED.
1899. BUILDINGS—Continued.			
Jan. 7	Plaistow, E.—Enlarging Hospital	County Borough of West Ham	E. T. Hall, 57, Moorgate-street, E.C.
" 7	West Ham—Enlargement of Hospital	Town Council	F. E. Hilleary, Town Clerk, Town Hall, West Ham.
" 9	Horsham—Infirmary Block	Union Guardians	C. H. Burstow, 6, West-street, Horsham.
" 9	Mickleover, near Derby—Asylum Wards	Committee of Visitors	J. S. Story, Surveyor, County Offices, Derby.
" 10	Bradford—Inland Revenue Office	Commissioners H.M. Works	Office, Storey's Gate, S.W.
" 11	Selby—Public Baths	Urban District Council	W. Hanstock and Son, Branch-road, Batley.
" 11	London—Pulling-down and Removal of Buildings	Islington Vestry	Vestry Hall, Upper-street, N.
" 16	Knowle, near Fareham, Hants—Infirmary Wards, &c.	Committee of Visitors	W. J. Taylor, County Surveyor, the Castle, Winchester.
No date.	Ashton-under-Lyne—School Buildings	J. H. Northorp	T. D. Lindley, Market-avenue, Ashton-under-Lyne.
"	Bridlington—Erection of Two Houses		D. Fetch, Victoria-chambers, Huntriss-row, Scarborough.
"	Bulwell, Nottingham—Five Houses		F. C. Martin, C.E., Angel-row, Nottingham.
"	Bury, Lancs.—Alterations, &c., to Mill		J. Sellers and Son, Architects, Union-chambers, Bury.
"	Colchester—Extension of Laundry	Steam Laundry Co. Ltd.	Oliver and Dodgshun, Architects, Carlisle.
"	Harrogate—Erection of Four Houses	A. Sutcliffe	Bland and Bown, Architects, North Park-road, Harrogate.
"	Newcastle-on-Tyne—Erection of Shed		Fownes Forge and Engineering Co. Ltd., Tyne Docks
"	Nottingham—New Premises	Pearson Bros.	C. T. Holloway, Newcastle-chbrs., Angel-row, Nottingham.
1898. ENGINEERING—			
Dec. 23	Bangor, Wales—Repairing Engines, &c.	Pier and Ferry Committee	J. Gill, Borough Surveyor, Bangor.
" 23	Carlisle—Extending Water Mains	Rural District Council	G. Armstrong, 24, Bank-street, Carlisle.
" 23	Edinburgh—Water Works	Water Trustees	J. Wilson, 72a, George-street, Edinburgh.
" 26	Lauder, Scotland—Light Railway	Lander Light Railway Company	Blyth and Westland, 135, George-street, Edinburgh.
" 27	Carlisle—Water Supply Works	Rural District Council	J. Little, Sanitary Engineer, Viaduct-chambers, Carlisle.
" 28	Leytonstone—Supply, &c. of Washing Machine	West Ham Union Guardians	F. E. Hilleary, Clerk, Workhouse, Leytonstone, E.
" 28	Bromley, Kent—Diversion of Culvert	Urban District Council	Surveyor Council's Offices, Bromley.
" 28	London, S.W.—Haulage Inclines	Uganda Railway Committee	Crown Agents for the Colonies, Downing-street, S.W.
" 28	Bucharest, Roumania—Two Tubular Wells	Town Council	— Radu, 9, Strada Mihai-Voda, Bucharest.
" 29	Bucharest, Roumania—Supplying Town with Water	Town Council	— Radu, 9, Strada Mihai-Voda, Bucharest.
" 29	Emley, near Wakefield—Pipelining	Urban District Council	S. Shaw, Union-street, Dewsbury.
" 29	Leeds—Electrical Conductors, &c.	City Council	City Engineer, Municipal Buildings, Leeds.
" 30	Hull—Pipes, Steel Roof Trusses, &c.	Corporation	City Engineer, Town Hall, Hull.
" 30	Sunderland—Supply of Dynamos	Corporation	J. F. C. Snell, A.M.I.C.E., Dunning-street, Sunderland.
" 31	Cairo—Steam Boilers	Administration of Ports & Lighthouses	Commercial Department, Foreign Office, S.W.
" 31	Ramsgate—Beam Engine	Corporation	W. A. Valon, Engineer, Corporation Offices, Ramsgate.
" 31	Rotherham—Sludge Pressing Plant	Sewerage Committee	R. E. W. Berrington, Bank Buildings, Wolverhampton.
1899.			
Jan. 2	Quebec, Canada—Bridge	Commissioners	Quebec Bridge Company, Canada.
" 2	Stirling—Electric Lighting	County Council	T. L. Galbraith, Clerk, Stirling.
" 3	Barkip, Ayrshire—Waterworks	Ryde Corporation	P. C. Hart, 32, John Finnie-street, Kilmarnock.
" 3	Newchurch, Isle of Wight—Pumping Engines, &c.	Norwegian State Railways	J. T. Harvey, Waterworks Office, Ashley, Brading.
" 4	Christiania—Goods Trucks	Town Council	Commercial Department, Foreign Office, S.W.
" 6	Johannesburg—Carburetted Water Gas Plant	Gas Company	R. Whyte and Co., 22, Bury-street, St. Mary Axe, E.C.
" 7	Newport, I. of W.—Gasholder Tank	Corporation	F. G. Cockey, 98, High-street, Newport, I. of W.
" 9	Tunbridge Wells—Filter Beds	London County Council	W. C. Cripps, Town Clerk, Town Hall, Tunbridge Wells.
" 24	London—Tunnel	Harbour Board	Engineer's Department, County Hall, Spring-gardens, S.W.
Feb. 1	Townsville, North Queensland—Supply of Crane	Government	Chairman, Townsville Harbour Board, Townsville.
March 15	Be'em, Para, Brazil—Water Supply Transfer	Municipal Council	Brazilian Consulate, England.
" 15	Rio de Janeiro—Waterworks	Municipal Council	Commercial Department, Foreign Office.
" 15	Shanghai, China—Electric Tramways	Municipal Council	J. Pook and Co., 8, Jeffrey's-square, St. Mary-axe, E.C.
" 31	Shanghai—Telephone System (30 years)	Gas Committee	J. Pook and Co., 8, Jeffrey's-square, St. Mary-axe, E.C.
No date.	Selby—Accumulators		J. E. Prosser, Yorkshire Bacon Curing Co. Ltd. Selby.
"	Fenton—Purifiers		F. H. Darwin, Engineer, Gas Offices, Fenton.
1898. IRON AND STEEL—			
Dec. 24	Garforth, near Leeds—Colliery Stores	Owners	Owners of Garforth Colliery, near Leeds.
" 27	Penzance—Cast and Wrought-ironwork, &c.		Borough Surveyor, Public Buildings, Penzance.
" 29	Valetta, Malta—Railway Stores	Malta Railway	Crown Agents for the Colonies, Downing-street, London.
" 29	London, S.W.—Carriage and Wagon Stock	Uganda Railway Committee	Crown Agents for the Colonies, Downing-street, S.W.
" 31	Dundee—Cast-iron Pipes	Water Commissioners	G. Baxter, 93, Commercial-street, Dundee.
" 31	Ramsgate—Supply of Iron Pipes	Gas and Water Departments	W. A. Valon, Engineer, Ramsgate.
ROADS—			
Dec. 24	Swinton, Lancashire—Granite Setts	Urban District Council	H. Entwisle, Surveyor, Council Offices, Swinton.
" 26	Bacup, Lancs.—Street Works	General Works Committee	F. Wood, Borough Surveyor, Bacup.
" 27	Bournemouth—Road Works	Town Council	F. W. Lacy, Borough Surveyor, Bournemouth.
" 27	Bromley, Kent—Widening Road	Urban District Council	Surveyor, Council's Offices, Bromley.
" 27	Walton-on-Thames—Road Works	Urban District Council	R. F. Hawkins, Stomfield Lodge, Walton-on-Thames.
" 28	Basingstoke—Widening Street	Town Council	G. Fitton, Borough Surveyor, Town Hall, Basingstoke.
" 28	Kingston-on-Thames—Road-making	Corporation	Borough Surveyor, Clatter House, Kingston-on-Thames.
" 29	Withington, Lancs.—Street Works	Urban District Council	A. H. Mountain, Surveyor, Town Hall, Withington.
" 31	Folkestone—York Stone	Corporation	Surveyor, Dover-road, Folkestone.
" 31	London—Supply of Materials, &c.	St. George's, Hanover-square, Vestry	G. Livingstone, 1, Pimlico-road, S.W.
" 31	Horsham—Supply of Flints, Granite, &c.	W. Sussex Roads & Bridges Committee	W. B. Purser, 31, Bedford-road, Horsham.
1899.			
Jan. 2	London, W.—Tipping Vans	Paddington Vestry	F. Dethridge, Clerk, Vestry Hall, Harrow-road, W.
" 4	Litherland, Yorks.—Passages	Urban District Council	W. B. Barton, 25, Sefton-road, Litherland.
" 6	Wanstead—Making-up Roads	Urban District Council	Surveyor, Council Offices, Wanstead, N.E.
" 9	Wolverhampton—Road Works	Streets Committee	J. W. Bradley, Engineer, Town Hall, Wolverhampton.
No date.	Manchester—Supply of Setts and Kerb	Highways Committee	Chief Clerk, Highways Office, Town Hall, Manchester.
1898. SANITARY—			
Dec. 26	Maryport—Drainage Work	Corporation	— Young, Allerby House Farm, Maryport.
" 29	Tunbridge Wells—Brick Sever	Worshipful Company of Watermen, &c.	Borough Surveyor, Town Hall, Tunbridge Wells.
" 31	London, S.E.—Drainage Work	Urban District Council	L. Jacob, 423, New Cross-road, S.E.
Jan. 3	Epping—Iron and Stoneware Pipe Sewers	Corporation	W. Smith, 41, Parliament-street, S.W.
" 28	Glasgow—Outfall Sewer	Suffolk County Asylum	City Engineer, 64, Cochran-street, Glasgow.
" 31	Melton—Rearranging Drainage		A. T. Cobbold, County Hall, Ipswich.
1899.			
Jan. 1	Taunton—Construction of Sewer	Town Council	J. H. Smith, Borough Surveyor, Taunton.
No date.	Grimsby—Laying Pipe Sewer	Urban Sanitary Authority	M. Petree, Engineer, Town Hall-square, Grimsby.
"	Armagh—Sewering Pipe		Manager, Co-op. Wholesale Society, Dublin-st., Armagh.
"	Stoke-on-Trent—Laying Sewer		Lynam, Beckett, and Lynam, Surveyor, Stoke-on-Trent.
"	Winchester—Sewerage Works, &c.		H. J. Weston, 24, Portland-street, Southampton.

COMPETITIONS.

DATE DESIGNS TO BE SENT IN.	DESIGNS REQUIRED.	AMOUNT OF PREMIUM.	BY WHOM ADVERTISED.
1899.			
Jan. 1	Hull—Public Library	£50, £30, £20	Public Libraries Committee.
" 2	Harrogate—Pump Room, &c.	£50, £30, £20	Corporation of Harrogate.
" 2	Harrogate—Alterations to Old Pump Room	£30, £20, £10	Samuel Stead, Borough Surveyor, Municipal Offices, Harrogate.
" 14	Bradford—Fire Brigade Station	£100, £50, £30	Corporation of Bradford.
Feb. 1	Burnley—Higher Grade School, &c.		Burnley School Board, Ormerod-road, Burnley.
" 10	Bradford—Central Fire Brigade Station	£100, £50, £30	City Surveyor.
" 10	Dartford—Three New Schools	£31 10s., £10 10s.	Dartford School Board, Kent.
No date.	Charlbury, Oxon—Design for Fountain		The Vicar, Charlbury, Oxon.

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December 15th.

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January 19th	May 18th	September 21st
February 2nd	June 1st	October 5th
February 16th	June 15th	October 19th
March 2nd	July 6th	November 2nd
March 16th	July 20th	November 16th
April 6th	August 3rd	December 7th
April 20th	August 17th	December 21st

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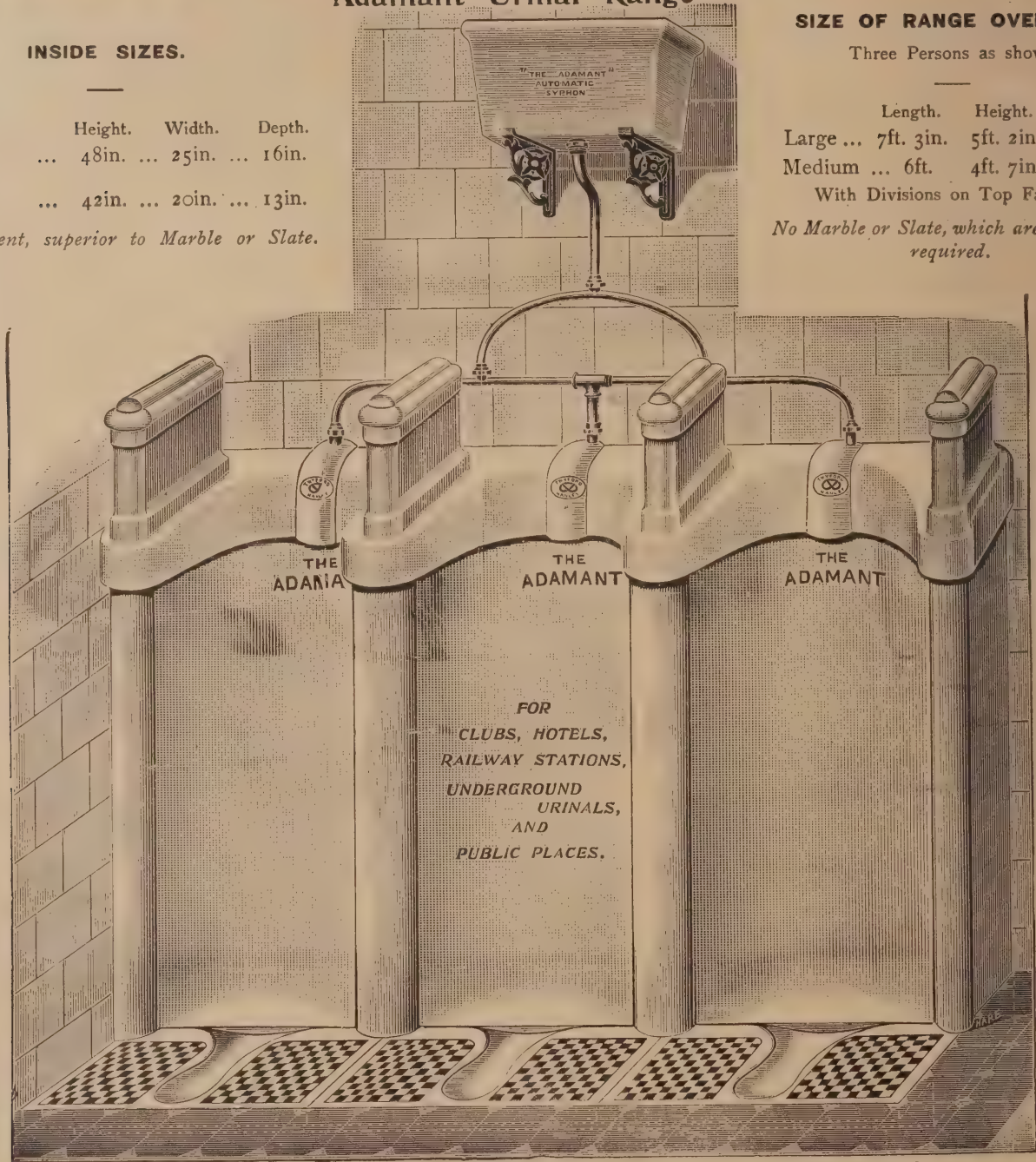
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An Architectural Causerie.

At a Seaside Painting Ground.

THE sea seems to edge its way up to the land, and the fishing village to lean and bend to the sea, as though it stretched out both arms to it round the sheltered bay which forms so safe a harbour. The town of St. Ives in Cornwall, with its fringe of houses straggling up the hillside, lives its real life down below where the wash of the waves sounds in the narrow streets, and the place is redolent of salt water in every alley and corner. From the lodging house terraces the roofs fall sleepily underneath, greenish grey and dove-colour, with the square sandstone tower of the church rising among trees in the midst, till they reach the level of the beach with its boats and jetties and litter of seafaring tackle. Down the narrow tortuous streets the carts still rush at a pace reminiscent of times when the fish from St. Ives had to be driven furiously to catch the mail train a dozen miles inland. Along Digey and in Salubrious Place are plenteous signs that the pilchards have at length put forth, and come into the bay. The small solid houses crowd together up and down steps in dim courts and alleys. On strings tied across the house-fronts wet oil-skins and trousers are hung out to dry. On the beach with its ring of houses you see a green promontory, which stretches protectingly between the town and the wilder sea without the natural harbour. At its foot are the last ruins of the Breton House, where the Bretons stayed when they came to trade with their Cornish brethren, whose speech was like their own. This hill, rising green from its base of brown rocks, is sacred to the fisher people, and cannot be touched by the builders. The upper parts of it belong to the men and their nets. On the rocks the women spread out their linen, weighting it down with stones. On an October morning, as the web nets are spread and lifted in the sun, they glisten like gigantic dewy cobwebs. Flat on the ground they have the appearance some way off of a curious brown growth, and near you walk upon them warily, but they trip you up. They cover every yard of grass. When they are dry, the fishermen gather them together, and walk away with them wound about their shoulders till the man within is almost hidden in a mountain of nets. On the further side of the "Island" from the town is a wider beach, where the waves roll in with unbroken force from the Atlantic. On Porthmeor all the simple, crowded life of the town is forgotten, and as you stand on its long sands, the fishermen and women, moving on the "island" on your right, are small, silent figures bending among the nets or the more homely washing. The great beach extends in a semi-circular curve, with jutting rocks sprayed with foam at either end. Nothing breaks its splendid sweep as in the more homely bay where the boats are swayed by waves which seem almost tamed and subservient. Here the great

breakers chant their own song; springs break in the sands, making fantastic water shapes which reflect the sky with a curious stillness. But the white-tipped, rushing waves seem to carry their own colour with them. You imagine the depths of ocean round this coast as clear, clean, and full of light—so limpid, so translucent are the blues and greens upon its surface. At St. Ives the sea is everything both to fishermen and artists. Old people still remember the first painter who came there. He was a Frenchman, they say, and he went about exclaiming that St. Ives was full of pictures. They let him paint, and took no notice, evidently regarding him as a harmless madman. The tradition of to-day is that his picture sold for thousands of pounds. Since then there have always been artists, accompanied by that still stranger creature, the "artis'oman." Studios stand in every coign of vantage, among the houses of the fisher-folk, or pushing boldly out over the edge of the waves, blank towards

only for effects of light and colour, we seem to look merely at studies—incomplete, uninformed with a full meaning. Photographers would give us nearly as much pleasure. But when, as in Mr. W. H. T. Titcombe's studio, the sands of Porthmeor become the playground for Nansiea and her maidens—brown figures rushing after the ball; or when in a pool, among the rocks, the little mermaids beckon to the fisher-boy, fancy and imagination bring reality in their train, and we feel the sea is the sea, we know, real and alive—a glorious playmate, a magnificent and awful foe. A. G. D.

The Last of an Old London Inn.

THE old White Horse Inn, Fetter Lane, after being doomed to destruction during the last three years, has now been demolished. In the coaching age this was one of the best known



A DEMOLISHED LONDON INN: THE WHITE HORSE, FETTER LANE.

the land, but with large windows observantly peering out to sea. The largest and most important look out over Porthmeor beach, within touch of the spring tides, at the wide arch of sky, and the swinging surge of Atlantic billows. An enterprising stationer has opened a gallery in which the works of local artists are on view. In the shop there is beaten copper work made by the fisher-boys at Newlyn, and upstairs paintings are hung by men of more than local fame—Messrs. W. H. T. Titcombe, R. Levick, T. Eillie, Dow, Ollsen, and Grier. If we are to gauge anything by the label "Sold," it is that the visitor to St. Ives shares in the *étrange peur de la beauté*, and, like the customer who wished for a view of the town in a beaten copper tray, has a hankering for mementoes. Subject is more to him than arrangement. Sight, thought and fancy are more or less at a discount, and the bald presentment of some incident of a fishing town pleases him most. Let this be as it may, the conventional *genre* painter has had his day, and those marine painters who copy effects of the sea, content in their inability to draw, must look to their laurels and mend their ways if they do not wish to be stranded. They can no longer afford to shut their doors to brains and imagination. The sea, like a capricious mistress, may even be said to reserve her best secrets from those who follow her too exclusively. It is after all only one stage, a single background, of human life. Painted

among the hostleries from which travellers fared forth along the old highways of England. To and from the capacious yard, which even now exists behind the old house, went the "Accommodation" to Oxford, starting to that University city at seven o'clock every morning; the York "Highdier," a crack light-post coach, every morning at nine o'clock; the "Princess Charlotte" to Brighton; the Lynn, Dover, Cambridge, Ipswich, Bath and Bristol, and other coaches of lesser importance, and too numerous to mention in detail. The stables of the old place were large enough to hold seventy horses, and as many as two hundred guests could be accommodated in the hotel. At the foot of the staircase, near the entrance, is the office, and everywhere are long passages and interminable suites of rooms. The conditions of the inn were, however, very different in its last years of existence, for it had degenerated into a common lodging-house. Here, when the day's work was done, the kerbstone merchant came to grill the cheap chop he had purchased, and the professional cadgers regarded this as one of their favourite haunts. Where, indeed, Lord Eldon stayed, with other aristocratic guests, in 1766, the lowest of the low came in these latter days. The name of the house was then changed from the White Horse Inn to "White Horse Chambers."

ON REFLECTION.

It is strange to find a man of such a well-established philosophic and literary reputation as Mr. Frederic Harrison laying himself out to talk the frank twaddle which he addressed to an audience at Toynbee Hall, in a lecture on the subject of "London." Mr. Harrison said he wished to speak of what he would describe as "Ideal London," by which he meant "London as it ought to be, as it should be, and as it must be." Our readers may possibly be able to distinguish between London as it "ought to be" and London as it "should be;" but, to be candid, our own massed intellectual resources have so far failed to do so. Mr. Harrison has got up his Ideal London regardless of expense. He demands at the outset the apparent destruction of some two million persons, for he tells us that the London to be will not exceed two million inhabitants. It is not clear whether he relies on the Artillery corps or the Anti-Vaccination Act to effect this reduction of the population. At the same time, while he reduces the population by one-half, his ideal London is to cover only one-third of its present area. Thus the population would be more congested than at present, but at the same time, in the London to be, open spaces will be increased "so as to insure health to the youth of the population (applause)." The Embankment will be extended through the City, and "the river run as clear as at Richmond (applause)." "Streams of clear mountain water will be carried into London by gigantic aqueducts (hear, hear)." Mr. Harrison mentions incidentally that his "Ideal London" will take time to achieve. That we think is its sole recommendation—it cannot happen yet. The great apostle of comitism does not seem to realise that before that time comes our needs and ideals will be greatly modified, and innumerable ingenious appliances will be in existence, which will satisfy those wants much more completely than his clumsy old contrivances of "improved motor-cars" and all the rest. At a time when Londoners are actively exercised to meet the needs of their growing City, such sillinesses are grotesquely out of place. Mr. Harrison's lecture has no practical suggestiveness, and is not justified as a contribution to the mirth of the nation, while as an essay in fancy it is unworthy of consideration.

Colston Hall Competition.

WE find the result of this competition published in the Western Daily Press. The directors of the Colston Hall Company offered three premiums of £100, £50, and £25 respectively, to the authors of the three best designs. A large number of architects in various parts of the country competed, and the report of the assessor, Mr. Florence, who had devoted several days to a consideration of the designs before arriving at his decision, was presented on the occasion of a late meeting of the directors. The first premium has been won by Messrs. Frederick H. Jones and Erskine S. Cummings, of Westminster; the second by Messrs. Lanchester, Stewart, and Rickards, London; and the third by Messrs. Lawrence and Harold Smith, of Bristol. The drawings have been on exhibition at the Grand Hotel, Broad Street, Bristol, during the first days of this week. We notice, however, with surprise, considering the eminence of the assessor as Vice-President of the Royal Institute of British Architects, that the terms of the conditions do not bind the directors to commission the author of the first or any award as architects for the rebuilding of the hall. This matter, we learn, has yet to be settled. When we bear in mind that it is the commission to carry out the work, not the premiums, that attracts architects into competition, and

remember that the custom of promoters in disregarding this fact is the chief cause for complaint in the conduct of the system of competitions, it is strange indeed to find the conditions of the Colston Hall Competition bearing the ratification and approval of the Institute itself.

The First Lady Architect.

THE R.I.B.A. is to be congratulated on having elected a woman into its august membership. In view of the encroachment of woman upon the professions generally, which is one of the most characteristic features of the last quarter of the present century, it was inevitable that the practice of Architecture would not long remain undistinguished by the attentions of the sex. We believe that this general widening of the scope of women workers is described as the "emancipation of woman." We would rather be inclined to call it the "enslavement of woman," and when the novelty and adventure of the enterprise has disappeared, and after the usage has become general and labour obligatory for woman as it is for men, we foresee another and a much juster movement for the "emancipation of woman," when she will claim to be restored to her natural rights and privileges. There is no doubt, however, that her demand is as sincere as it is reasonable, and that as such it should be respected; and it was no doubt in recognition of this that the Institute admitted the precedent of woman Associates with a majority of thirty-five—fifty-one members supporting the vote while only sixteen dissented. The lady pioneer in question is Miss Ethel Mary Charles. She is, we believe, the daughter of Dr. Charles, of Rome. She was, with her sister, some time a pupil with Mr. Ernest George. We believe that we may shortly see her sister distinguished in a similar way. We remember that these two ladies were the occasion of a special general meeting of the Architectural Association in December, 1893, when their names were proposed for membership. It is somewhat to the discredit of the Association that their nomination was violently opposed. It should be remembered, however, that the constitution and *raison d'être* of the Architectural Association is primarily social and educational, and practical difficulties were presented by the proposed innovation which would not arise in the case of the Institute.

Royal Academy Prizes.

ON Saturday, the 10th inst., Sir E. Poynter, P.R.A., distributed the prizes to the Students of the Royal Academy Schools, at Burlington House, before a large attendance, despite the fact that this year is an "off" year. As is generally known, the gold medals and £200 prizes are awarded only once in each term of the upper school: i.e., once in every two years. The President particularly applauded the paintings tendered in competition for his Creswick prize, and commended the attention which had been given in the schools to drawings from the antique. The complete list of prize winners will be found on another page. With reference to the prizes awarded in the Architectural School the competition has been very poor. This would seem to speak badly indeed for the usefulness of the school. Apart from the two prizes which are given for the best sets of drawings done respectively in the upper and lower schools during the year, there are five prizes for special subjects offered. Of these five only two have been competed for. Thus the prize for architectural design—"A Town Church," has been won by William Hawke; that for planning by A. C. Martin; but the measured drawing prize in which two prizes are offered, the prize for composition in ornament, and the

prize for perspective drawing, were none of them competed for. We believe that, although the school is not very well attended, and the rules of admission and the age limits have been shifted and changed a good deal in the last few years, the prizes generally produce a fair competition.

Perverved Enthusiasm.

LONDONERS have a right to know how the money they pay for the maintenance of the public property is expended, and we are glad to be able to post them in one item at least of this expenditure, viz., that is to say, varnish and good Stockholm tar. And what is the use of varnish and good Stockholm tar? Why to paint bronze statues withal! This is in accordance with exact particulars sent us by a correspondent who, referring to a paragraph in this column of two weeks back anent the proposal for statues of Milton and Chaucer in London, calls our attention to the treatment which has been accorded to the bronze statues in the Embankment Gardens. "They have," he says, "been covered with some stuff that looks like varnish or Stockholm tar," and this he adds, has been daubed on over dust and dirt. Thus does Britain distinguish her great. Our correspondent does not seem to have any idea what the object of this process may be, and we are ourselves entirely ignorant. If it was the summer the process might commend itself as tending to reduce the great surplus fly population of the metropolis—but it is winter. The only explanation which presents itself is that there was an official residue of the above material left on hand, and, an official residue being nearly as discreditable as an official deficit, it has been sought to utilise the substance to its best advantage. No one can say it is not conspicuous and distinguished where it now reposes. Our correspondent lays the blame of this outrage on the L.C.C. We do not think the Council deserve that this imputation should be thrust upon it unsubstantiated; but it is certain someone ought to be spoken to by someone else pretty sharply.

Mr. Whistler and the Critics.

THE little band of architects who were responsible for that most interesting picture exhibition of recent years, "The Exhibition of International Art at Knightsbridge," have just issued a valuable record in the shape of an illustrated catalogue published by Mr. Heineman. The illustrations have been wisely selected to give a good general idea of the nature and scope of the exhibition, and have been most admirably reproduced by Messrs. Carl Hentschell in half-tone photogravure. The President, Mr. Whistler, in his inimitable fashion, flays again the foolish critic who ventures to obtrude his folly, and display his ignorance alike of painting, of Art, and of criticism, in fatuous comment:—

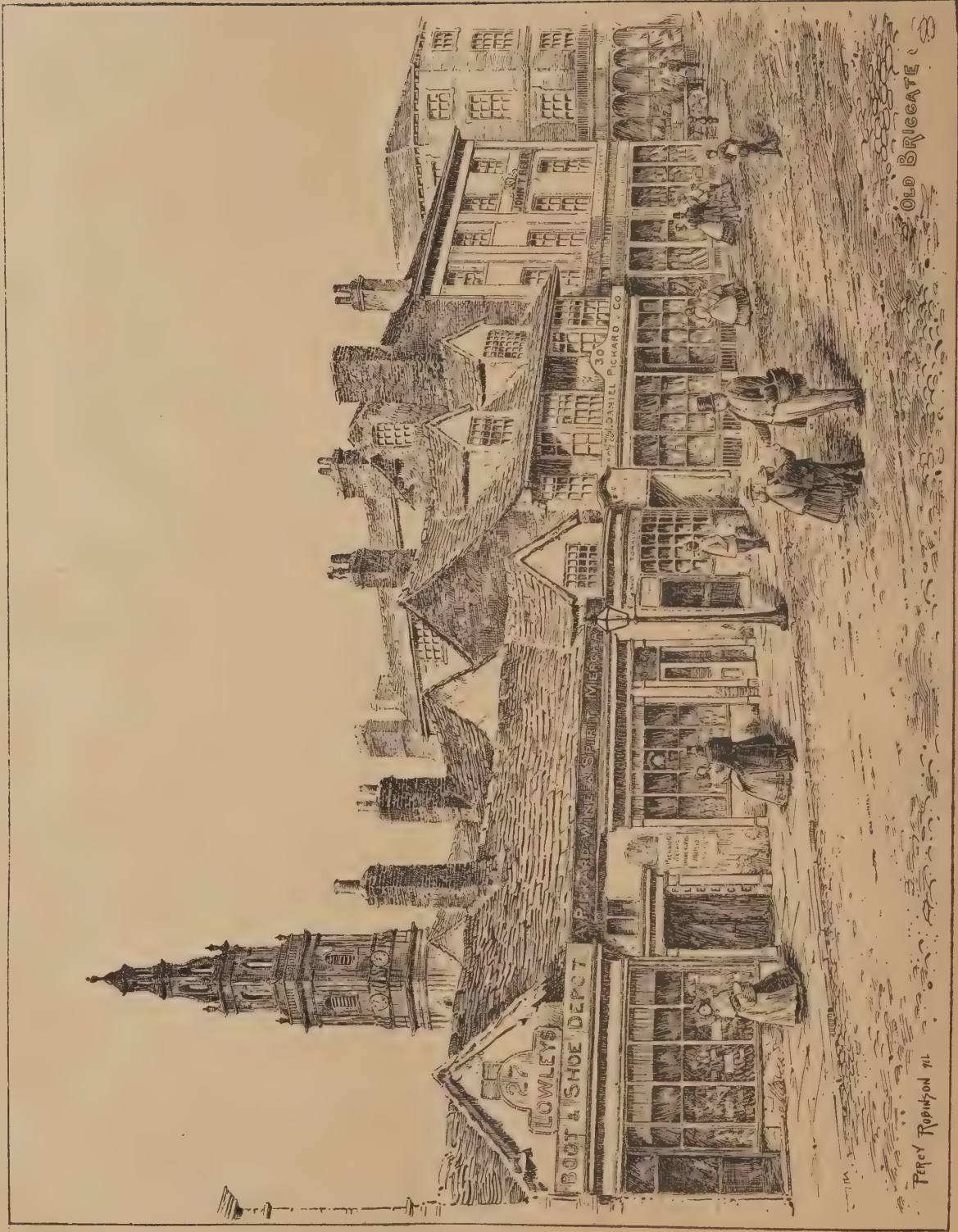
182. Blue and coral—"The Little Blue Bonnet." An oval.

... "old works... among which 'The Little Blue Bonnet' is the least known."—Times.

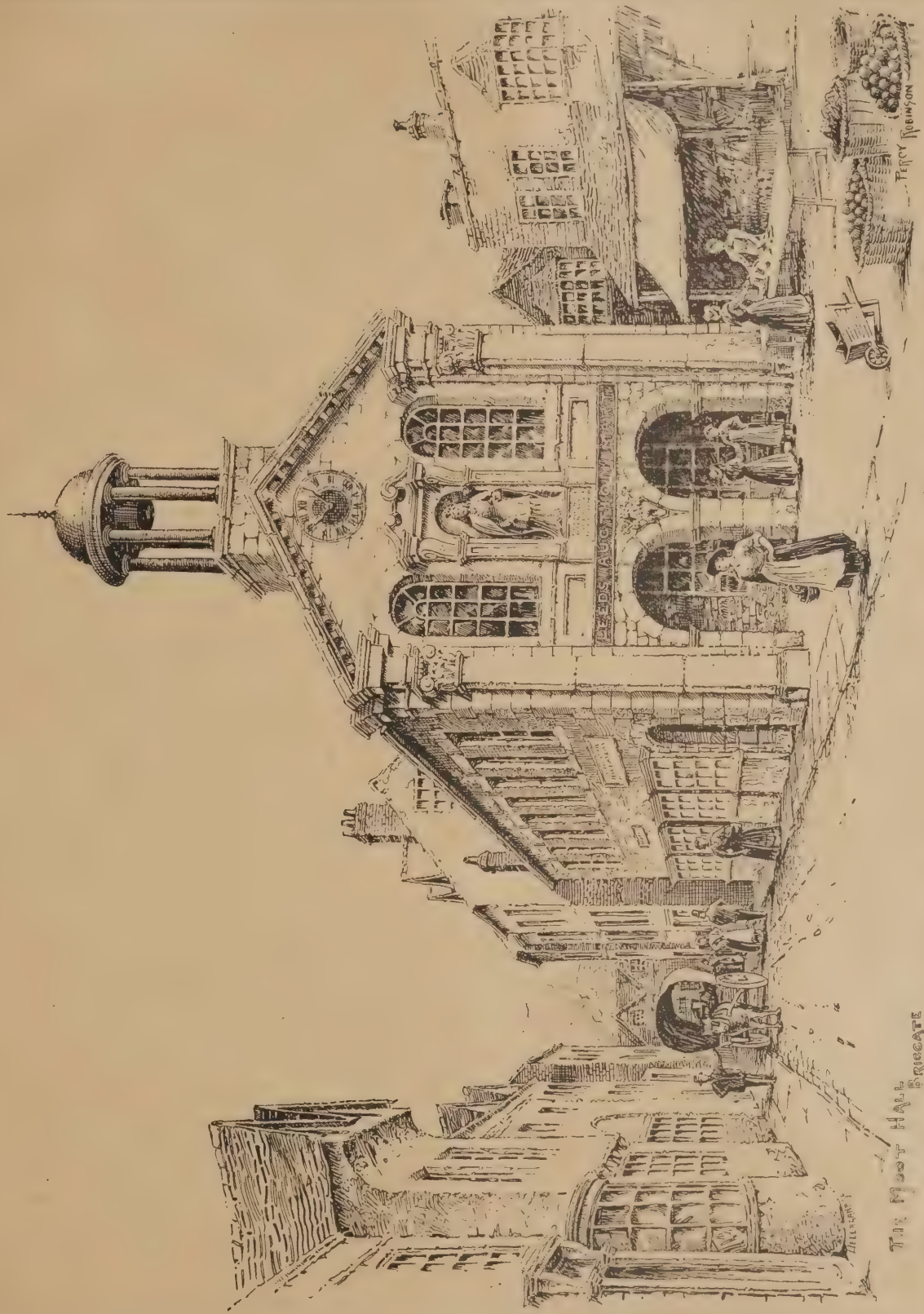
"As the painting has never been out of the studio but comes fresh from the easel to its first exhibition, the 'plain man' is, once more, profoundly right, and we see again the advantage of memory over mere artistic instinct in the critic."—J. McN. W.

Nothing could be more finished, more inevitable, than this display of his adversary's nakedness. The delicious perfection of it roused a new enthusiasm for the artist's mordant wit, and stimulates the interest with which all await his promised reprint of the "Gentle Art." Messrs. Heineman and Messrs. Hentschell are alike to be congratulated on an interesting record of a notable exhibition.

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OLD BRIGGATE, LEEDS. DRAWN BY PERCY ROBINSON.
REPUBLISHED FROM "RELICS OF OLD LEEDS."



THE MOOT HALL, BRIGGATE, LEEDS. DRAWN BY PERCY ROBINSON.

REPUBLISHED FROM "RELICS OF OLD LEEDS."

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RELICS OF OLD LEEDS.*

BY PERCY ROBINSON.

THE publication of such books as this can scarcely be a source of profit to the author, the demand for them being small, even when they are well done, as is the case in the present instance. A list of subscribers is appended, from which one learns that only 108 copies of the book were subscribed for; and this number includes five copies given to public libraries, and several which went to people outside of Leeds; one, indeed, having travelled as far as Bulawayo. Away from England the history and antiquities of one's native place become most interesting, but as long as one lives at home one does not care to much encourage those who labour to record the little that is still left us of the work of our forefathers, if one may judge from the example of the good folk of Leeds. It is true that there are not many relics of antiquity left in that busy town, and that some of those here recorded have since been swept away, but Mr. Robinson's book contains not only drawings which preserve for us the outward appearance of buildings which have already perished or are about to do so, but many most interesting details about the life of past generations, and curious bits of information concerning discoveries which have been made at different times within the township and its neighbourhood. Take, for instance, the prices of articles of food in the reign of Edward III., given on page 11; and the curious details concerning the vicar's tithes on page 40, which make one quite understand how anxious everyone concerned must have been to have them commuted, as they were in 1823.

The book commences, as is usual, with a short historical sketch, which shows, among other things, that in the seventh century there was a town on the same site inhabited by Christians.

amounted to £10,000 per annum, indicating great prosperity in the staple trade. A new charter was petitioned for and granted in 1661, on account of abuses which had arisen, and this has remained in force until the present

but recovered many years after by Dr. Gott, the then vicar, from a grocer at Rottingdean (!) who had bought it with other property of his. A few old houses are scattered about the environs, but most of them possess little architectural interest, and the literary part of Mr. Robinson's book is quite as interesting as the pictorial. The smaller drawings are generally more successful than those on a larger scale, the difference of manipulation requisite for those intended to be slightly reduced and those which are to be made much smaller not having been accurately gauged. Mr. Robinson and those who like him are bestirring themselves to record the fast vanishing remnants of the life and surroundings of bygone days are doing a very real service to the community. Our illustrations are republished from the book, by kind permission of Mr. Robinson. S. S. G.



ONE OF THE OLDEST OF LEEDS HOSTELRIES.

day, except for five years during the reign of James II.

The most interesting building now remaining in Leeds is the Church of St. John, built as a chapel-of-ease in the reign of Charles I. by a Mr. John Harrison, there being very few churches of this date and character in England. It was commenced in 1631 and finished three years later, and the day of consecration was marked by a most curious incident, viz., the suspension of the newly appointed

incumbent; his sermon, preached in the afternoon, having been considered to reflect upon that preached in the morning by the Archbishop's chaplain, Dr. Cosen. The plan is very unusual in England, consisting of a nave and aisle of the same size, reminding one of the planning of the Jacobean churches, though the chancel in this case is attached to the nave solely. The roof is pargetted in panels with ornament, there is a very fine carved screen, and the pews are also ornamented with carved panels and terminals. It is scarcely credible, but is, we believe, the case, that before the restoration by Mr. Norman Shaw, in 1867, it was proposed to pull this most interesting church down and build up a nice new one in place of it, and it was only owing to the determined opposition of one public-spirited gentleman, and after a long fight, that the other course was adopted. The parish church, a perpendicular structure in the main, was pulled down and rebuilt in 1838-1841, and several curious things came to light during the demolition. Fragments of earlier sculpture might be expected

to be found in considerable numbers, but a quantity of old stained glass which had been used as packing to courses of the stone work indicated a carelessness and disregard of the work of bygone ages which it would be hard to match even in modern times. A Runic cross of the tenth century was claimed by the architect,

A NEW KENTISH CHURCH.

ST. ANDREW'S CHURCH, Orpington, was commenced in 1892, and is a Mission or Chapel-of-Ease to the interesting old parish church of All Saints, Orpington. At present the chancel, morning chapel, vestry, organ chamber, heating vault, and two bays of the nave only are built, leaving for a future extension the remaining three bays, the north porch, and the tower and spire. The church was designed to accommodate 630, and to cost £5000 without the tower, spire, or porch. Of necessity, therefore, the detail is of the severest description, and stone is very sparingly used. The internal and external facings are washed stocks. Box Ground Bath stone is used for the external dressings and Corsham Down inside. The roofs are of Memel fir and yellow deal boarding slightly stained but not varnished; they are covered with hand-made tiles of good colour from tile yards at Wrotham. The joint architects are Messrs. E. Hide and J. E. Newberry. Our illustration of the east end (page 333) is from a photograph by Mr. A. P.



COTTAGES, ST. JOHN'S COURT, LEEDS.



St. John's Church

THE OLDEST CHURCH IN LEEDS.

Monger. The lofty opening in the north wall of the chancel is intended to receive an organ case—the arches in the south wall open into the chapel. The dossal, altar-rails, and stalls are temporary. The caps to the pillars and piers are left in block at present, but will be ultimately carved in a simple free treatment.

In 1207 the lord of the manor granted a charter to the burgesses, but the first charter whereby the town and parish were constituted a municipal borough, dates from 1626. Shortly after this time the duty paid on cloths exported

* Leeds, Percy Robinson. London, B. T. Batsford.

PRACTICAL APPLICATIONS OF ELECTRICAL POWER.*

By H. R. J. BURSTALL, M.Inst.C.E.

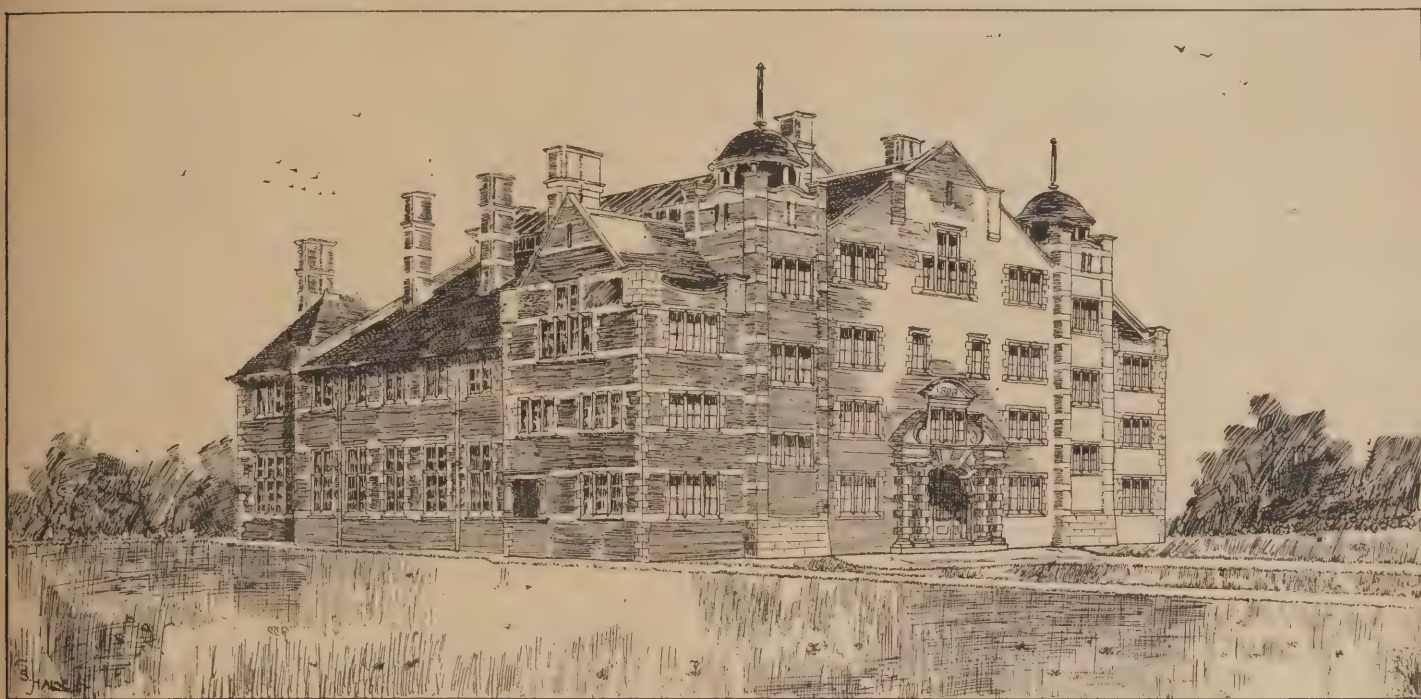
IN defining the scope of his paper the author said he proposed to deal with the general principles underlying the application of electrical power, to describe a few typical forms of apparatus, and to discuss the question of the cost of power under ordinary circumstances. Electrical power, as distinct from lighting, in buildings for non-manufacturing purposes, may be generally applied to, roughly, five classes of use: lifting and hoisting; ventilating; driving machinery for small trades and for domestic purposes; pumping; heating and cooking. In all except the last class, electrical power is applied by means of electric motors, the type varying according to the purpose for which the motor is required. Most motors are supplied from a continuous current system, the electrical pressure varying

Slow speed motors are largely on the increase, the extra first cost being compensated for by the reduced wear and tear, and by the advantage gained through direct coupling the motors to the machines.

THE SPECIAL MACHINERY AND APPARATUS REQUIRED

in the application of electrical power to each of the five uses above mentioned were next discussed and described. In lifts, although the broad principle of electrically driving them is quite a simple one, the actual machinery has to be most carefully designed and arranged, special motors and switches and gear being employed to ensure efficiency and economy. In ventilation electric motors form the best driving power for operating fans, whether large fans for the ventilation of a building on some complete system, or small fans for extracting the air from particular rooms, or even for stirring up the air in any room in the manner of a punkah. Special care is required to avoid the noise of the machinery, and fan and motor should, wherever possible, be carried not from the sides of the air trunk,

an ordinary fire or gas stove. The lamps are arranged in special reflectors so as to obtain a "beam" of heat rays. The apparatus is simple, easily fitted and understood, and free from risk of breakdown. The heat obtained being radiant heat, does not produce the enervating feeling produced more or less by all methods of heating by warming the air, and the effect produced is similar to that from an incandescent gas stove or bright red coal fire. The author then discussed the question of cost. Electrical energy is charged for at the rate of so much per Board of Trade unit, a unit being an amount of electricity which will keep an eight candle-power lamp alight for about thirty-five hours. This amount of energy is equivalent to 1.34 horse-power exerted for one hour. The Corporation of Edinburgh charge 1½d. a unit for power. In London the average charge is from 3d. to 4d. Private installation on a reasonably large scale, and economically worked, would cost at from 2d. to 3d. per unit. A passenger lift for carrying nine persons, running at a speed of 175ft. per minute, will require about 0.06 units per journey, taking the average of the day's



WREXHAM COUNTY SCHOOLS. COMPETITIVE DESIGN BY PHILIP A. ROBSON, A.R.I.B.A.

from 100 to nearly 500 volts, 200 to 250 volts being the most usual. Describing

THE GENERAL TYPE OF MOTOR

and its method of working, the author showed that the regulation of speed and power in it is carried out entirely by electrical methods, no sort of governor, as in a steam or gas engine, being as a rule required. Motors used for the purposes under consideration are usually supplied at a constant electrical pressure, and generally made in three types. Where constant speed is required, a shunt-wound motor is used. Where a large turning effort is required and not a constant speed, a series motor is used. A compound type is employed in certain cases. It is sufficient to know not only the power required for a particular purpose, but also the conditions of running, before selecting the type of motor desired, and this selection can only be made from previous knowledge of the work or by experiment under working conditions. The author explained how the motors were regulated to avoid waste of energy. The speeds of electric motors, as usually supplied, range from 1000 to 1500 revolutions per minute for sizes from one to five horse-power; but motors running at from 200 to 500 revolutions per minute can now be had at reasonable prices.

but quite separately from a substantial wall. Noise is often caused by the pulsations of the air set up by the improperly shaped blades of the fan; in this case little can be done except to alter the fan. The loss during transformations of energy from the boiler furnace at the generating station to the coils in the heating apparatus is so considerable that heating by electricity cannot compete with direct heating by means of gas or coal for any purpose where a large quantity of heat is required. As, however, ordinary heating operations in a house are carried on under conditions in which the heat utilised is but a small proportion of that generated, it is possible, by properly applying the electric energy, to use such a large proportion of the energy as heat that competition with coal and gas is rendered possible when other considerations as to dirt, &c., are taken into account. Generally speaking, heating by electricity is applied by passing a current through coils of wire of high resistance; the wires are embedded in an insulating covering, and are heated, together with their covering, to the temperature required. Another method, in the author's opinion of great value, is

TO PASS THE CURRENT THROUGH A NUMBER OF GLOW LAMPS,

the lamps being proportioned so that their filaments are not completely incandesced, the room then being heated by radiation as with

work. This, at 4d. per unit, will work out at about ½d. per journey.

IN VENTILATING,

generally and very approximately speaking, one horse-power is required to deal with 20,000 cubic feet per minute, which would correspond to about ¾ of a unit per hour, and, at 4d. per unit, would cost 3d. per hour. Small machinery may be driven by electrical power for fifty-four hours per week at a cost of £48 6s. per actual horse-power per annum. An electrical pump, one horse-power, will require the expenditure of about 1½ units per hour. For heating, an ordinary electrical radiator suitable for a small room costs, at 4d. per unit, from 4d. to 8d. per hour. The Dowsing glow lamp radiators require about ½ unit per lamp, and a radiator of four lamps, sufficient for a small room, would cost 4d. per hour at the 4d. rate. An appendix to the paper gave a number of figures in tabular form as to the cost of cooking apparatus. In installing electrical machinery the regulations of the various fire offices as to the use of electric motors should be borne in mind so as to avoid any trouble after the apparatus is installed.

A new building, to be used as a working men's institute, in connection with the Speedwell Church Mission at Staveley, has been opened by Mr. T. D. Bolton, M.P.

* A paper read before the Royal Institute of British Architects, Dec. 19th, 1898.



PROPOSED HOUSE NEAR NORTHAMPTON. G. L. MORRIS, ARCHITECT.

The Position of Architecture among the Fine Arts.*

BY EDWIN T. HALL.

(Continued from page 312.)

MR. GILBERT, R.A., recently at the R.I.B.A., spoke of Wren's cathedral as the work of a sculptor-architect, by which I think we understood him to mean one who in designing in Architecture had the aptitude of the sculptor in proportioning his parts, and modelling the whole building as it were out of a lump of clay, producing a result graceful and so to speak well poised from all points of view. In speaking of this modelling of a building, it seems not inappropriate to say a word as to

THE PICTURESQUE IN DESIGNING.

Some few years ago we heard a great deal of this, and it was by some advocated as an end to be attained. The picturesque in our Royal Courts of Justice is noticeable, but I doubt if it was sought for at all by its author. It was more likely to have arisen out of the natural expression of the constructive planning, and it certainly may be asserted that in most of our old domestic work it will be found to have had its origin in the planning, in additions from time to time to suit varying wants, in the opening up of prospects, or in other natural ways. Unless it has such a natural basis it is incongruous. To distort an interior or exterior in order to get a picturesque effect is inadmissible. Symmetry in a design, especially of a public building, is an element of great Art value. Externally it contributes to the ideas of dignity and repose, and to that impressiveness due to simplicity. Internally a symmetrical plan is easy to follow, and the appreciation of the building is much enhanced if there is no irritation created in preoccupied minds by difficulty in finding one's way about. Mr. Aston Webb, at the Architectural Association, recently spoke ably on this subject. But symmetry does not mean cast-iron uniformity, or that everything is designed and set out with

GEOMETRICAL PRECISION.

The contrary is the case. The general effect is "ordered," so to speak; but Ruskin notes the variations in the width of piers and arches in the façades of numerous buildings which to the casual, inartistic observer appear rigidly symmetrical. I will cite but the example of the Car d'Oro Palace at Venice, where there is a battlement or cresting of varying height along the front. In the happiest way the architect has given the effect of symmetry, but on analysis it will be found that the effect is produced by an unsym-

metrical outline. This is but one of the æsthetic refinements of Architecture, where the idea is expressed without demonstration. In like manner, as I have endeavoured to show in the earlier part of this paper, proportion is not the result of following ingenious scales of modules framed on classic examples, nor of triangles based on Gothic structures, but should be

THE ÆSTHETIC EXPRESSION

of the ability of the various parts of a structure to perform the duty imposed on them, the lower parts being necessarily more massive than the upper. It was probably a recognition of this which led Vitruvius to lay down a law that in superimposed orders, the Tuscan or Roman Doric should be at the bottom, the Ionic next, and the Corinthian above that, because the first was the most massive, the last the lightest. But this arrangement gives us a cornice to the lowest storey larger and heavier than to the highest, whereas the function of a cornice to a roofed building is to throw the rain off the building, and to do this the cornice at the eaves should be larger, and with more projection than any other horizontal feature of the façade, and æsthetically this arrangement is, as a rule, by far the best. Proportion must, in any living architecture, vary with the material used and with the size of the building. The single order of the elevation of St. Peter's at Rome may be correct by scale, but it is unreasonable in its actual position. Again we do not quarrel with the proportion of an iron column or stanchion at the Crystal Palace. It is seen to be appropriate to the material.

THE EIFFEL TOWER

was formally protested against before its erection by a large number of eminent artists in France and elsewhere, but when erected, these same artists recanted their former condemnation, admitting its grace and proportion, these being evolved from the perfect expression of the functions of the materials employed. The fact is, we should concern ourselves less with the proportion of any detailed feature in a composition than with that of the broader groupings of the whole structure. Detail is interesting and important, and should be sedulously studied when we come to it, but it is not the be-all and end-all. That which is seen of any monumental architectural work is the mass. Mr. Walter Crane says that a people without Art are, collectively speaking, inarticulate. In other words, if I may venture to interpret him, they may be scientific; they may, like Faust, sound

THE DEPTHS OF KNOWLEDGE,

or, like Newton, soar to map the heavens; but unless they have minds to achieve and create, and the faculty to appreciate emotions and ideas, they are soulless—are of this earth, and not a part of the immortal. Mr. Crane adds

that the most vital art is the expression of character. If that be so, and if the noblest and most enduring quality of a race is character, then Architecture, among the arts, is the noblest and most enduring—that which expresses the virility of a nation. The formation of this quality of character is closely allied to religion. I cannot here enter into the philosophy of this alliance; but, accepting religion as a great agent, there can be no question that art is a potent influence in the teaching of religion. Science deals with demonstrable truth; Art, with imagination. Science tells us—very often on insufficient data, and, therefore, erroneously tells us—what is; and often

WILL NOT ADMIT 'ANYTHING'

to be which it cannot demonstrate. Art tells us that to live is the effort to be what life as defined by science is not; that if science makes anatomical sections of a man, maps his every nerve, and plans the channels of his life's stream, she has not found, and cannot find the man, the living soul which Art is ever disclosing in new forms. And as religion is the great exponent of the same message, she naturally draws to her this potent ally. From the earliest days it has been so, and hand in hand they have worked together. Architecture has raised the temple expressing the ideas which her co-workers expound. Among the arts there need be no rivalry. Architecture can mould itself in sympathy with the sculptor, and can adapt itself to

THE EXIGENCIES OF THE PAINTER.

The more massive art can accommodate herself to the less robust arts and make provision for their display to the best advantage. So let it be. What then are the practical conclusions to draw from our consideration of this most interesting subject. They are that the possibilities of our art are great, that the responsibilities of its exponents are greater. We have cause for much rejoicing that this wonderful century is closing with bright prospects for Architecture. It is more zealously and lovingly studied and expounded. Its spirit is more appreciated, not only by its ministers, but by a growing number of the public. This should rouse our enthusiasm, but, although enthusiasm is good, let it not carry us away to false ideals. Avoid the cant which suggests that it is beneath an artist architect's dignity to pursue the

HUMBLER DETAILS OF HIS STUDIES,

the scientific basis for his perfected work. Enthusiasm should spur us on to labour and to study. In itself it will attain nothing. Enthusiasm for music, and a nervous horror of discord, will not enable us to compose or to perform music, nor will a similar emotion make us architects. For us to carry the banner of our art still upward and onward needs a power to apprehend current needs,

* A paper read before the Architectural Association on Friday, Dec. 9th, 1898.

logical reasoning, much labour, courage, and technical study, as well as the environment of Art works, of liberal thoughts, high ideals and aspirations, and sympathy. We must throw off the shackles of past civilisations, not ignoring but assimilating all that they can teach us, and steadily seek to create and express what is best and brightest for our own time. In this way the position of Architecture among the arts will be a high and noble one, and with its sisters, sculpture and painting, it will beautify and ennoble the people's life, and so reverse the oft-repeated, but we would fain hope untrue, dictum that Art flourishes best in the decadence of a nation.—The paper was followed by a discussion as usual, in which Messrs. F. T. Baggallay, Thomas Blashill, B. F. Fletcher, C. H. Brodie, A. S. Flower, and G. H. Fellowes Prynne stated their appreciation and general agreement with Mr. E. T. Hall's statements. A vote of thanks was heartily carried.

OUR ILLUSTRATIONS.

A HOUSE AT NORTHAMPTON.

THE house of which an illustration is given is to be built $4\frac{1}{2}$ miles from Northampton. The plan, which is rather unusual, is to be slightly modified. The long hall, which is now 7ft. wide, is to be made 11ft., this additional width giving 4ft. more in the length of the drawing and dining rooms. The more domestic side of the house is practically distinct from the principal rooms, while being at the same time so arranged that the working

of the house shall be quite simple and convenient. The materials will probably be bricks of local manufacture (rough cast) for the principal part of the walling and Broseley tiles for the roof; the porch being built of a coral stone of a yellow tint alternately with bands of tiles laid flat. Inside the principal rooms will be laid with block flooring, and the woodwork generally painted, with plain papers on the walls. Small skirting and simple splayed plaster cornices in nearly all the rooms. The architect is Mr. G. Ll. Morris, 5, West Street, Finsbury Circus, E.C. The drawings were exhibited in this year's Academy Exhibition.

WREXHAM COUNTY SCHOOLS.

WE publish Mr. Philip A. Robson's design for the above competition. The competition was rather an unusual one, in that (*vide block plan*) latrines, gymnasium, chemical laboratories, lecturing theatres, and residential accommodation are already provided in the existing building; therefore the new building was only required to provide the ordinary Higher Grade School accommodation not already existing. Mr. Robson's design comprises ample accommodation required in a compact plan, and simple, though effective, elevation. The chief feature on the ground plan is a large central hall, 35ft. by 49ft., which is well lit by means of three large windows at one end, a top light running the whole length of the hall, and also borrowed light through the glass partitions all around the hall. The corridors are formed by three movable glass partitions, so arranged that when the hall is not in use for ordinary assembling purposes it can, at will, be utilized for prize distributions, theatricals, &c.

Class rooms for 180 children, on either side of the large hall, are provided for the boys on

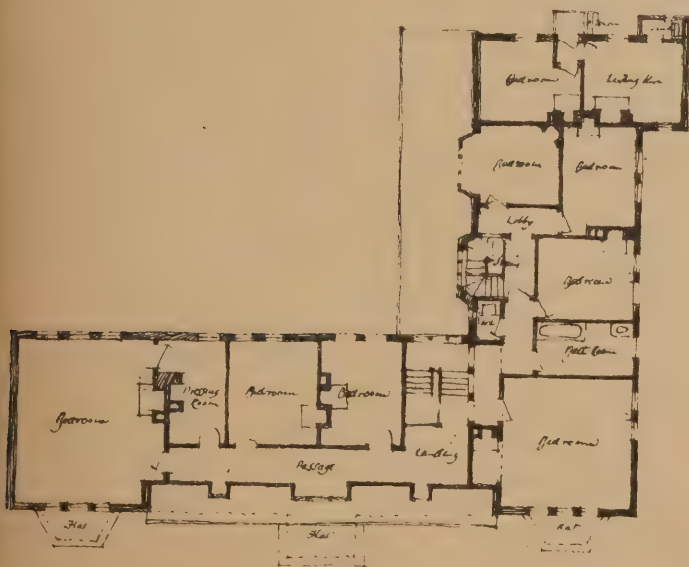
one side and girls on the other, each having their own entrance, latrines, and cloak rooms, entirely separate from the other. Masters' and mistresses' rooms, and book stores, complete this plan. On the first floor the same number of class rooms are provided, as well as libraries, stores, latrines, &c., and also masters' and mistresses' common rooms, which dominate the whole length of the galleries. On the mezzanine—boys' cloak rooms, &c., are separate from the girls' common rooms. Ample heating and fuel chambers and store rooms are provided in the basement.

The architecture adopted is the taste prevalent and eminently characteristic for school buildings—Modern Renaissance. The heating is by the low-pressure hot water system, supplementary to the open fireplaces, and the ventilation principally by Tobin ventilators, and the "Honeyman" system in the roof.

The lighting is intended to be incandescent (Welsbach) gas. The cost has been very carefully inquired into, and is estimated at £8350. The materials used would be Ruabon red brick facings with Brybeg stone dressings, and Westmoreland green slates.

A JUBILEE CLOCK TOWER.

A clock tower has been erected at Skegness in commemoration of the Diamond Jubilee. The tower has been erected by public subscription, from designs selected in competition, and prepared by Mr. Edmund Winter, architect, of Egremont, Liverpool. An illustration appears on page 334. The lower part of the tower is in Ancaster stone, and the octagonal shaft in red brick with ornamental stone bands, the dial chamber being in teak; the whole being 75ft. high. Messrs. H. W. Parker and Son, of Boston, were the contractors.



FIRST FLOOR.

GARDEN

GROUND PLAN.



ON WALLING.

IT is almost superfluous to observe that variety in walling has gradually come to signify little more than just the difference which exists between the laying of stone and of brick. That this should be so is not, perhaps, surprising, for the natural tendency now-a-days with builders, workmen, and architects is to reduce the many ways of doing things to one that shall be at once expeditious and all-embracing. The number of methods, for instance, by which a wall can be built to fulfil its purpose and yet be beautiful is either never considered at all or ignored, on the ground of its being unusual. The careful choice of a stone, the varying in depth of the courses in some interesting way, the use of flint with brick, of stone with brick, and of stone, flint, and brick at one and the same time are all different ways by which certain pleasant effects can be realised.

In Wiltshire, that very flinty and chalky county, it is a common thing to find in the villages an admirable and practical use of flint and stone. In Steeple Langton, a small village about twelve or thirteen miles from Salisbury towards Warminster, the little post-office is built of stone, flint, and brick. Up to the ground-floor sills it is of coursed stone, not carefully laid, but good for its purpose. Above this, to the eaves, are flint panels alternating with stone, the latter occupying more space on the bed than the width of the flint panels. By such means, the ends of the stones slightly overlap one another, binding the flint well together. It is not always so carefully done as here, but the effect, even when carelessly carried out, is delightful. At the eaves line, where the thatch breaks up over the window heads (the heads being level with the eaves), the face of what forms a kind of dormer is filled in with brickwork. The first impression of this last wayward and irresponsible kind of treatment is that the cottager must have been short of flint and stone, and found it necessary to finish the building with a few odd bricks that were lying about in his neighbour's garden; and one would almost prefer to think that this was, so to speak, just the pleasant and natural way of getting over a difficulty. Some other cottages, on the further side of Salisbury, towards Lake House, are finished, however, in a somewhat similar way.

Between Farnham and Alresford, on the road to Winchester, are two or three examples of walling quite distinctive in their way. A cottage near Alton is a good illustration of this method. It has a base of red brick, with both angle quoins and dressings to door and windows of the same material, and the principal part of the walling of a greyish white stone, the courses becoming less in depth towards the eaves. In an examination of the cottage it was clear that the use of brick at all the angles was adopted for practical reasons, the stone being soft, and while satisfactory for the body of the building, would have been hardly suitable at the corners.

Another kind of walling is flint and brick, common in Hampshire, and occasionally a variation of it in Wiltshire. In this instance it is obviously a question of strength which determines the method of building, flint being seldom used alone for walling; brick or stone is introduced to bond it together. If brick, the wall is strengthened by horizontal bands, two or three courses to a band, every 2ft. 6in. in the height of the cottage or barn; the vertical uprights, still further apart, are toothed, that is, one course, say, 18in. across, the one below 14in. A barn somewhere between Alresford and Winchester is an example of this type of walling; at the crossing of the bands the bricks form a diamond shape, with small openings for ventilation. Each of these three ways are varied in the several districts, not from any artistic motive, but simply that what was good in one cottage was not, perhaps, good next door.

G. Ll. M.

ANCIENT ART AND ITS COST.

ALTHOUGH we often hear and see recorded the prices of modern art, we seldom or never see any reference made to the prices which ancient art fetched—in fact, it may be safely averred that there is probably not a single piece of ancient sculpture remaining, the original price of which has been preserved to the present day, while the majority of the famous pictures of antiquity have disappeared altogether. It would be of great interest and no little value to know what value was set upon the works of the great masters in their own day, and Pliny tells us with somewhat of old-fashioned indignation of the trifling of the luxurious age in which he lived and of the sums paid to artists, who did not then occupy the favoured position they do to-day. Plutarch also has something to say of the feeling which existed among the Greeks, as he remarks that “industry in servile or mechanic employment is proof of indifference to nobler matters. What young man of good birth and inquiring spirit would wish to be Phidias because he admires the Zeus at Pisa, or to be Polyclethus after seeing the Hera at Argos?” and so in the same strain, which shows the enormous gulf which divided nations, ancient and modern, upon the subject of artists. Below, however, will be found a few casual notes on the prices of works by some of the great artists of old. Thus it would appear that Zeuxis made so much money by his pictures that by middle life he refused to sell any more, and henceforward gave them away. For Alexander with the thunderbolt in the temple at Ephesus, Apelles received twenty gold talents, which may represent any sum between four thousand and sixty thousand pounds, though we know that he received £11,000 from Protogenes, at Rhodes. Panyshilus, by whose influence drawing was introduced into every school in Greece, levied a fee of £220 from all students who entered his studio. King Attalus secured a small work by Aristides for £130, and Agrippa paid 10,000 guineas for an Ajax and an Aphrodite, by an unknown artist, while Hortensius paid £14,000 for a picture of the Argonauts, by Cydias. Antidotus refused £13,500 offered by King Attalus for a scene from the Odyssey, and Julius Caesar bought an Ajax and a Medea from Timomachus for £17,000. For the statue of an effeminate youth Polyclethus received £22,000, and Porsis received £220 for the model of a Krater—a large bowl for mixing wine, and for a plaster statue of Felicity £2125. The Colossus of Rhodes cost £66,000, and the great Apollo in the Capitol £111,000. So much for the pictures and sculpture of those days. Pliny gives a few remarks on the then value of plate, saying that “in any time, by Hercules, a provincial knight on campaign, in the most barbarous regions, too, carried with him 12,000 pounds of silver”—a marvellous change indeed from the time when the Ælian clan had but one silver cup among them. Coming to the prices of ancient silver plate, we know that Crassus paid Mentor 800 guineas for two small cups, and for many others 40 guineas the pound. Two cups by Zopyrus fetched 100 guineas, a bowl by Pytheas realised 360 guineas, and a lamp stand 400 guineas, a slave also passing with this, evidently to attend to the lamp. These constitute a few of the prices paid in the brave days of old, and the list could be considerably extended. There is not so much difference after all between the ancients and the moderns in this respect.

At the Northampton Institute, on Friday evening, December 9th, was held a members' and students' conversazione, which was largely attended. The prizes and certificates were distributed by Mr. Charles Dorman in the large hall, and a feature was made of “Lectures” given by Dr. Walmsley, Mr. John Ashford, Mr. C. V. Drysdale, and Mr. Hugh Davies. We cannot altogether congratulate the Institute upon their exhibition, which, particularly in the architectural and building sections, was weak; possibly these branches are not so well patronised as they ought to be. The artistic crafts exhibits were certainly the best.

KEYSTONES.

THE removal of the furniture and fittings from the existing Town Hall at Colchester, shortly to be demolished, has commenced. The Town Clerk and his staff will occupy offices at No. 3, High Street.

THERE has just been placed in the new chapel of Cheltenham College a painting by Sir W. B. Richmond. It is on three mahogany panels, and forms part of the altar given by Mrs. Southwood in memory of the late Rev. T. A. Southwood, one of the former masters of the college.

A new organ has been erected at the Church of St. Bartholomew, Wickham Bishops, at a cost of about £300. Messrs. Beale and Thynne, of Shepherd's Bush, London, were the builders of the new organ, which is constructed on the tubular pneumatic system. It has two manuals, with thirteen stops.

EVERY year since 1892 has witnessed some new addition to the Borough Polytechnic Institute, and the number of students has increased in proportion to the facilities afforded them. The latest improvement has been the addition of new mechanical workshops, cookery school, physics, laboratories, and gymnasium.

THE Church of St. Augustine, Sheffield, erected in memory of Archdeacon Favell, of Sheffield, has just been opened. The church, which will at present accommodate 650 worshippers, has cost about £10,000. It is in the early English style, and is the third new church which has been added to the diocese within the last fortnight.

In order to perpetuate the memory of Puviss de Chavannes, and to show their appreciation of the magnificent gift of his drawings which he made to their museum, the inhabitants of Lyons have given the name of the great artist to the present Place des Hospices, Avenue de Noailles, of their town, where a statue will later on be erected to him.

THE Blackburn Corporation, which recently acquired the tramway system of the borough for £77,000, and substituted electric traction, has agreed to join the Darwen Corporation in buying the steam tramways connecting the two towns, and owned by the Blackburn and Over Darwen Tramways Company. The purchase-money is £48,500, Blackburn's contribution being £23,000.

A FINE example of the work of Mr. Charles Jones, R.C.A., has just been presented to the Walsall Art Gallery by Mr. Thomas Gameson of that town. The late Charles Jones ranked among the best English animal painters, and in the picture just given to Walsall, the subject of which is a ram pursued by a collie dog over a Scottish moorland, and which is entitled “A Hard Chase,” the artist's powers of delineating animal life are exhibited in their fullest vigour.

In our article on the work of Mr. Edward Goldie, which appeared a fortnight ago, it is stated that Ashorne Hill House is carried out in red brick, whereas it is built in a local stone from the Edge Hill quarries—an iron limestone varying in colour from warm brown to a blue grey. A second mistake has also crept into the article. Mr. Goldie has built extensively both at Hayward's Heath, Sussex, and Hawkesyard, Staffs., and the references to this latter work should be taken as treating of the former. This mistake is extended to a plan and perspective which are given as “Convent, Hayward's Heath,” and should be “Dominican Priory, Hawkesyard.”

MR. ALFRED GILBERT, R.A., has been elected to, and has accepted, honorary membership of the Society of Designers in the place of the late Sir Edward Burne-Jones. The other honorary members are the Princess Louise Marchioness of Lorne, and Sir E. J. Poynter, President of the Royal Academy. The election of honorary members can only be made by the unanimous vote of the Council. The Society of Designers has progressed in a remarkable manner since its formation in 1896, and now numbers upwards of a hundred members. The headquarters are at Clifford's Inn, Fleet Street. Membership is open to all professional designers, whatever their style of work.

DECORATIVE STONE WORK AS APPLIED TO ARCHITECTURE.*

BY WILLIAM VICKERS.

BY giving this title to my paper I desire to embrace something more than "Architectural Sculpture or Carving," as already given by me before the Architectural Association of Glasgow. My desire is to combine masonry with the more ornamental parts, by applying masonry and carving in the true spirit that the architect, who is the chief, and who has designed and worked out practically on paper that which he desires to see put into solid material. To bring this to a satisfactory issue it is necessary that there should be a clear understanding between architect and workman, and an implicit confidence should be established to attain this by the craftsman having a knowledge of the best way of working intricate parts and putting the same together so as to form a whole or composition.

There will be some inclined to say, "But this is all cut and dried at the commencement." To a certain extent I will admit it is, though there is a great deal of knowledge required even then to carry out work to architect's details. In the same way with carving, a workman might be a very elaborate cutter of stone, but it is necessary that he should be more than that. He should be able to design, and adapt his work in that spirit that the architect has conceived his work, so that when these connecting links are welded on to the building there will be one affinity of purpose, one harmonious effect upon the whole.

I will first of all try to explain what should constitute a practical craftsman in both of these branches—masonry and stone carving. You will all agree that a good general education is necessary, which is a proof, in the first place, that there is some intelligence and brain power to work upon. Taking the young man or youth who wishes to be a craftsman in masonry, what has he in view when he settles himself down to learn the trade of masonry? Is it a desire to become simply a hewer of stone or banker mason, with just sufficient knowledge in busy times, and, with the assistance of a shed foreman to apply his moulds for him, that he may obtain the current rate of wages?

If that is his ambition, then I will not hesitate to assert that his life is a wasted one. His thoughts and mind are not upon his work; the day, from morning until night, will run far too slowly by; the end of the week will be longed for by this supposed tradesman, and for what purpose—simply to doff his apron and do his level best, with the aid of Cup Ties and League fixtures, to forget all about his trade until Monday morning. Do not think, that I apply this to all youths who follow the craft; there are some exceptions, but, I am sorry to say, very, very few in comparison to the great number who are following this branch of work, and, if proof were needed, I will ask what proportion of these young men in the City of Glasgow are attending the technical schools, where drawing and practical geometry might be acquired, so that they might apply it almost daily to their work, and so lighten their burden and make work a pleasure.

One great evil lies in many youths being taken on who are not thoroughly bound down for a period of years that will make them, if they have the desire, craftsmen in the ordinary way, but they pick up a smattering of the trade here and there for two or three years, and, in a boom like the present time, go on to a job, demanding like an experienced workman full pay. That will answer very well for awhile, but after the boom! Oh, what a weeding-out takes place.

Some will ask: What would be expected from a boy? Would I make his life a misery, or try to kill him right out, and so on? By no means.

I would make his life as well as his work a pleasure. I do not suggest all work and no play. I would ask of him when he is at work to try and fathom what his work is for, and what place it takes upon the building. If it is moulded work that he is doing to take note of the section and try to draw it. To do this I advise him to attend some of the classes, of which so many exist in Glasgow, so that he may get the assistance from practical geometry to enable him to draw any figure or section.

Now, this latter part of my advice is really the hardest at first to many. It will appear to some, who have not long left school, like going back to some drudgery escaped from; but let these young people drive this out of their heads—it is only the start that is a little trying, wait until you begin to feel the use of drawing, and its application in your work, not only on the banker with everyday work, but in con-

—a man who has never bothered his brain to know anything, but trusts to his neighbour putting on every line. But does this knowledge terminate here? Surely not. Having attained this much, there is a stimulus and a desire to better himself, to put his knowledge to something better than the ordinary union regulation so much per hour man; he will aim at being a leader of men, either as a foreman or clerk of works, and this, I contend, is the right material to make such men of.

Now of the latter stage of experienced craftsmen I will also offer a few remarks or suggestions.

There is never too much acquired in knowledge in whatever branch of trade we may follow. Take masonry in relation to Classic Architecture. He should make himself acquainted with every specie of moulding. In some cases he is required to use a little judgment even to drawings that are supplied from architects' offices, but sometimes—owing to details not coming out of those sacred portals quick enough (and I think I have heard murmuring on this score sometimes) to satisfy the needs of some anxious and energetic master mason—a little knowledge of this would not only benefit his employers and himself, but would assist the architect, thereby causing greater confidence to be established between them. I could give several instances of this in my own experience; one case where a master mason on a large job was ready for a cap course, with a pile of masonry ready worked for building on the top of this, but by some oversight the detail of the cap was not prepared. I was asked to give a plan that would suit a special type of carving. This was submitted and approved, so the work proceeded. Now in this case the mason, a good practical man in many things, but either through nervousness or inability could not do this. Take, again, masonry in Gothic work in its infinite variety of forms and sections of members. How many of the average good masons can undertake this work without guidance? But go further, take that masonry that holds its own even with carving in its ramifications. See the intricate mouldings on canopies and pinnacles where the masonry and carvings vie with each other for superiority, shewing that the mason and carver must work together for a harmonious success.

This cannot be attained without study and reference either to existing old work or books, but preference is given to the former. Of this I will refer to again towards the close of my paper. When a man feels that he has succeeded in attaining this ability—a position that an architect is pleased to acknowledge—there is then formed a mutual understanding, a confidence not too often found to exist between architect and craftsman. Before leaving this subject I wish to refer to an abuse which really amounts to degradation of the mason's work, which I feel I must touch upon in this paper. It relates to the cutting of moulds for masons by other tradesmen, a practice I have observed in this country on more buildings than one. It is admitted by the master mason, and his foremen have simply to obey his instructions, and the masons themselves are practically indifferent to it. I do not desire to suggest anything that would for one moment cause any friction between employers and employes, but I would venture to state that the Mason's Union would do far worse things than settling this question of having their moulds cut by masons only. It is customary, I believe, in tendering for work, for a stipulation to be inserted in the schedule that this part of the work shall be done by the joiner. But really, if the mason is to rise to shift for himself, it is time this system was abolished. Perhaps this accounts for so many more clerks of works being selected from the joiners (and I have come across a joiner being the foreman over a large body of masons), all this owing to their acquaintance with drawings and mouldings being greater than masons. I will admit that they certainly are open to commendation for more enterprise and ambition, if nothing else.

I will now devote attention to the stone carver, and give you my version of what should constitute a stone carver, and how it is neces-



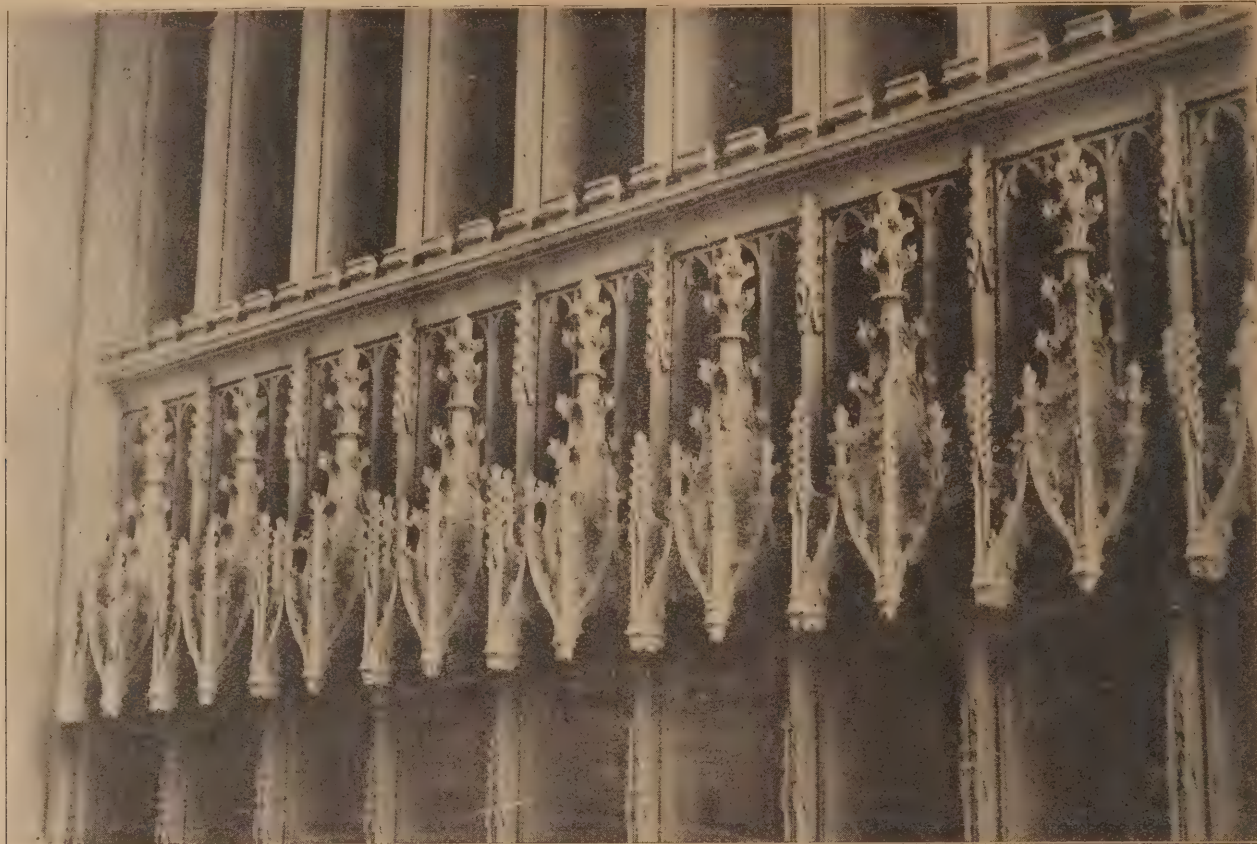
ST. MARGARET'S CONVENT, EDINBURGH.

BY W. VICKERS.

struction. The hardship has vanished then, and, in its place there is a pleasure not known before, and by that little knowledge is nourished a desire and craving to know more.

My experience of a mason when he has a job given to him, say an intricate piece of work, is that if this man sees at a glance what is required, he grasps in a moment its situation and the way to proceed to work. That man, I say with truth, feels a pleasure in his work; there is an air of pride, yes, of dignity about him, which I am sure many others might envy. Oh, what feelings of contempt and pity he must have for the man perhaps working next to him, his banker-mate (and not always through choice), placed there by a shed foreman so that he may have near him someone to lead

* A paper read before the Glasgow and West of Scotland Technical College Architectural Craftsman's Society.



AT NEW COLLEGE, OXFORD.

sary to educate him. Equally so as the mason, he should have brains and education, but, differing somewhat from the mason's qualifications, he should be possessed of some artistic taste. I do not say this detrimentally to the mason, by no means. I know of some masons who have artistic taste, and who have left masonry to follow carving, making very good workmen also, but masons do not require to have that artistic taste for masonry that carvers require for carving. Well, admitting this artistic taste to exist, he should then undergo a thorough term of apprenticeship of five years at the least, a thing which, I regret to say, is very much neglected in this country, for some acquire what little knowledge they have in much the same way as the inferior masons, by picking up a bit here and there. During this period of apprenticeship, the best use of his time should be made, not only in stone carving, but in taking advantage of the admirable art schools that exist now in most cities, and, I must add, more especially in Glasgow. Firstly, he should become thoroughly efficient in drawing, not only freehand and model drawing, but he should acquire some knowledge of architectural drawings, or how is he to understand an architect's drawing, given to show where the carving is applied? secondly, equally efficient in modelling. From my own experience I contend that drawing from the cast must be acquired to make carving a success, and to enable the carver to read and understand an architect's drawing so as to apply a sketch if need be to suit his decorative work to the architectural intention. Modelling is required to put into relief, and in the round, and so work out parts that drawing would fail to convey. There are some people who deprecate so much modelling. Well, I must say that I do not entirely agree with them, for we are now living in an age in which architects are craving for and aiming at something new and original. The carver is compelled to follow on in the same course or fail. If it is work that a carver has often done before, some very particular architect will ask for a model. I have been asked many times, and have modelled just what I should have carved on the stone without models. Suppose you went to a noted *chef* and asked him to give some new dish, the ingredients would

require to be carefully adjusted, "modelled" if you like; but if you want a 4lb. loaf there is a great resemblance in all of them. In the same way if something is required new and original, both in the application of figure and ornament, a model is not only necessary for the carver and architect, but the safest and most successful way of executing work. In fact, I would go further, and suggest that a small scale—"say an inch and a half to the foot"—as a preliminary to the full size model for important work. I think this method comes so much nearer the scale usually employed by architects that it would be a valuable assistance to them in judging scale in the work that they were contemplating. Forgive this slight trespass in what I call the first stage in the stone carver's career, but this does not by any means complete him and make him eligible, only as a machine or copyist, or working at another's direction. He must be an earnest student of Nature, for in the same way as *lifestudies* are so necessary for working at the figure, equally so is natural foliage for ornamentation in decorative work. There are the five orders and the ornament that relates to each of them; owing to the stringent law handed down to us in regard to these it is not a matter so much of creating something new, but strictly adhering to each style. But if the different phases of Renaissance springing therefrom, it is more complicating, they being so numerous—French, Italian, Spanish, Flemish, German, and English, without taking into consideration the different architects' own views on the matter, sometimes two or more of these being jumbled up together, which creates a little bit of a puzzle for any carver. Other types of Renaissance are named after the architect for want of another name and lastly, I observe that they very widely differ as to what is the particular correct treatment.

Take, again, the Norman period, though that is not called into question so much, but it is all important to know something of it, as this was the forerunner of that style of which I wish to give the most importance in this paper, the periods of architecture and carving that made such an important era in English, and also in Scotch work, namely, Gothic. How much that name covers, from Norman up to the sixteenth century, and with such

changes and variations! How is it, I ask, when the question is put here to many carvers and masons, "What style is that building?" they answer "Oh, Gothic." "Well, yes; but what period of Gothic?" "Oh, well, Gothic." Why this evasiveness? They could not discriminate between one period and another, and yet it is so very necessary, if it is an early English building to apply early work to it, and if it is, say, perpendicular Gothic, to put that period of carving. It is not only the periods of Gothic that must be studied from old examples, but proportion and adaptation.

It is a very prevalent custom to have plenty of rough stone for the carver, and quite a common thing to see upon architects' drawings "Rough stone for Carver," and the always very observant master mason, with his eye to the main chance, how he hails this with delight—much easier for him to do this than work the mouldings. This is very good in its way sometimes—to have plenty of material—it gives architects a little longer time to think out what they require made of this rough stone—for, bear in mind, please, provision is made by leaving a lump of rock at certain places, but the object is not always conceived in the mind of the architect when the drawings leave his office, consequently there is an opening for a great amount of imaginative genius on the part of the carver. But do all carvers know when they have too much rough stone? I fear not. I have seen label blocks left 9in. or 10in. square and carved that size where 5in. or 6in. would have been ample for the label mould, finials double the size they should have been, and when carved out of all proportion with many other features I might mention to shew the necessity of study.

Then there is heraldry and Christian symbolism, which is so often required in decorative work. What a study in the first-named!—the divisions of the shield, the different tinctures, the crest, supporters, and mantling. Of course it may be said that there are plenty of works of reference which are sufficient guide for any ordinary craftsman, but that argument would apply to everything that a carver had to work, and even to Architecture also, though without a study of such things you cannot be expected to be educated in it.

Of the latter "Christian symbolisms" there

are the instruments of the Passion, Christian monograms, and the attributes of the saints. Lastly, I contend that a carver's study is never ended. Even with forty years' good practice on the best of work he may come face to face with a young architect with a smack of the impressionist school in his training who will quite bewilder the carver with his notions. What one architect may like another will not favour. Really one has to be in some cases a species of thought-reader, so that you may fathom what it is required, for, I am sorry to say, it cannot always be expressed what is the type of work required. In reference to the styles or periods and the decorative treatment of stone carving, as I have already stated, it is not necessary to speak of the five orders—the rules are binding on each of them—but the Renaissance work and its infinite varieties do call for a few remarks. In the first place, I would suggest that all carvings should be appropriate to the architectural surroundings. It should be the carver's endeavour to place his work where it is required with some meaning—some object. If it is to break the monotony of a large wall surface there should be good taste displayed, with sufficient in it to attract the eye, not altogether to the detriment of the Architecture; for, as I have remarked before, the carving must be subservient to the Architecture. And when it is meant to be a support or termination of mouldings, a frieze or panel, then the Architecture and the scale of mouldings must be well considered, so that the carving forms a part of the general scheme, and not as though the building were made for the carving.

What I observe upon many buildings in Glasgow is the mistake of trying to copy work which looks well in marble, where it originated, but looks very much out of place used upon sandstone. Unfortunately, it is not altogether the fault of the carver. Some architectural details in masonry err a little on this side. One could very well imagine some of it looking admirable in wood, and when the carving is executed in scale; it is too small, in fact, quite frittered away. If it is for inside work, and marble is the material employed, and low relief required, then by all means let your mind and heart be carried back to all the beautiful specimens of Italy, or, if of the French period, to the time of Francois I., where you may fairly revel in all that is small and beautiful.

There is some very excellent work upon some of the buildings in Glasgow, and one of the most successful is the Sun Insurance offices. There can be observed an application of ornament with some motive—some parts, such as the capitals, with the signs of the zodiac—other parts that indicate the purpose of the building, the whole being in good scale with the masonry, and forming a decorative feature. There is also some very commonplace work in the city and suburbs both in carving and masonry—carving with no meaning or feeling—and masonry where moulded work occurs a totally different section a few inches away from where the face-mould was applied will be found.

Regarding carving, I give as a sequel to this to a great extent, the evils attendant upon not too careful a manner in letting work, caused, I am compelled to say, by the easy manner in which some architects allow the work to be scheduled, thereby letting the carving slip into the schedule of a man who knows nothing whatever about the work—gets a price from Tom, Dick, and Harry, fills in the price of the highest, and if he succeeds in getting the building, bargains with the lowest, after taking something more off, for him to do the work.

This is what I will call the middle-man, and, as a rule, he does not care two straws so long that it is passable and he gets his money. The architect may feel aggrieved, and if the carver is a trifle conscientious, and they are sometimes, he may try to mend matters a little with the fervent hope that by so doing he may get into favour with the architect, and so by that get him to dispense with this middle-man who takes the cream for doing nothing.

(To be continued.)

Bricks and Mortar.

EFFINGHAM HOUSE, ARUNDEL STREET,
December 28th, 1898.

"I know what it is to live in a cottage with a deal floor and roof, and a hearth of mica slatz; and I know it to be in many respects healthier and happier than living between a Turkey carpet and a gilded ceiling, beside a steel grate and a polished fender. I do not say that such things have not their place and propriety; but I say this, emphatically, that the tenth part of the expense which is sacrificed in domestic vanities, if not absolutely and meaninglessly lost in domestic discomforts and incumbrances, would, if collectively offered and wisely employed, build a marble church for every town in England; such a church as it should be a joy and a blessing ever to pass near in our daily ways and walks, as it would bring the light into the eyes to see from afar, lifting its fair height above the purple crowd of humble roofs."—JOHN RUSKIN.

OF recent years there has been an almost world-wide recrudescence of the Louis XVI. period of decoration. It is so dainty, so decorative, that even the mushroom millionaire in the Far West is not content without what he is pleased to call a "Louis" room. He does not sit there or live there; but he has it. The modern armchair is more comfortable, and infinitely uglier. Messrs. Duveen, in Bond Street, have purchased an entire room, of which the bronze gilt mounts are by the celebrated Gouthière, the inventor of "mat-gilding," who subsequently became "Ciseleur et d'Orure du Roi." It is perhaps difficult to agree with M. Paul Enel, who, in mentioning these pieces of furniture, declared that Gouthière was a great artist, who bade fair to take his place by the side of Benvenuto Cellini.

This is too great praise; nevertheless, his work is very fascinating. One of the small tables alone fetched £6000 at the Hamilton Palace sale in 1882. At Versailles there were at one time countless treasures. When the public sale was started it lasted for seven months. One of the pieces—the "Cabinet du Roi"—was sold for about £200. At the present moment it is in the Louvre, and it is valued at least at £20,000. The woodwork (or marqueterie) of Messrs. Duveen's collection is by Reisener, who was a master. The panels of old brocade are of exceptional richness; the frames for these are by Delafosse. It is a room well worth seeing by those who are fond of the period in question.

THE Ducal Palace at Venice is said to be in a dangerous condition. As usual, there are conflicting reports from pessimists and optimists; but even the latter class seem to admit that something must be done. That the structure needs repair is not surprising. Indeed, when we remember that Venice has grown up on some mudbanks in the lagoon, that it is an Amsterdam of the Adriatic, the marvel is, the Daily News thinks, that its palaces and churches have stood so well. The piles must have been driven deep, the wood have been sound, the substructures cunningly planned and honestly executed, or St. Mark's and its campanile, the Doge's Palace, the Prison, and the connecting Bridge of Sighs would long ago have disappeared. Next to St. Mark's the Palace is the most characteristic feature in Venice. It is, perhaps, even more conspicuous, for it is in full view from a considerable expanse of the principal canal, generally almost hiding the Cathedral, while the latter can only be fully seen from the Piazza di San Marco.

BUT the interior of the Palace is hardly less precious than the exterior to the lovers of Art. Tintoretto and Paolo Veronese have painted in fresco on its ceilings and walls. Any sudden subsidence might be fatal to their

work, even if the carved marble chimney-pieces and the pictures on canvas by these and other great Venetian artists were saved. But any serious injury to the fabric itself would, the contemporary above referred to points out, be an irreparable architectural loss. The present Palace does not, indeed, go back to the earlier days of the history of the Republic, though one was built on this site at the beginning of the Ninth Century, which was subsequently added to, or reconstructed. But the façade looking on the canal and that connected with it on the Diazetta, with the rich arcade of marble columns below, and the party-coloured walls above, date approximately from the earlier part of the fifteenth century, and the more ancient buildings were replaced by a Renaissance structure not long afterwards.

EVEN the more hopeful accounts seem to admit that considerable repairs are necessary. The architect must be called in; the restorer will find his opportunity, and his hand is generally heavy. In our own country we have had experience enough of this. Our forefathers in the last century often did mischief to cathedrals and churches. In many cases Ecclesiastical vandalism has effaced every link with the past history of the parish, and "translated" the church into a feeble resuscitation of a quassi-medieval place of worship. The Italian restorer is justly regarded with suspicion. Lovers of Florence are already crying out against his doings there. Those who knew Venice forty years ago have often had cause to execrate him during the latter half of that period. He has transformed the once wonderful Fondaco dei Turchi into a spick and span affair, worthy of a modern *café chantant*. He has meddled and muddled at St. Mark's; he has already been tampering with the Ducal Palace, and woe betide it if he gets a free hand there.

THE King of Siam is sending an envoy to India to receive the relics of Buddha, discovered some time ago on the Nepaul frontier, which were offered His Majesty by the Indian Government. It will probably be remembered that in January last a well-preserved stupa was opened at the village of Pipra hwa, on the Nepaul frontier, in the Basti district of the North-west Provinces. This village was in the Birdpur grant, a large property owned by Mr. William C. Peppé and his brother. Inside the building was found a large stone coffer, crystal and stealite vases, bone and ash relics, fragments of lime, plaster, and wooden vessels, and a large quantity of jewels and ornaments placed in two vases, in honour of the relics. A careful list was at once made of all the articles, and Mr. Peppé generously offered to place them at the disposal of the Government. The special interest of the discovery lies in the fact that the relics, in honour of which the stupa was erected, appear to be those of Gautama Buddha Sakya Muni himself, and may be the actual share of the relics taken by the Sakyas of Kapilavastir at the time of the cremation of Gautama Buddha. The inscription on one of the urns proves that the builders of the stupa believed the relics to be those of Gautama Buddha himself, and runs: "This relic receptacle of the Blessed Sakya Buddha is dedicated by the renowned brethren, with their sisters and their sons' wives." The characters of the record, Professor Bühner points out, do not mark medial long vowels, and appear to be older than those of the Asoka inscription.

THE actual relics being a matter of such intense interest to the Buddhist world were offered by the Indian Government to the King of Siam, who is the only existing Buddhist Monarch, with a proviso that he would not object to a portion of the relics being possessed to the Buddhists of Burma and Ceylon, and it was suggested that his Majesty should send a deputation to receive the sacred relics with due ceremonial. No relics of Buddha authenticated by a direct inscription have before been found in modern times, so the relics are as rare as they are unique, and by all Buddhists will be regarded as most sacred and holy objects of devotion. Their presentation to



SIDE CHAPEL, ST. CHARLES' CHURCH, HULL. JOSEPH H. HIRST, HON. ARCHITECT.

the King of Siam, the recognised head of the religion, is therefore highly proper. The accessories which were discovered will, it is understood, be distributed among the Imperial Museum at Calcutta, the Lucknow Provincial Museum, and perhaps the British Museum, Mr. Peppé retaining a reasonable number of duplicates for his own use. The stone coffer above referred to is over 4ft. in length and 2ft. in height. It is made out of a solid block of sandstone, and weighs about 16cwt. It is understood that the acknowledgments of the Government have been conveyed to Mr. Peppé for his public-spirited action in the matter.

IN the Chancery Division, before Mr. Justice Kekewich, a few days ago, the matter of Lord Donnington (*Campbell v. the Duke of Norfolk*) came up. This was an application in an administration action by Mr. John Hall, claiming to be a creditor upon the estate of the late Lord Donnington, in respect of damage which his manor house had suffered by subsidence, due to the working out of the main coal seam at Moira Colliery, Staffordshire. Lord Donnington, who possessed seats at Donnington Park, Derby; Loudon Castle, Ayrshire; Rawdon Hall, Yorkshire; and Willesley Hall, Ashby-de-la-Zouch, Leicester, died on July 24th, 1895, appointing the Duke of Norfolk and Mr. Lake, the defendants in the present action, his trustees and executors, with express direction that they should carry on this Moira Colliery. In November of the same year, cracks appeared in the walls of Mr. Hall's manor house, the ceilings, and other parts, which gradually extended, and threatened the stability of the structure. That the mischief was due to coal working was not denied; but it having happened after Lord Donnington's death, a question arose in law

whether a claim for damages could be made against his Lordship's estate in an administrative action.

MR. M'SWINNEY, in support of the application, argued that he was entitled to recover against the trustees, as although he had had no cause of action during Lord Donnington's lifetime, the working of coal, which ultimately brought about the subsidence, took place in that period. If he failed on that ground, he said that the subsidence took place while the trustees were carrying on the colliery by express direction, that the trustees were entitled to be indemnified out of the estate, and his client to be indemnified by the trustees for the serious losses he had sustained.—Without calling upon Mr. Parker for the trustees, Mr. Justice Kekewich delivered judgment, observing that it was admitted that, had this subsidence occurred during Lord Donnington's lifetime, there would have been right of action against him, and the action would not have fallen through by his death. It was said that the act which caused the injury was Lord Donnington's act, and that as soon as its effects became plain, though Lord Donnington was dead, Mr. Hall's right of action arose. Whom should he sue? His claim was to sue the dead man, but this could not be done in a common law action. Mr. Hall had no right to claim in the administration action unless he had a claim against the deceased's estate; but there could be no claim against the estate except there was previously such a claim against Lord Donnington. The complete answer to the case set up was, that Mr. Hall was not claiming against the heir-at-law, but against the estate of the deceased, and in that respect he had no claim. Accordingly the application was dismissed.

THE chapel which is illustrated on this page has lately been constructed at the south end of one of the aisles of St. Charles' Church, Hull, and is designed to harmonise with the church, which is in Italian Renaissance. The new chapel is entered through a double arch carried upon four massive pilasters, and the whole of its area is surmounted by a pannelled dome in fibrous plaster. Above the dome is an ornamental lantern filled in with tinted glass. The arches and pendentives supporting the dome spring from a cornice carried upon fluted pilasters. A semi-dome thrown over the space occupied by the altar is suggestive of a baldachino. Light falls directly upon the altar through a small lantern hidden above the semi-dome. Electricity has been introduced, and a very fine effect is produced by lamps which are fixed out of sight near the springing of the dome. The decorative work is chiefly in fibrous plaster, executed by Messrs. G. Jackson and Sons, of London, and the tiled floor, specially designed, has been carried out by Messrs. Minton, Hollins and Co. The paintings and enrichments, which are of an exceedingly ornate character, are by Mons. Henri Immenkamp, of Munich. The chapel has been designed gratuitously by Mr. Joseph H. Hirst, M.S.A., one of the churchwardens.

At the Fine Art Society in Bond Street there is an exhibition of pictures and sketches by Mr. Albert Goodwin. The main features are a series of sketches of "Whitby," and a large canvas, "The First Christmas Dawn." This last is the only disappointing picture in a most interesting collection. Mr. Goodwin has an art that is curiously individual; his touch, especially in light watercolours, is light, delicate. His feeling is invariably poetic, and, whether he sets himself to make an impression of a scene in Europe or the Orient, he always gives you the conviction that he sees through the eyes of an artist rather than through those of the craftsman.

ONE of the oldest landmarks of Paris is destined to disappear under the stress of modern improvements. There has existed at the corner of the Rue St. Denis and the Rue des Prêcheurs a singular sign representing a tree with many branches, each of which ends in a wreath containing a name. It is called "L'Arbre de Jesse," and is a rough representation of the genealogy of Our Lord from Jesse, father of King David. In mediæval Paris there were a number of these signs, but this was the sole survivor from the Revolution, during which all the rest were destroyed. It will be transferred to the Musée Carnavalet.

ST. NICHOLAS CHURCH, at Strood, near Rochester, caught fire on Saturday week, and the flames for some time raged fiercely. The local fire brigade, however, then were able to check the fire, and in the result the main structure was saved, but the interior was extensively damaged. The tower bells and clock were destroyed. The church is interesting for two reasons. It has borne the reputation of being the ugliest church in the county of Kent, although now that the "clasping ivy" covers portions of its walls its plainness is somewhat toned down. Its form is that of an oblong square, 79ft. in length, 56ft. in breadth, and 31ft. in height. The second reason is that the ratepayers of Strood still pay compulsory church rates. The original church, erected about 1158, was pulled down in 1812, under the authority of a special Act of Parliament, only the tower being left, and the cost of rebuilding was made a charge upon the rates—a liability which is not yet extinguished. So far as is known, there is no other case of the kind in England. The tower is burnt out—only the bare walls remaining—and the vane, turret, bells, and clock are destroyed.

A CORRESPONDENT writes:—"Our Florence papers continue to comment somewhat severely on a mischievous rumour circulated in Florence to the effect that the authorities intended to 'improve' the city by taking down some of

its most ancient and picturesque sites. This report was too wild for it to obtain any credence from residents; but it was believed by some English patrons of Art, resident in England, who addressed a protest to the Syndic of Florence. This official replied in courteous terms, showing clearly how unnecessary was their expression of anxiety. The *Nazione*, which gives the whole correspondence, points out that the character of the authorities and the labours of the Italian Committee might have protected them from unfounded rumours from abroad."

We understand that when Professor A. H. Church, F.R.S., resumes work next year upon the wall paintings in the Palace of Westminster, he will probably bring into use a new apparatus which has been constructed to his order for the better cleansing of these beautiful frescoes. The object of this machine is to produce, by means of a manual air compressor, a powerful air jet charged with breadcrumbs, which are distributed over the surface of the picture. It was first tried last autumn in the Royal Gallery, where Maclise's famous paintings are situated, but had to be sent back to the makers in order that certain alterations in its construction might be effected, but even when this were done it did not prove altogether satisfactory. During next summer the Professor proposes to cleanse once again the whole of the frescoes in the House of Lords, as well as the four glazed paintings in the Peers and Commons corridors, the surfaces of which are covered with numerous dark patches which he believes to be of fungoid growth.

PLANS of the pavilions of foreign nations are now fast coming in to the Commissary-General of the Exhibition of 1900. These constructions are to be raised on the left bank of the Seine, between the Esplanade des Invalides and the Champ de Mars, and will form a Rue des Nations. The Italians have presented two projects, one of which shows a building of composite Architecture, Venetian, Byzantine, and Moorish, and it is this construction that will, no doubt, be seen in 1900. The Hungarians propose to build a pavilion in Flamboyant style, with a frontage like that of a mediæval castle or country residence, to which part of a chapel and of a fortress will be attached. From Finland comes a plan for a construction on Northern lines. To these may be added the old English mansion and the mediæval German house, and schemes from other countries are shortly expected.

SOME valuable porcelain, objects of Art, and other curiosities from various private sources came under the hammer at Christie's. A pair of old Nankin oviform jars and covers, measuring only 10in. high, realised 780 guineas; an old Dresden cabaret, of quatrefoil form, painted with Watteau figures, consisting of small urn and cover, coffee jug, cover and stand, sucrier and cover, canister and cover, a pair of tea and coffee cups and two saucers (from S. Addington's collection), sold for 270 guineas; and a pair of beakers (from the same collection), 185 guineas.

DEVIL'S BRIDGES are to be found all over the world. The most famous is the bridge over the Reuss, in the Swiss canton of Uri, on the St. Gothard Road, where the river, which is 4593ft. above the sea level, forms a picturesque cascade of 100ft. There is also a Devil's Bridge, spanning a mountain torrent, near the Ceret in the Pyrenees. Another famous Devil's Bridge is to be found near Aberystwith, in Cardiganshire. This bridge spans a gorge 114ft. deep, through which the Mynach rushes, making four falls of from 18ft. to 110ft. within a very short distance. The Devil's Road runs through many lands, and various mountains at home and abroad have been named after Satan.

A COMMITTEE of leading engineers has approached the London County Council with a view to the placing on the Victoria Embank-

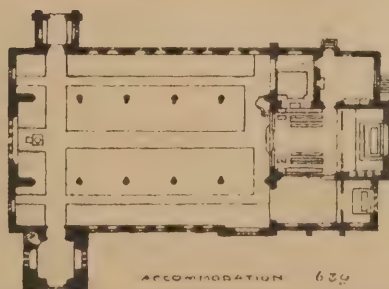
ment of a memorial tablet to Sir Joseph W. Bazalgette, the well-known engineer of the old Metropolitan Board of Works, to whose skill the metropolis owes the construction of the Thames Embankment, and the establishment of the present magnificent system of main drainage. The question has been favourably considered by the General Purposes Committee of the Council, and a proposal will probably be made at the next meeting of the Council that the tablet should be affixed to the carriage-way side of the wall of the Embankment, close to the floating fire brigade station, near Charing Cross Pier.

CULLEN is developing into a resort for artists, the picturesque scenery along the coast in the neighbourhood lending itself readily to artistic effects. Mr. L. Stuart has placed on view a collection of his recent

works. The pictures now all show careful drawing, fine feeling, and broad artistic effect. They consist of pencil drawings and studies of various kinds, watercolour drawings, sea sketches, and larger canvases of local features. One of the last represents Cullen Bay and the Three Kings, with the Scar Nose in the background. Another is an admirable view of Portknockie Harbour, with boats discharging fish. The mouth of Cullen Burn, with children wading, is a skilful piece of work. Next we have the beach at Sunnyside, with sheep in the foreground. A near view of the river Spey, with Ben Rinnes in the distance, forms a capital picture. Mr. Stuart has been very successful in representing storms, as his sketches of Cullen Bay show. The exhibition also includes three clever portrait sketches by student friends, an interesting picture of an old man standing before a fire, and some water-colour sketches of English scenery.



VIEW OF CHANCEL.



ACCOMMODATION 629

CHURCH OF ST. ANDREW, ORPINGTON, KENT.

MESSRS. J. E. NEWBERRY AND E. HIDE, ARCHITECTS.

Professional Items.

ARBROATH.—Designs for the memorial windows to be erected in Inverbrothock Free Church have been laid before the Deacons' Court. The design of Mr. William Pearce, Birmingham, was recommended. The design represents the Birth, Crucifixion, and Resurrection. The memorial windows are to be placed in the apse of the church behind the pulpit.

BARNSELY.—The Mayor of Barnsley has opened a new theatre at Barnsley. The new building stands on the site of the old theatre in Wellington Street, but occupies double the area of the old structure. The seating accommodation is for 1200. The height of the auditorium to lantern light is 45ft. The exits and entrances are all on the latest principles, and every precaution against fire has been taken. Refreshment rooms are provided for the pit, circle, and gallery. The entrance hall is commodious and handsomely fitted. The stage is 30ft. 6in. deep, and 50ft. 6in. wide, and the proscenium opening is 28ft. wide by 28ft. high. Commodious dressing rooms have been provided. The decorative work inside is pleasing. The prevailing colours are cream and gold, electric blue, and bronze and gold. The dome is a beautiful work of Art, the subjects of the panels being music, drama, painting, and comedy. The design is by Mr. Walter Emden, of London, and the building has been in the hands of Mr. Herbert Crawshaw, architect, of Barnsley.

BRISTOL.—Requiring space for the extension of their premises, the directors of the Bristol United Breweries Limited, have purchased the All Saints Almshouses adjoining the Crown and Dove Hotel in Bridewell Street. The plans for the new building have been prepared by Mr. T. Scammell, and the contractor is Mr. A. J. Beaven, of Bedminster.

CLOUGHTON.—The memorial window erected in the parish church at Cloughton, Yorkshire, in memory of the late Sir Frank Lockwood, Q.C., was dedicated by Canon Temple, of York, in the presence of a large number of people, including many of the late Sir Frank's constituents from York. The design was furnished by Messrs. Atkinson Brothers, of Newcastle, and the subject illustrated is the Judgment of Solomon. In the centre light is an impressive figure of the King in the act of giving judgment. It is draped in an under-robe of white, richly diapered with gold, with an over-cloak of brownish ruby. At the sides are the two mothers, one with her dead child at her knees, the other clasping her living child to her breast. The left hand figure is clad in an underdress of soft dull blue and an ivory-toned cloak; the right-hand one in olive green, and white cloak with gold lining. A secondary figure is a soldier with a drawn sword, ready to carry into effect Solomon's award. The canopies and bases, which are architectural in treatment, are of a soft greenish white, relieved with gold. In a niche in the centre canopy is an angel holding the emblem of justice. In the tracery above is an angelic host bearing crowns, palms, and the like, emblematic of victory. With the surplus funds a lych gate was erected by Messrs. Smith, Brodrick, and Lowther, architects, of Hull.

CODDENHAM.—A further step in the restoration of the fine old parish church of Coddenham was marked when a new reredos was dedicated, and the completion of the work carried out in the porch was signified. The reredos, which is the gift of Mr. Harry Wyles, is in carved oak, with figured panels in relief and painted, and was executed by Messrs. Percy Bacon and Brothers, London.

EDINBURGH.—The New Greyfriars Parish Church, recently decorated and fitted with electric lights, has now had its large west window filled with stained glass. The central design is the Resurrection, and is composed of a large group of the two angels at the

sepulchre, while the figure of the risen Lord occupies the arched space above. On either side of the central light are correspondingly large sidelights, which contain figures of "Mary, the mother of Jesus," and "John, the beloved disciple." The artists, Messrs. Ballantine and Gardiner, have produced the general colouring in warm gradations, attaining in the more important parts of the design great depth and richness.

HARROGATE.—The foundation stone of the new Technical School, Harrogate, has just been laid. The building will be situated at the junction of East Parade and Bower Road, the principal entrance facing Haywra Crescent. The portion at present being erected contains the following rooms:—On the ground floor is a cooking room, with scullery and store room adjoining, a room for building construction, and, in connection with the Art Department, a room for advanced modelling, and a large room for life and antique study; two class rooms are also provided on this floor for book-keeping, dressmaking, and other purposes. On the first floor are lecture room and painting room en suite, and headmaster's room adjoining; a physics laboratory and a chemical laboratory and lecture room, with balance and store rooms attached. On the basement are a manual room and a large spare room, besides the usual provision for heating and other

cellars. The staircase is in a central position, and conveniently placed for access to all departments. The corridors are also of good width, and are well lighted. The lavatory accommodation is also well placed and ventilated. The exterior is designed in a simple style of Renaissance. The corridors and laboratories will be lined with glazed bricks, dado height. The building, when eventually completed, will contain six or seven additional rooms. It is being built as cheaply as possible. The building is being carried out by Mr. W. J. Morley, F.R.I.B.A., architect, of Bradford and Harrogate, whose design was selected in competition. The contractors are:—Mr. R. Airtou, mason; Mr. Linskill, joiner; Messrs. Fortune and Calverley, plasterers; Mr. Shepherd, slater (all the above of Harrogate); Mr. G. Thompson, plumber, Leeds; Mr. F. Houldsworth, painter, Saltairé. Mr. Easton is acting as clerk of works.

SWALWELL.—The Presbyterian Hall at Swalwell has just been opened. The new building stands directly opposite the old church in Market Lane. The total cost of the new hall will be £1200. The building is in brickwork, with selected Birtley brick facing, and designed in a plain treatment of Renaissance. Messrs. Badenoch and Bruce, of Newcastle, were the architects, and the contractor Mr. H. Atkinson, of Blaydon.



NEW JUBILEE CLOCK TOWER AT SKEGNESS. E. WINTER, ARCHITECT.

Under Discussion.

LIVERPOOL GEOLOGICAL SOCIETY.

At a meeting of the Liverpool Geological Society, Mr. Mallard Reade read a paper on "The Gypsum Boulder of Great Crosby," in which he described the finding of the huge boulder in the brick pit of Mr. Edward Peters, Cook's Lane, Great Crosby, at a depth of 20ft. below the surface at a level not much above ordnance datum. It was a solid mass of alabaster, weighing about eighteen tons, and lay embedded in stiff plastic boulder clay containing the remains of marine organisms. The district council, on the urgent representation of Mr. Reade, backed up by the Liverpool Geological Society, accepted Mr. Peters' offer of the boulder, and, acting in a public-spirited manner, have gone to the expense of setting it up in Islington, Great Crosby, where it is now to be seen.

SIENA AND BALDASSARE PERUZZI.

At a recent meeting of the Leeds and Yorkshire Architectural Society a paper was read by Mr. Francis W. Bedford, A.R.I.B.A., entitled, "Siena and Baldassare Peruzzi." The lecturer gave a description of Siena and of the country round. Its population, he pointed out, was only a quarter of what it was in the mediæval days. It was full of old palaces more or less in ruins. Its cathedral was in marble, inlaid with mosaics, and had statues by Michael Angelo, Donatello, and paintings by Raphael and Pinturicchio. Its choir stalls were amongst the finest in the world, and its pulpit a seven days' wonder. Mr. Bedford gave an account of the life and work of Baldassare Peruzzi, who, besides being an architect, was a skilled painter. The lecture was illustrated with lantern slides.

SAXON CARVING.

At the last meeting of the Society of Antiquaries the Rev. W. K. W. Chafy exhibited a carved stone of the Anglo-Saxon period recently discovered at Rous Lench Church, Worcestershire. The interest of this relic lies in the unusual symbolic devices with which it is decorated. The subject of the sculpture consists of a man and a pair of peacocks entirely surrounded by conventional foliage with interlacing branches and bunches of fruit. The man holds a billhook or sickle in his right hand, and in his left a bunch of fruit, which the peacocks are pecking at. In one respect the stone is unique, as this is the first time that a representation of a peacock has been found either in Saxon or Norman sculpture in Great Britain.

CARDIFF MASTER BUILDERS.

The members of the Cardiff Master Builders' Association held their annual banquet on Thursday week. Mr. J. E. Turner, President of the Association, was in the chair.—The toast of 'Architects and Surveyors' was proposed by Mr. W. Symonds, President of the South Wales and West of England Federation of Building Trades Employers, who congratulated the company present on the success of that gathering, and on the improved relations that now existed between architects and builders. He believed the architects and surveyors endeavoured to hold the balance fairly between both parties—those who were paying for the erection of a building, and those who were putting it up.—Mr. C. B. Fowler, President of the South Wales and Monmouthshire Architects' Society, acknowledged the toast, and spoke in high terms of the friendly relations that existed between architects and contractors in South Wales. He mentioned that a joint meeting was to be held shortly in London, when an attempt would be made to adopt a universal form of contract, which would be a good thing for both architects and contractors.—Other toasts followed.

SCOTTISH SURVEYORS.

A meeting of the members of the Surveyors' Institution practising in Scotland was held

in the Masonic Halls, Glasgow. Mr. Thomas Binnie presided. It was reported that the membership had been largely increased since last meeting, and now included surveyors, estate factors, and valuers practising in various districts in Scotland, from Orkney to Dumfries. Mr. Binnie afterwards delivered an address, in which he referred particularly to the responsibility of surveyors, and the large interests involved in advising clients as to matters connected with heritage.

SOCIETY OF ENGINEERS.

Mr. W. Worby Beaumont presided at the forty-fifth annual dinner of this Society, which was held on Wednesday in the Victoria Hall of the Hotel Cecil. Among the guests were Sir Benjamin Baker, Sir J. Durston, General Sir O. Tanner, Mr. W. H. Preece, Mr. W. H. M. Christie (Astronomer Royal), Mr. Alex. Siemens, Mr. J. W. Swan, the Hon. C. S. Rolls, Mr. John Aird, M.P., Mr. J. C. Fell, and the secretary, Mr. G. A. Pryce Cuxson, who during the evening was presented, on his retirement from the office after ten years of zealous work, with an address on vellum and a tea and coffee service. Following the usual loyal toasts, "Prosperity to the Society of Engineers" was proposed by Mr. A. J. Walter, who said that engineering was always bound to be a potent factor in the development of the resources of the realm.—The President, in replying, spoke of the great advances made in engineering science of late years, and emphasised the point that at the present time the cheapness of articles which used to be from twenty to a hundred times as dear, was due to the perfection of engineering enterprise and expenditure of capital.—Mr. Preece, president of the Institute of Civil Engineers, next proposed "Engineering Enterprise," and spoke of the leaps and bounds which characterised the progress that science had made for the comfort and convenience of citizens, whether dwelling on land or travelling on the sea.

FOUNDATIONS AND SHORING.

The usual meeting of the Glasgow and West of Scotland Technical College Architectural Craftsmen Society was held last Friday week, when papers were read by Mr. John Bowman and Mr. Wm. H. Baxter.—Mr. Bowman took for his subject "Difficulties with foundations." He prefaced his remarks by explaining that the points he would touch upon had come under his own observation in a building where he was engaged as Inspector of Works. The difficulties in the site were numerous, owing to part of it being at one time used as a quarry. He explained the methods he adopted in overcoming them. Underpinning, which had to be done to some of the adjoining buildings and hollow walls, was also touched on. The lecturer made good use of the blackboard in drawing details of the site, foundations, etc., and the methods he resorted to in overcoming his difficulties.—Mr. Baxter delivered a paper on "Shoring and Slapping." In introducing his subject the lecturer emphasised the fact that quite a number of tradesmen do not know anything of the difficult and risky operation of shoring and slapping old buildings. He said that it is quite a tempting of Providence the way in which a number of alterations were carried out. He then went into the subject very fully, and explained both needle raking, shoring, and slapping as carried out in Glasgow. Raking shoring was not much used there, owing to stone being so much employed instead of brick. In slapping, the position of the new beams and columns should be taken into account, supports should be under the ribs of the openings above; chimney-breasts should be supported, and all windows should be braced. He mentioned that he had no faith in cast-iron needles, as they were not so reliable as steel beams. Needles should not be wedged and driven tight more than was necessary, as the additional stress is apt to shake the building.—A number of diagrams were on exhibition illustrating this paper.

Enquiry Department.

MATHEMATICAL INSTRUMENTS.

To the Editor of THE BUILDERS' JOURNAL.

DEAR SIR,—I should be glad if some of your readers would inform me through your enquiry column of some book explaining fully the figures and lines given on a first-class steel square, with a 2ft. blade and 18in. tongue.—Yours truly,

G. W. B.
November 11th, 1898.

Surely you can find someone who can explain the use of your square much more effectually and more readily than you can acquire the explanation from a book! The following books, however, deal exhaustively with your subject: H. D. Mahan's "Industrial Drawing: Use of Instruments, etc.," F. W. Simm's "Mathematical and Drawing Instruments," W. F. Stanley's "Descriptive Treatise on Mathematical Instruments."

PATENTS.

To the Editor of THE BUILDERS' JOURNAL.

SIR,—Can you tell me where I can get information as to taking out protections and patents, or if there is any book on the subject?—Yours faithfully,

Dec. 19th, 1898.

The only works on the subject are the small pamphlets issued by the various firms of patent agents. Your best plan would be to consult a good patent agent, who would supply you with information free. If your idea is upon an architectural or building matter, we can supply you with the name of a firm who will be able to do your work.

MILL SHEDS.

To the Editor of THE BUILDERS' JOURNAL.

SIR,—Will any of your readers who have had experience in the erection of mill shedding kindly favour me with their views on the following case? I have erected a long range of "saw tooth roofs," iron principals, and entirely supported on C.I. columns, the bays being about 85ft. long and 23ft. wide, the distance apart of the columns being originally about 22ft. The roof was not designed to bear the pull of shafting, but subsequently a scheme of shafting was introduced, intermediate columns of C.I. being fixed, reducing the span of the girders to about 11ft., or half the original span. The shafting is fixed on brackets with collars bolted to the columns. The engine works an indicated h.p. of 36. Now, I find numerous small leakages throughout the roof, and am inclined to attribute it to the vibration of the machinery. I have tested the roof, and find the vibration very marked, and pulsating in the 5in. column to which is attached the main drive and fly-wheel (4ft. diameter), but scarcely noticeable elsewhere. I should feel very grateful for any hints as to how the defect may be remedied and for similar experiences.

Is there any formulae for readily calculating the "pull" which a girder and column under may be expected to bear (a) without danger of accident, (b) which may be applied without the risk of excessive or mischievous vibration? The machinery usually works 160 revolutions per minute.—Yours, &c., "ALPHA."

P.S.—May I ask further if any of your readers happen to know of a good gulley trap grating capable of being locked like a manhole, also similar cover for Armstrong eyes? I have had much trouble in school playgrounds on account of their fittings being tampered with by children. Recently I took a couple of bricks, &c., out of an Armstrong eye.

ON Wednesday, the Whitechapel Board of Guardians received a communication from the Local Government Board consenting to the guardians purchasing sites for their cottage homes for children belonging to the union at Grays Thurrock, Essex, at a cost of £2600.

Views and Reviews.

LONDON UNIVERSITY GUIDE.

That the University Correspondence College is widely appreciated is evidenced from the number of successful candidates at matriculation and at the examination in Arts, Science, and Law, 27.6 per cent. passing during the twelve months ending August 31, 1898. During this period the students have taken not only 36.4 per cent. of the places in the honours list at the Intermediate and Bachelor Examinations in Art, Science, and Law, but occupy 44 per cent. of the M.A. list. The report of this College contained in their Guide and Calendar for 1898-9 is well worth reading, and the guide itself contains a great deal of useful information.

"London University Guide and University Correspondence College Calendar, 1898-9." Gratis. University Correspondence College Press, Burlington House, Cambridge.

LIGHT AND AIR.

Mr. Hudson's book on building contracts is so well known that a volume from his pen on light and air cannot fail to be appreciated. Simple as the subject appears to be at first sight, the application of the law of easements to light and air cases bristles with pitfalls, as many an architect knows to his cost. Mr. Hudson's work should go far towards making its comprehension easier, while it has the advantage of being of a convenient size, neither so small as to be over condensed, nor so large as to be cumbersome; containing all necessary information, together with the latest decisions upon important points.

"The Law on Light and Air." By Alfred A. Hudson and Arnold Inman. London: Estates Gazette Office, 6, St. Bride St. East, E.C.; Sweet and Maxwell, Ltd., 3, Chancery Lane, W.C.

THE funeral of Mr. John Gülich, R.I., took place on Thursday week. At the last meeting of the Royal Institute of Painters in Water Colours, Mr. Gülich was elected a member of the Hanging Committee. An offer for his picture "The Violin Concerto," which was exhibited at the last exhibition of the Institute, has been made by the Liverpool Corporation, but his family now desire to retain the picture for themselves.

BOWER & FLORENCE,

Polished Granite Manufacturers,
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London Office: 64, FINSBURY PAVEMENT, E.C.
Quarries: PETERHEAD, N.B.

TENDERS.

Information from accredited sources should be sent to "The Editor." No results of tenders can be accepted unless they contain the name of the Architect or Surveyor for the Work.

BALLYSILLAN (Belfast).—For the construction of a covered concrete reservoir, Ballysillan. Mr. Acheson Ferguson, 35, Royal Avenue, Belfast, surveyor:—
W. J. Campbell & Son £11,900 | Courtney and Co. £10,590
J. McKee and Sons 11,083 | H. & J. Martin, Ltd. 10,430
J. and W. Stewart 10,943 | H. Lavery & Sons, Cam-
W. McLarnon 10,548 | bridge-street, Belfast 10,400

BARKING (Essex).—Accepted. For erection of 83 cottages for the working classes in Crooksmouth-lane, Barking, in blocks as follows, for the Urban District Council: (Block A) 13 cottages, (B) 12, (C) 15, (D) 16, (E) 15, (F) 12. Mr. C. J. Dawson, F.R.I.B.A., East-street, Barking, surveyor:—
J. J. Reeve 220,600 | J. C. Garbett £16,300
E. Hughes 20,543 | H. Lane, East Ham 12,750
*Accepted subject to sanction of the Local Government Board.

BARNSELY.—Accepted for the construction of streets, &c., Park-grove, for the Land Society. Messrs. Wade and Turner, surveyors, 10, Pitt-street, Barnsley. Quantities by the surveyors:—

For 1, 2, and 3 Sections.
Henry Burrows and Sons, Barnsley £1,783 8 6
For 4, 5, 6, and 7 Sections.
Fred Walker, Park Grove, Barnsley £133 19 2

BARNSELY.—For erection of electricity works, for the Corporation. Mr. J. H. Taylor, A.M.I.C.E., borough surveyor. Tenders recommended for acceptance:—
Tall chimney.—G. Mellor £290 0 0
Bricklayers, Masons, &c.—J. K. Taylor & Son 1,242 0 0
Carpenters and Joiners.—Robinson and Son 385 0 0
Plasterer.—Fleming 57 0 0
Slater.—Fleming 113 0 0
Plumber and Glazier.—S. Rushforth 87 0 0
Smith and Founder.—Newton, Chambers & Co. 466 19 8
Painter.—T. L. Stephenson 40 0 0

BARNSELY.—For supply of plant, &c., to the electricity works, for the Corporation. Mr. J. H. Taylor, A.M.I.C.E., borough surveyor. Tenders recommended for acceptance:—

Boilers.
W. Arnold and Co. £2,200 0 0
Engines, Dynamos, Plant, &c.
Johnson and Phillips 8,030 0 0
Storage Batteries, &c.
Pritchetts and Gold 1,319 0 0
And £70 per annum for annual maintenance of batteries.

Electrical Mains, &c.
British Insulated Wire Company 6,322 4 2
And £110 per annum for maintenance.

BELFAST.—For the construction of a covered concrete reservoir, Ballysillan. Mr. Acheson Ferguson, surveyor, 35, Royal Avenue, Belfast:—

W. J. Campbell & Son £11,900 | H. & J. Martin, Ltd. £10,430
J. McKee and Sons 11,083 | Henry Lavery & Sons,
J. and W. Stewart 10,943 | Cambridge-street,
Wm. McLarnon 10,548 | Belfast 10,400
Courtney and Co. 10,590 | *Accepted.

BLACKPOOL.—For the erection of a new Collegiate School, South Shore, for F. T. Pennington, Esq. Quantities by the architect, Mr. E. Grubb, 13, Rawcliffe-street, South Shore, Blackpool:—

W. Chadwick £737 13 6 | J. M. Kether, Ltd. £298 10 0
T. Lawson and Co. 660 0 0 | J. Porter 565 0 0
F. Saville 650 0 0 | C. Crighton 564 0 0
G. H. Fisher 637 0 0 | *Accepted.

Total of lowest separate tenders, £588 14 6.
BROMSGROVE.—For the construction of sewers, Pedmore, for the Rural District Council. Mr. E. B. Martin, G.E., Church-street, Chambers, Stourbridge:—
Jacob Briggs £4,310 0 0 | Thos. Vale £2,474 10 0
Geo. Trentham 2,951 4 0 | W. L. Meredith 2,331 15 1
Geo. Law 2,482 9 0 | John Mackay 1,995 14 0

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BURY (Lancs.).—For the erection of one pair semi-detached villas, Manchester-road, Bury, for Mr. G. Howe. Mr. F. Smith, architect, 62, Market-street, Manchester. Quantities by architect:—
John Smith and Sons, Bury £1,570

CAMBRIDGE.—For erection of house, stables, &c., in Tenison-road, Cambridge, for Messrs. Arnold and Tupling. Mr. Frank Waters, 7a, Alexandra-street, Cambridge. Quantities by Mr. W. Culling Gaze, 2, Walbrook, E.C.:—

House.
Bell and Sons £1,367 | Kerridge & Shaw £1,213
W. Saint 1,344 | Coulson and Lofts 1,152
Stables, &c.
Bell and Sons £237 | Kerridge and Shaw £750
W. Saint 763 | Coulson and Lofts 712
Roadway, &c.
Bell and Sons £246 | Kerridge and Shaw £230
W. Saint 243 | Coulson and Lofts 230

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	At Wharf.	ex Ship within one month.	At Wharf.	
17½×3×3	12 3	11 2	16 6	
17½×3×2	8 9	7 11	11 8	
17½×3×1½	6 9	6 0	9 1	



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With Special Joint to conceal Nails—

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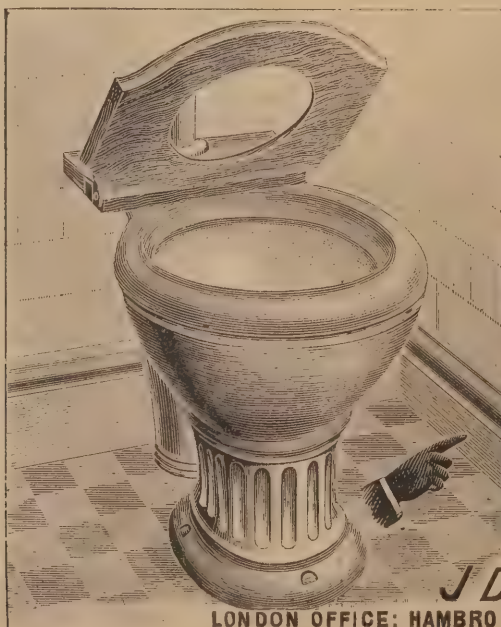
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BURNLEY, LANCASHIRE.

LONDON OFFICE; HAMBRO WHARF UPPER THAMES ST. E.C.

CARSHALTON.—For making up Denmark-road, for the plan District Council. Plans and specifications by Mr. W. W. Gale, A.M.I.C.E., town surveyor.—
 V. Jenner, Sutton (accepted)... £1,416 19 5 | head... £2,200
 [Surveyor's estimate, £1,402 12s. 4d.]

CLYDACH VALE (Pontypridd).—For erection of a chapel, vestry, boiler-house, &c., at Clydach Vale, near Pontypridd, for the Welsh Independents. Mr. Frank B. Smith, architect, Port Talbot.—
 Short and Co. £3,890 0 0 | Spratt Bros. £2,850 0 0
 Griffiths and Co. 3,323 0 0 | W. Stephens, 2,647 6 10
 Charles Bros. 2,920 0 0 | Swansea*... 2,647 6 10
 *Accepted conditionally.

EAST RETFORD. For sewerage and sewage disposal works, for the East Retford Town Council. Mr. J. C. Melliss, M.I.C.E., 284, Gresham House, Old Broad-street, London, E.C., engineer.—
 A. Brunton & Son £52,916 18 9 | G. Bell... £42,887 0 0
 J. W. Pattinson and Son 51,951 0 0 | J. Jackson... 40,100 0 0
 I. H. Vickers, Ltd. 49,805 5 2 | J. Bentley... 39,333 0 0
 J. D. Nowell and Co. 49,500 0 0 | E. Tempest... 35,171 10 8
 J. Osenton... 44,765 0 0 | H. Arnold & Son, 34,249 0 0
 B. Cooke & Co. 43,946 0 0 | Doncaster*... 34,249 0 0
 *Accepted.

LAUNCESTON.—For the construction of a new cattle, sheep and pig market at Launceston. Mr. Orho Peter, F.R.I.B.A., Launceston, architect.—
 I. Broad... 2,400 0 0 | E. Sharland, Laun-
 R. Burt... £2,100 0 0 | ceston, Cornwall* £1,998 10 0
 *Accepted.

LEVENSHULME.—For the sewerage, draining, paving, tiling, and flagging of the following streets and passages, for the Levenshulme Urban District Council—viz., Derby-street, Mount-street, Emley-street, York-street, passage at

the rear of Monton-terrace, and passage off York-street. Mr. James Jepson, surveyor, Guardian-chambers, Tiviot Dale, Stockport.—
 Rowland £2,392 1 10 | Worthington and
 Briscoe and Sons 2,381 6 7 | Pownall, Man-
 G. Boden 3,281 19 4 | chester* £2,230 10 0
 *Accepted.

LONDON.—For improvements at the Slade School, for the London School Board.—
 Johnson and Co. £1,300 | J. and C. Bowyer... £3,615
 A. White and Co. 4,167 | W. Johnson and Co.,
 Edwards and Medway 3,835 | Limited... 3,397
 F. and H. F. Higgs 3,732 | E. Triggs... 3,511
 Kirk and Randall 3,695 | J. Garrett and Sons* 3,340
 *Recommended for acceptance.

LONDON.—For works at Gillespie-road, School, for the London School Board.—
 Willmott and Sons £8,397 | McCormick and Sons £7,897
 Staines and Son 8,292 | J. Grover and Son 7,818
 F. Gough and Co. 8,054 | C. Cox 7,554
 W. Shurmer 7,985 | E. Lawrence and Sons 7,521
 G. S. S. Williams & Son 7,954 | R.A. Verbury and Son 7,472
 W. Whiteley 7,950 | L. H. and R. Roberts* 7,168
 W. Scrivener and Co. 7,940
 *Recommended for acceptance.

LONDON, S.W.—For erection of a refreshment pavilion, Pryor's Bank, Putney Bridge, Fulham, for the Fulham Vestry. Mr. Charles Botterill, A.M.I.C.E., surveyor.—
 T. Short and Son £5,620 0 0 | S. W. Aries and Co. £4,325 0
 E. Swan and Son 4,795 0 0 | B. E. Nighingale... 4,000 0
 H. C. Clifton 4,788 0 0 | T. Bendon... 3,810 0
 General Builders, Limited... 4,351 6 0 | Spencer, Santo, and Co. 3,694 0
 *Accepted.

LONDON, N.—For alterations and additions to Messrs. Glover's van works, Half Moon-crescent, Caledonian-road,

N. Mr. George Waymouth, architect, 23, Moorgate-street, E.C.—
 Mattock Bros. £1,320 | Bristow and Sons* £1,097
 Stevens Bros. 1,230 | *Accepted.
LONDON.—For the remodelling of 35, Dover-street, for the Empress Club. Messrs. J. T. Wimperis and Archer, architects.—
 Waring and Gillow £50,123 | M. and E. Lea £39,062
 T. L. Green 41,112 | Allen and Son 36,014
 Kilby and Gayford 39,692 | Patman and Fother-
 Carmichael and Son 33,392 | Ingham 35,389
 Dearing and Son 39,318 | Lovatt and Sons 34,172
 Johnson and Co. 39,167 | Barker and Co. 33,766
LOUGHTON (Essex).—For the erection of six semi-detached cottages and converting a chapel building into two cottages, for Edward Wabab, Esq. Mr. George E. Clare, architect, Chelmsford.—
 Caten and Sons, Loughton, including fences, &c. (accepted) £1,505 15 0
 [Higher tenders submitted by W. Cuthbert and R. Warriner, of Loughton, and H. Potter, of Chelmsford.]

MIDDLESBROUGH.—For buildings for the Commission and Offices for the staff at Queen's-square, Middlesbrough, for the Tees Conservancy Commissioners. Messrs. J. Mychell Bottomley, 28, Albert-road, Middlesbrough, and E. A. Whippam, 50, High-street, Stockton-on-Tees, architects.—
 J. Howe and Co. £10,700 0 0 | Allison Bros. £8,134 0 0
 G. Marshall 3,274 18 11 | T. D. Ridley and
 Atkinson & Co. 3,967 2 4 | Son 8,129 0 0
 Bastiman Bros. 2,789 15 8 | T. Dickinson 7,922 0 0

MILBURN.—For the supply of water for the East West moreland Rural District Council. George Watson and Son, engineers, 3, St. Andrew's-place, Penrith.—
 G. Carruthers £210 0 0 | J. and W. Scott £215 0 0
 G. Smiley 561 16 11 | J. Jackson* 479 19 9
 J. Bowerbank 530 17 4 | *Accepted.
 [All of Penrith.]

VENTILATION AND WARMING.

THE PUREST ATMOSPHERE AND MOST EFFICIENT WARMING IS BY THE

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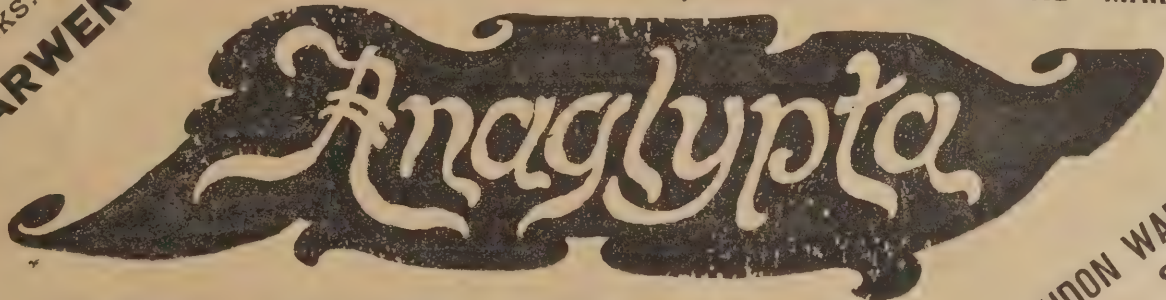
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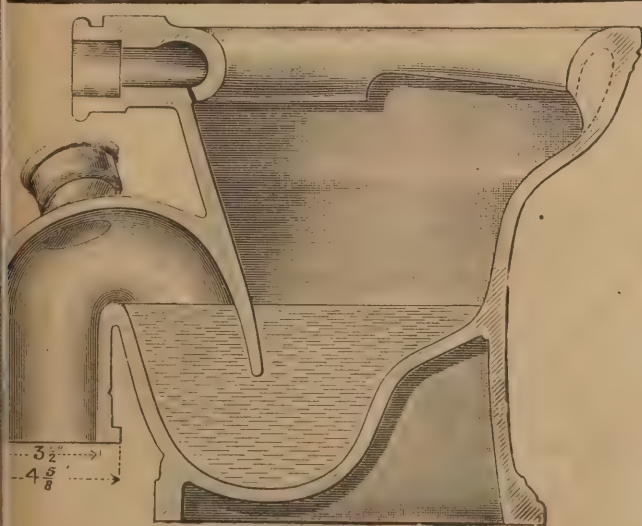
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Prices and Particulars on Application.

SHANKS & Co., Tubal Works, Barrhead, near Glasgow.

NANTYDERRY.—For alterations and additions to Nantyerry House, near Abergavenny, for the Misses Evans. Mr. Edgar G. C. Down, City-chambers, Queen-street, Cardiff, architect:—

J. Linton ... £1,338 0 0 Jones Bros., Cardiff (accepted)... £1,100 0 0
W. Thomas & Co. 1,247 0 0
S. Shepton & Son 1,190 16 0

NEWQUAY.—For alterations and additions at the Commercial Hotel. Mr. John Ennor, jun., architect, Newquay:—

C. Carrivick ... £420 0 Pearce & Trebilcock £400 0
W. Carne ... 412 10 Tippet and Cocking 360 0
W. James ... 400 17 J. Knight (masonry) 287 0

NEWQUAY.—For alterations and additions at "Evening Side," for Mrs. Hosken. Mr. John Ennor, jun., architect, Newquay:—

C. Carrivick ... £365 Pearce and Trebilcock... £330
W. Carne ... 341 Tippet and Cocking ... 290
F. Frenerry ... 389 C. R. Bellingham*... 280
*Accepted.

PORT ELIZABETH (South Africa).—For the construction and erection of twenty pairs of timber-built semi-detached cottage residences. Mr. George E. Clare, architect, Chelmsford:—

Boulton and Paul, Norwich, in sections, F.O.B. London ... £6,500 0 0
Approximate estimate for shipping, erection and foundations, &c. ... 3,000 0 0
£9,500 0 0

WEST HAM.—For erection of public baths, for the West Ham Town Council:—

J. H. Bywater & Co. £26,248 G. Sharp ... £22,658
Bailem Bros. ... 23,875 Spencer, Santo, & Co. 22,308
C. Wall ... 23,887 J. Chessum and Son 21,070
Wall and Co. ... 22,906

Note.—Tenders referred to Works Committee.

WEST HAM.—For erection of a Quarter Sessions Court, for the West Ham Town Council:—

Symes ... £10,650 Chessum and Sons ... £9,699
Porter ... 10,111

[Borough engineer's estimate, £10,000.]
Note.—The tenders were referred to Works Committee.

CONTRACTS OPEN.

GLASGOW AND PAISLEY JOINT RAILWAY.

SHIELDHALL BRANCH CONTRACT.

The Glasgow and Paisley Joint Railway Committee invites TENDERS for the DOUBLING of the SHIELDHALL BRANCH, the BUILDING of a GOODS SHED, with Offices, and for other Works in connection with the same.

The Drawings may be seen, and, on payment of a deposit of Two Guineas, which will be returned on receipt of a bona fide Tender, a copy of the specification and Schedule and Quantities, with Form of Tender, may be obtained, at the Office of the Company's Engineer, Mr. T. J. NICHOLLS, M. Inst. C.E., 14 Bridge-street, Glasgow.

Tenders, in covers, sealed and endorsed "Tender for Shieldhall Branch, &c.," must reach the undersigned not later than THURSDAY, 5th January, 1899.

The Joint Committee will not necessarily accept the lowest or any other Tender.

14, Bridge-street, Glasgow,
13th December, 1898.

R. G. WADDELL.
Secretary.

ISLINGTON VESTRY. TO HOUSEBREAKERS, BUILDERS, AND OTHERS.

DEMOLITION of BUILDINGS abutting on site of Electric Lighting Station, Eden-grove, Holloway-road, N. (near Holloway Station, Great Northern Railway).

The Electric Lighting Committee of the Islington Vestry invite TENDERS for the PULLING DOWN and REMOVAL of certain BUILDINGS abutting on the site of the Vestry's Electric Lighting Station.

Particulars and forms of Tender supplied on application at the Vestry Hall.

Tenders, addressed to the undersigned, and endorsed "Tender for Demolition," to be delivered at the Vestry Hall, Upper-street, N., not later than FIVE p.m. on WEDNESDAY, JANUARY 11th, 1899.

WM. F. DEWEY,

Vestry Hall, Vestry Clerk.

Upper-street, N.,
December 15th, 1898.

WOOD-BLOCK PAVING.

(MR. WHITE'S SYSTEM.)

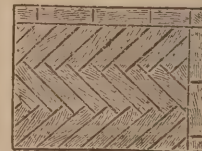
For Churches, Schools, Offices, &c.

Estimates and full particulars on application to

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PATENT BRITISH-MADE

FIRE-PROOF, SOUND-PROOF AND

SILICATE COTTON FIBROUS PLASTER

OR "SLAC WOOL."

— SLABS —

Silicate Cotton and Fibrous Plaster Works, Kentish Town, LONDON, N.W.



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It Sets Hard, Kills Vermin, and Disinfects.

It is Washable in 3 Weeks, Does not Scale, can be Painted or Varnished, and will Stand Inside or Outside.

It is made in Dark Rich Shades as well as in Light Tints, contains no Lead, and Does Not Turn Black.

It only requires the addition of Water to make it ready for use, so that anybody can apply it.

It is Cheaper, Cleaner, Healthier, and more Artistic than Wall Paper.

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SISSONS BROTHERS AND CO. Limited, HULL,

From whom Samples, Shade Card, and other particulars can be obtained.

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IRON STAIRCASES
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IRON ROOFS, FOOT BRIDGES.

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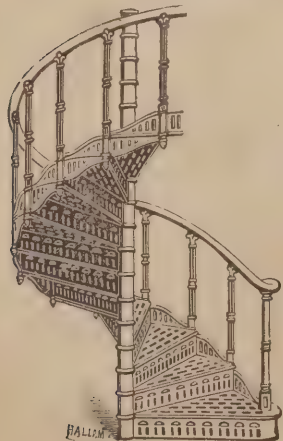
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VOL THREE.

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See Large Advertisement, Back Page, Monthly.

INTRODUCTION OF NON-FLAMMABLE WOOD INTO EUROPE.

The British Non-Flammable Wood Co. Ltd.

Beg to announce that their Works in London, the first erected in Europe, are now completed, and they are prepared to
Take Orders for the supply of "NON-FLAMMABLE WOOD" in large quantities.

"NON-FLAMMABLE WOOD," as produced by the Company's process, is now in use on the following

UNITED STATES WAR VESSELS:—

BATTLESHIPS.—"IOWA" and "OREGON." MONITOR.—"MIANOT." CRUISERS.—"BROOKLYN," "CHICAGO."
GUNBOATS.—"HELENA," "WILMINGTON," "NASHVILLE," "ANNAPOLIS," "WHEELING," "MARIETTA," "NEWPORT," "VICKSBURG."

And is being used for the Battleships "KEARSAGE," "KENTUCKY," "ALABAMA," "WISCONSIN," and "ILLINOIS," now being built.
"NON-FLAMMABLE WOOD" has also been used for all the Carpentry and Joinery Work in the following well-known
colossal Buildings in New York:—

THE COMMERCIAL CABLE BUILDING, THE QUEEN'S INSURANCE BUILDING, and THE R.G. DUN BUILDING,
(each of which is over eighteen stories high).

"NON-FLAMMABLE WOOD" has been tested by H.M. Admiralty, and Large Orders have been given to the Company
by the Government.

Quotations will be furnished on receipt of Specifications.

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BRITISH NON-FLAMMABLE WOOD CO. Limited,

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CONDITIONS WHICH RENDER HOUSES UNHEALTHY.*

By JAS. I. LITTLE,

Late County Sanitary Inspector, Renfrewshire.

THE conditions which render houses unhealthy are numerous—might almost be said to be innumerable—as from whatever point of view you study the construction of houses, whether it be the dwelling itself or its site, whether it be the Architecture or structure, or whether it be the internal arrangements or the surroundings, something can be pointed out which will contribute to the discomfort of life, or tend to depreciate the physical condition of man. The health officer may lay down the principles upon which the healthy construction of houses should rest, but unless the architect and craftsman apply these principles, the house cannot be healthy. Before proceeding further, however, it is advisable for you clearly to understand that, for a house to be unhealthy does not necessarily imply that the occupation of that house will kill the parties inhabiting it in much the same manner as a dose of arsenic will kill a human being. We have various decisions and opinions of authorities which bear this out.

Sir Henry Littlejohn expressed the following opinion:—"The phrase 'injurious to health' is construed by various medical men in different senses. If actual injury to health have to be proved, it will be found almost impossible to reach this description of nuisance. I venture to express the opinion, that when smells from whatever cause are declared to be very offensive, and produce feelings of nausea or sickness in those exposed to them, and when these smells in certain directions of the wind so invest houses as to prevent proper ventilation, medical men should have no hesitation in describing them as *injurious to health*."

In a case regarding the closing of a churchyard, Sheriff Davidson, of Midlothian, remarked:—"It is maintained that it has not been proved that the mode of conducting the churchyard is injurious to health. This is not a question that requires medical or other scientific evidence; it is patent to the common sense of every intelligent man. It is not at all surprising that the petitioners should not have been able to bring proof that particular individuals have suffered from the effects of a foul atmosphere in this churchyard. It is not easy to fix on the exact place and time at which a person whose body happens to be in an apt state has caught infection."

Then, again, the word "nuisance" was defined by Lord Chancellor Selborne in the following terms:—"What causes material discomfort and annoyance for the ordinary purposes of life to a man's house or to his property is to be restrained, . . . and although the evidence does not go to the length of proving that health is in danger, I will say no more than that the conclusion seems necessarily and properly to follow."

The opinion of Lord Young, Lord Gordon, and Sheriff Munro, to the Board of Supervision in 1872, as to what kind of offensiveness would require to be proved, was:—"We find it impossible, usefully, to say more than that the offensiveness must be such as seriously to interfere with the comfort of life in the neighbourhood, and such as may be detrimental to health, although it should be impossible to prove that it has been or necessarily must be so."

A house to be healthy depends much upon its construction and site, so that it may be furnished with the three essentials of life—light, air, and water. Unfortunately, wherever we turn, we will see dwelling houses defectively supplied with one or other of these. The sunlight may be intercepted by a canopy of smoke, or, from the arrangement of

the building, unable to enter our rooms; the air may be rendered impure from various causes, or may be confined or excluded by the structure of the buildings from performing its proper functions; the water may be derived from a contaminated source, or, if a plentiful and good water supply be provided, it may become polluted or impregnated with injurious matter in its course of transit to the house. In our towns the impurity of the air is the chief cause of unhealthy houses, whereas in the country the water supply is the chief source of anxiety.

Year by year the necessity to preserve and render our dwellings healthy becomes more imperative, the population is day by day becoming more crowded together, our pursuits are becoming more sedentary, our habits more luxurious, houses are increasing in number, land is becoming more valuable, the young are being reared among stone walls as green fields become more remote, and the public health can only be maintained and improved by giving the strictest attention to sanitation.

Laws alone can do little to remove or prevent sanitary defects in and around dwellings. The Government and the local authority may assist by spreading through the community the knowledge of what is necessary, and may publish practical methods of applying that knowledge, but real and permanent healthy dwellings can only be introduced by the people themselves, each in his own sphere—the engineer in laying out and preparing the sites, the architect in designing, the craftsman in constructing, and the occupiers in properly using the dwellings prepared for them by obeying the laws of health. The laws of health are only the laws of common-sense, and the simplest methods of applying them are generally found the most effectual. To preserve health man must be prepared to ward off disease, and, to accomplish this, he must be brought to understand his sanitary surroundings, to act in accordance with the laws of Nature, and to keep his person and habitation clean. Our dwellings greatly influence the atmosphere in which we live, and according to the degree of cleanliness in which they are kept will depend the comfort of the inmates.

LIGHT.

An insufficient supply of light will render a house unhealthy. The 173rd section of the Burgh Police (Scotland) Act, 1892, defines very clearly the amount of light necessary in a house: "Every habitable room shall have at least one window, and the total area of glass in the windows, clear of the frame and sash, shall be at least one-tenth of the area of the room." Unfortunately, that only applies to new buildings, and, unfortunately, it does not specify the window to be in an outside wall or overlooking an open space. Light, however, is necessary in every house. Where there is no light there is sure to be dirt; and where there is dirt and no fresh air there is sure to be a close and unwholesome smell. This of itself is sufficient to sap and undermine the general health and constitution of the unfortunate people who inhabit such houses, making them naturally liable to disease. Vigorous and exuberant health requires both light and air to sustain it, and the full attainment of these in all dwellings, whether for rich or poor, cannot be too often or too seriously insisted upon.

On examining tenement buildings, built even in recent years, it is quite evident that the architect and builder has kept specially in view the object of having an imposing elevation, something that would look well from the street, while the interior arrangements are in distinct opposition to the healthy occupation of the houses, and are a standing proof of thorough incapacity on the part of the architect or builder, or total indifference to the requirements of health. We are also at once struck with the darkness of the common stair, it being in the centre of the building, and, being surrounded with rooms, cannot be lit with side windows. As little space is utilised for the stair as possible, little or no "well" is left, with the result that the cupola on the roof only lights the upper flight of the stair, the tenants of the other three, or possibly more,

having to find their way as best they can into the houses. These dark entrances cannot but have a depressing effect on the health of the occupants. Staircases, if lighted by skylights, should have the skylights made of the lantern form, with sidelights to admit fresh air without admitting rain, and a large "well" so as to admit of the light penetrating to the lowest flight of stairs.

On entering the houses we are confronted with dark passages; closets and beds being shoved into dark and unventilated corners; bedrooms with only borrowed lights or small fixed skylights, and neither provided with a fireplace or other means of ventilation. Bedrooms such as these are often used for children, as they make such a turn up in a good bedroom; in these places there is nothing to displace, only the bedding and a chair or two. This saves a great deal of the work, but how about the quality of the bone and muscle developed by the portion of the rising generation penned in these boxes two-thirds of the time; they are gathering strength to fight this world's battle. Then, again, we have the basement houses with two-thirds of the height of the rooms underground, and where very little of the light of day enters. Houses which have their floor level under the level of the surface of the surrounding ground should not only not be used for sleeping rooms, but should not be used for human dwellings. There is always a deficiency of sunlight in them, and a tendency to dampness.

There are hundreds of houses in Glasgow where you cannot see to read at midday when standing in the centre of the floor, unless on a very clear day. Can it be wondered at that occupants of such houses are uncleanly? every facility is given them to be uncleanly. "Cleanliness is next to Godliness," but if light is not furnished little cleaning is done, therefore is it surprising that so much ungodliness exists in our large towns. The heart is taken out of the people, the houses are so depressing that in their evenings and leisure the tendency is only towards some exciting occupation or amusement, such as gambling, drinking, &c. The youth reared among our artisan classes in cities, such as Glasgow, cannot settle down to study and mental improvements, therefore the majority are soon outstripped by their cousins from the country, who, being stronger and healthier, have more push in them, and can shoulder their way to the front better in the crowd.

It is the influences and surroundings of the environment in which a youth is reared which moulds the man.

I entered a dwelling-house lately, and, noticing the blinds drawn, I asked why the "screens" were down. "To keep the people opposite from looking in while the gas is lit," was the reply. There are only a few feet between the walls of that tenement and the next. Could that house be healthy? The want of light is most detrimental to health; a dark house is always an unhealthy house, a badly aired house, and a dirty house.

The fashion also of hanging curtains over windows is objectionable. Everyone knows the amount of dust that collects on a curtain. It is unreasonable to provide large windows to light the room, if the greater portion of the light is shut out by hanging curtains over them. In this country direct sunshine is always necessary for maintaining purity of air.

CENTRALISATION OF HOUSES.

Again, the practice of crowding our houses together and the use of coal for our domestic hearths tends to increase the smoke cloud overhanging our cities, which prevents us from benefiting from the purifying influences of the sun's rays.

There is not the least doubt that the quantity of smoke present in the air of our large towns is prejudicial to health. This is the natural result of the centralisation of dwellings. Researches made by various scientific men have proved that exposure to the direct rays of the sun will kill the most fatal of disease germs. Professor Ward, in reporting on the results of his experiments as to the rate of growth of bacteria, under the

* A paper read before the Glasgow and West of Scotland Technical College Architectural Craftsman's Society.

influence of light of different colours, said:—"Cultures from which the blue rays were screened flourished well, and formed spores; whereas the others, which were fully exposed, were starved and retarded, and could scarcely form spores at all." He proved beyond doubt that the spores of anthrax (a most deadly disease) would succumb to sunlight. Dr. Edward Franklin, who investigated the development of the bacteria of the River Thames water, proved that they decreased in number $\frac{1}{4}$ times near the surface of the water, that is, where they received the almost direct rays of the sun, while 2ft. below the surface they increased one-fifth. It has also been proved, I think by Mr. Aitkin, of Falkirk, that the rainfall in towns is greater owing to the amount of smoke or soot particles in the air.

The harm done to us by smoke has been classified by Professor Ramsay under three heads:—

"1. It deposits in our houses, on our clothes, and on our persons, as 'blacks,' necessitating a great expenditure of labour and of soap.

"2. It condenses atmospheric vapour, causing fog and rain, and rendering our climate colder, and makes our lives more or less unhappy and uncomfortable.

"3. It shuts out sunlight, and thus increases the growth and tends towards the multiplication of bacteria—many of which are of a dangerous character; and inasmuch as it condenses vapour on its particles, it accumulates the atmosphere in the form of haze, mist, or fog, material, capable of absorbing precisely that quality of light which proves fatal to bacteria—namely, blue, violet, and ultra-violet light."

It is, therefore, quite evident from the evidence of the first authorities on chemistry in the kingdom, that the practice of using coal for our fires, whether in our dwelling houses or our factories, is the principal cause of the air of our towns being so impure and detrimental to our health, and that the evil is aggravated by the crowding of our dwellings on a too limited space.

Legislation is weak on this point, but if the purification of the atmosphere of our towns is to be the means of extending our lives, and of rendering life worth living, why should it not be done. There is no doubt that the smoke cloud above us can be cleared away; our water has been purified; our sewage is being purified, why should the air surrounding our dwellings not be purified.

AIR.

The common conditions of bodily health are influenced to a great extent by the atmosphere in which we live, and as our dwellings greatly affect this, we can hardly attribute too much importance to the nature of our houses. The health of any building is dependant upon free-moving pure air, outside and inside its walls. To ensure purity of air in our dwellings necessitates the consideration of various conditions which affect it—the site, the design, the construction, the building materials, the internal arrangements, and the cleanliness are the principle, although to go into detail others might be quoted.

SITE OF BUILDINGS.

The healthiness of a site depends not only on its position, and what lies around it, but on the soil itself.

It is well known that previous to buildings being erected, sand, gravel, clay and other substances that have a marketable value are frequently dug out of the proposed site and the excavations are filled in with any rubbish that is available. It is universally acknowledged that sites thus made up are to be regarded with suspicion, as very objectionable material is frequently buried out of sight in "free coups," and the houses erected over them are therefore more or less liable to the unwholesome exhalations arising therefrom.

These artificially made sites are, however, not the only ones which should be regarded with suspicion, as even gravelly soils necessitate some protection, as a vast amount of air is contained in pores or air spaces of a gravelly or sandy soil, and ground air is not the most invigorating air we prefer to enter our houses.

(To be continued.)

Surveying and Sanitary Notes.

COLONEL A. G. DURNFORD, R.E., has held an inquiry on behalf of the local Government Board at Taunton, into the application by the Town Council for powers to borrow £18,250 for purposes of sewage disposal.—The Town Clerk pointed out that £7000 of the money required was to be applied to the purchase of Landbrook Farm for irrigation purposes, and the remaining £11,250 would be applied for the carrying out of works for and adopting of the existing sewage works to the septic tank system in accordance with the scheme drawn up by Mr. A. J. Martin, of Exeter.—Mr. Kite gave an undertaking on behalf of the Town Council to either remove altogether or render immovable a certain movable sluice or hatch near the storm overflow at the works.—The usual formal evidence was given, and the inspector subsequently visited the works.

SOUTH WALES is becoming alarmed on the subject of the London County Council's scheme for appropriating the water on the Welsh hills for the use of London. There is no desire to play the part of the dog in the manger to the 6,000,000 of Londoners, but what about the teeming populations of Glamorganshire and Monmouthshire? The population of South Wales has increased enormously in recent decades. The population of the Rhondda Valley is already some 150,000, and it is in constant danger of a water famine. Some new scheme for supplying it with water is imperatively called for. The rapid working-out of the coal-field and the number of old workings thus left not only drains the district of a great quantity of water, but, from the danger of subsidences which it creates, makes it highly undesirable to have the reservoirs at all near the centres of population. Cardiff and Merthyr have already gone further afield, and having staked out for themselves valleys in Breconshire, away from the coal districts, are amply secured for a generation or two. Swansea, too, has appropriated a great portion of the watershed of the Usk. It may be that the areas scheduled by the London County Council will leave plenty of water for all the possible needs of Wales, but the occasion is felt to be one for vigilance.

SEVERAL important works have been practically completed at Liverpool, such as the new canal-graving dock, a large portion of the extension of the hydraulic power over the estate, and the improved arrangements at the dock-yard. The new half-tide dock and river entrances, besides the deepening and shed equipment of the Huskisson Dock, are very advanced. The widening and deepening of the east passage between the Alexandra and Langton Docks has recently been determined upon. The new tobacco warehouses at the Stanley Dock are making good progress, and in about two years it is hoped that that important trade would come into occupation of a storage installation superior to any accommodation available at other ports. The Mersey Docks and Harbour Board has decided to grant facilities for receiving barge-carried grain at the south end, and to encourage, where practicable, the system of moving goods from place to place by lighters. They are now increasing the space for sorting Irish cattle landed at the Prince's stage, so that 3000 beasts would be provided for, and are extending the shelter sheds at the landing stage further north, and making other alterations, so that the unprotected space which passengers had to cross would be reduced to a minimum.

THE much-talked-of bacterial treatment of sewage was the subject of an address by Dr. A. Bostock Hill to the Institution of Civil Engineers the other day, and members are now receiving an abstract of the line of argument adopted. Dr. Hill seeks to show that the old

views with reference to the chemical treatment of sewage were false both in theory and in practice. He strongly favours the disposal of sewage by the modern bacteriological methods, and affirms that any system opposed to the principle on which the resolution of sewage by the action of bacteria depends must fail. The failure of purification at the Sattley Sewage Farm, he explains by saying that the flooding of the land prevented access of air to the bacteria. Without air they died, and no purification of the sewage could take place.

THE Royal Commission on the question of the Metropolitan Water Supply reassembled on the 19th inst., Lord Llandaff being in the chair.—At the outset a Commissioner asked Mr. Pember, as representing four Water Companies, whether he would be prepared to let the Commissioners inspect the balance-sheets of these Companies in order that they might see how their finances stood.—Mr. Pember replied that he should be pleased to do so.—The various counsel representing the other Water Companies volunteered to let the Commissioners have similar information.—Mr. Hawksley, C.E., was then examined. Asked by the Chairman whether it was his opinion that the Thames alone would suffice to supply water in the future, he said he was perfectly satisfied that it would not be necessary to go elsewhere for the next hundred years. It would be an unnecessary precaution at the present time to appropriate a site in Wales for a future water supply. If the drought of 1898 occurred annually the accommodation provided by the Staines reservoir scheme would be adequate to meet the calls made on it. He had considered Sir A. Binnie's estimate of the cost of the Welsh scheme, and had come to the conclusion that it could not be carried out for the sum put down by that gentleman.—Lord Llandaff: Is it not your experience that the Corporations and public bodies that have required the water supplies of their districts have ultimately reduced the charge to the consumer?—Mr. Hawksley: Not until generally a considerable period has elapsed.—Lord Llandaff: But ultimately the increase of income goes to the benefit of the water consumer?—Mr. Hawksley: Yes, but in the meantime the water consumer or ratepayer has had to bear a considerable loss.—The Commission adjourned until January 9th.

A MASTER BUILDER, named Wray, was killed last week at New Brompton, Kent, by falling 30ft. from the chimney of a house which is being built.

At a meeting of the Scarborough Town Council it was stated, authoritatively, that the new marine drive and sea wall, which the Corporation are constructing round the Castle Hill at a cost of £80,000, would not be completed before the summer of 1900, a year beyond the time originally fixed.

THE original plan prepared by the famous engineer George Stephenson, and his son, for the first line of railway from Birmingham to the metropolis, is to be sold this week in London. This unique memorial of an important undertaking bears the autograph signature of Robert Stephenson.

At a special meeting of the Runcorn District Council, it was resolved to memorialise the Board of Trade for a provisional order under the Electric Lighting Acts to supply electrical power in the town, and instructions were given to deposit the usual fee of £50 for the purpose. It was stated that the action of certain electrical companies had impelled the Council to take this step.

ANOTHER "deep level" electric line is to be submitted for the approval of Parliament next Session. This scheme, which is under the auspices of the Great Northern Railway, though promoted by an independent undertaking, is intended to relieve the Great Northern metals of a large portion of the Company's increasing suburban traffic, and to provide much-needed transit facilities from the West Central districts to the Northern suburbs. At a future date the line will no doubt be continued under the Thames to Waterloo Station.

A SOUTH AFRICAN SANATORIUM.

THE Sanatorium at Kimberley, which has recently been opened, is the practical outcome of the "policy of ransom" propounded by Mr. Rhodes some years ago, whereby the Compound profits were to be devoted to objects tending to promote the welfare of the Diamond Fields and the inhabitants thereof. The cost of the Sanatorium has been almost entirely defrayed out of these Compound profits. It is now rather more than two years since Mr. Rhodes first broached the idea of a sanatorium in public. Some discussion arose as to where the sanatorium should be built, and in a letter to Mr. Lawrence as early as September, 1895, Mr. Rhodes said: "After considering the comparative merits of localities, I have come to the conclusion that Kimberley presents advantages for such an institution that are not possessed by any other place in South Africa. For while, as regards climate, it may be said to equal any other health resort, in respect to its surroundings it surpasses all others. It is an unquestionable fact that to patients suffering from affections of this nature, want of employment for the mind seriously prejudices the chance of recovery, and though in many towns and country places the climate and accommodation may be all that can be desired, improvement and cure cannot be effected, or are much delayed owing to this want. But in Kimberley this great disadvantage does not exist. It has been stated that the dust, for which it used to have an unenviable reputation made Kimberley an undesirable place for invalids; but I think you will bear me out when I say that since we have been working in the blue ground, and the present ample water supply was brought in, Kimberley is in this respect no worse off than any other town on the high plateau. I have, therefore, as above stated, arrived at the conclusion, that Kimberley, from all points of view, is the most suitable locality for a sanatorium." Through the offices of Mr. Currey a suitable site of nine acres was obtained from the London and South African Exploration Company free of charge, and Mr. Rhodes was

approached with a view to getting him to increase the building fund. At this time it was anticipated that the building would cost about £8000, or, with furniture, etc., £10,000. Messrs. Wernher, Beit, and Co. came forward with a donation of £2000, and plans were called for (£100 being offered for the best design, which was won by Mr. D. W. Greatbatch), and as soon as possible a commencement was made with the building. Owing to the difficulty of keeping in touch with Mr. Rhodes, and as the Board felt it necessary to have ample funds at its disposal for the carrying out of the scheme, the De Beers Company was communicated with in order to ascertain if it would guarantee the Board a sum of money which would bring the building fund up to £20,000, which the Company agreed to do. From time to time Mr. Rhodes has been approached for funds since then, and up to the present time a sum of

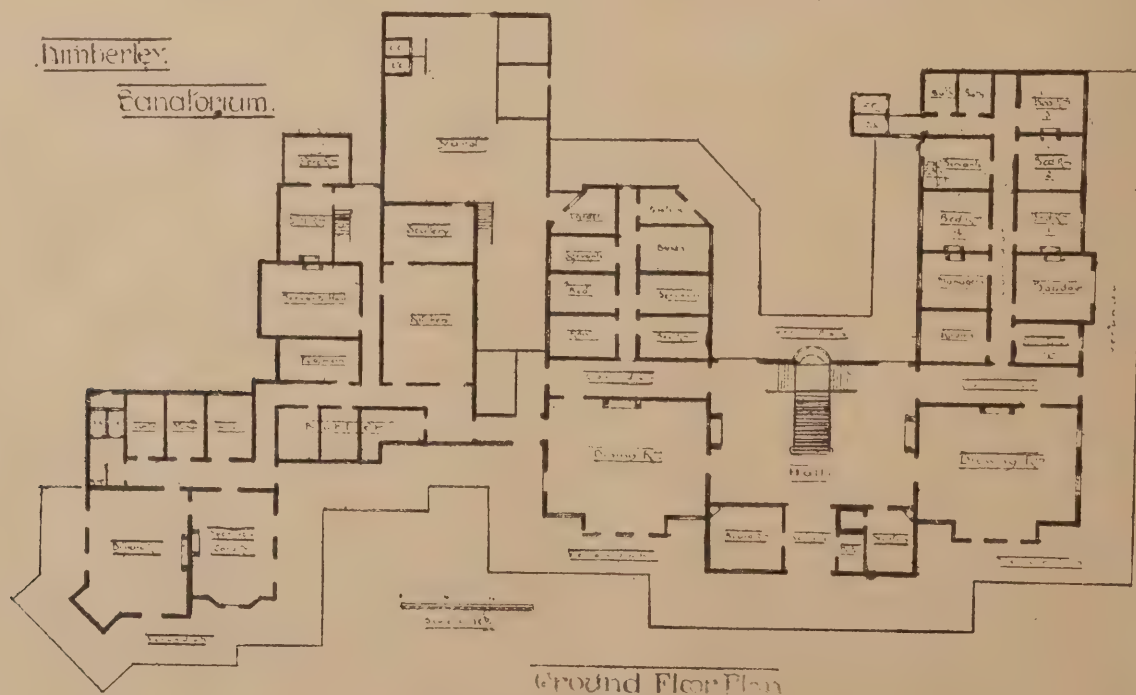
SOMETHING LIKE £26,000

has been, or is being, spent in connection with the building and furnishing of the institution. The Board expects that this amount will be sufficient to meet all requirements, and that the institution, given a fair start, will pay its way. Any profits accruing will probably be spent in extensions or improvements. The building stands in its own grounds, these being nearly nine acres in extent, the front facing towards Beaconsfield. Externally the building has no special features, being plainly but substantially built of burnt brick, and the comfort and convenience of the inmates has been the object in view rather than architectural adornment. A carriage drive from Egerton Road runs right round the building, coming out again near the Halfway House. The gardens have been laid out and planted with pepper and other trees, trenches having had to be cut through the solid rock. The main entrance opens on to a vestibule 14ft. by 12ft., on the right of which is a porter's lobby, while to the left is the Board-room. Passing through a pair of swing glass doors set in a glass screen, one enters the hall, which may be said to be the feature of the building. Its dimensions are 45ft. by 30ft., while it extends to the height of the two floors. This is almost the only portion of the building where there has been any

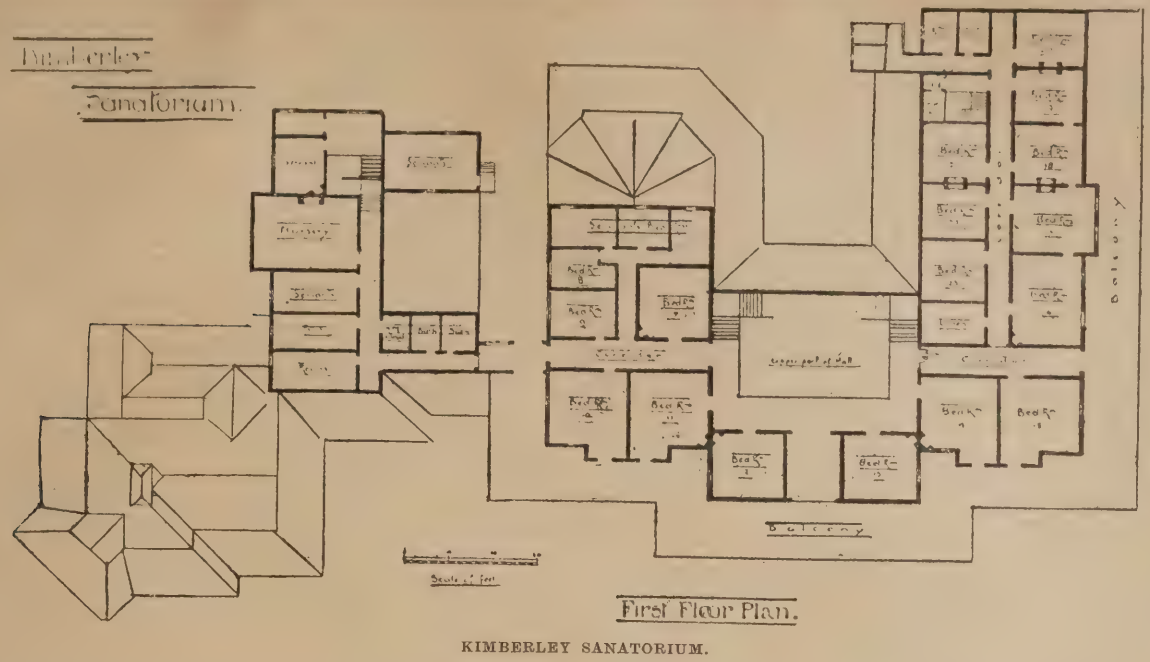
ATTEMPT AT DECORATION,

The hall is panelled out in grand oak, and there are two fireplaces, one at each end. The grand staircase, starting at the centre of the hall, is 8ft. in width, and has a very gentle rise. To the right of the hall is the drawing-room, 35ft. by 25ft., the chief

feature of which is a handsome teak mantelpiece. The dining-room is on the opposite side of the hall, a room of the same size and shape as the drawing-room. To the back of the hall are two 8ft. corridors, leading to the bedroom blocks. On the ground floor are half a dozen bedrooms, and the private rooms of the manageress, a servants' staircase, two bathrooms, and lavatory accommodation. There is also in this block a ladies' boudoir, 17ft. by 15ft. At the rear of the dining-room, and approached by a similar corridor, is a block of buildings, containing, on the ground floor, five servants' bedrooms for the use of servants of visitors, a box-room, larder and book-room. The kitchen block is a detached building, access being gained to the dining-room by a covered way, with windows on either side, so that there is but small chance of any smell arising from the ordinary operations penetrating to the dining and other rooms. Going through the covered way, the first room is the servery, with an opening into the kitchen, and a door to the butler's pantry. Near the latter are two rooms for the use of the butler, and a room for the footman. The kitchen is 26ft. by 20ft., with a large kitchen range (over the fixing of which there has been a lot of trouble, by-the-way) standing in the centre. Adjoining the kitchen is the scullery, 20ft. by 12ft. Crossing the passage from the kitchen, one comes to the servants' hall, 22ft. by 16ft., next to which is the stillroom. Close by is the tradesmen's entrance, and in this block is also a servants' staircase. To the left of the kitchen block, and slightly in advance of it, is a block of buildings, comprising a billiard room, 28ft. by 22ft., a smoking room, 23ft. by 18ft., lavatory accommodation for gentlemen, and wine store. This block can either be approached from the main building through the kitchen block, or, as will most frequently be the case, by means of the verandah. The block, which is intended for the use of gentlemen only, is entirely self-contained. On the first floor are nineteen bedrooms, several of which are of large size, 20ft. by 18ft., also four bathrooms (fitted with hot and cold water taps), and the necessary lavatory accommodation. Over the kitchen block are the servants' bedrooms, and a children's nursery, 22ft. by 16ft. Nearly every bedroom is fitted with a fireplace, and hot water is laid on throughout. The whole of the building, with the exception of the kitchen block, is provided on the ground floor with a verandah 12ft. wide, while on two faces, those facing Beaconsfield and the Free State, is a balcony of similar width, a portion of which is always protected from both sun and wind,



KIMBERLEY SANATORIUM.



and in the event of boisterous weather ample exercise can be obtained by this means, the balcony affording

A CAPITAL PROMENADE,

combined with the finest view to be obtained on the Diamond Fields. Ventilation has been carefully considered, and on the first floor the rooms all have double ceilings, by which means coolness will be greatly promoted. The whole of the building has been fitted with the electric light and electric bells, the work being entrusted to Messrs. Findlay and Co., of Cape Town. The necessary cables have been laid by the De Beers Company's employes from the generating station, under the supervision of Mr. G. Labram, the Company's chief engineer. Messrs. Church and McLaughlin are the contractors, the work having been carried out from plans by Mr. D. W. Greatbatch, M.S.A. It is impossible at present to give an exact estimate of the cost of the building, but this will probably amount to about £18,000. The furniture all comes from England, and is of a thoroughly substantial and useful order.

CROSSES have just been added to the new church at Bishophorpe, near York.

A New Theatre at Shrewsbury.

THE New Theatre Royal was opened last Monday week at Shrewsbury, the whole of the interior having been absolutely reconstructed, whilst the outside walls have been altered and added to. The theatre has been constructed from the designs of Mr. John P. Briggs, of Arundel Street, London. It is fitted up with all the latest improvements. The architect has been most successful with the sight lines, and every occupant of a seat obtains a clear and uninterrupted view of the stage. The building is constructed on the most scientific principles, and the two tiers above the pit are supported by massive cantilevers, so that there is neither pillar nor post to obstruct the view. The stage is large enough to accommodate the heaviest productions, and is fitted with the most approved appliances for scenic effects. The whole building is supplied with the electric light, and the front elevation is very effective. The exits from all parts are exceptionally good, being so arranged that the auditorium can be cleared in the space of a very few minutes. All doors are made to open outwards,

and are fitted with patent automatic panic bolts, no other locks or fastenings being necessary. The theatre is heated throughout by hot water on the low pressure system, with American radiators. Special attention has been given to the ventilation of all parts of the house, which has been carried out on the Honeyman system. The decorations of the building have been carried out in the French Renaissance style. The whole of the work has been done under the personal superintendence of the architect. The following are the names of the principal firms engaged in the construction and fitting up of the building:—Builder, Mr. Thomas Morris, Shrewsbury; steel constructional work, Messrs. Deane, Ransome, and Co., London; fibrous plaster and artistic decorations, Messrs. F. de Jong, London; hot water heating, Messrs. Scull Bros., Shrewsbury; electric light, Messrs. Lea, Son, and Co., Shrewsbury; gas arrangement and fireproof curtain, Messrs. Vaughan and Brown, Limited, London; ornamental stained glass, Messrs. A. Clark and Co., London; mosaic floors, Rust's Vitreous Mosaic Company, London; tiling to pit, Porcelain Tile Company, Cobridge; ventilation, Messrs. Crittall and Co., London; sanitary appliances, Messrs. Macfarlane and Co., Glasgow, and the Water Carriage Company, Sheffield.

COMPLETE LIST OF CONTRACTS OPEN.

DATE OF DELIVERY.	WORK TO BE EXECUTED.	FOR WHOM.	FROM WHOM FORMS OF TENDER MAY BE OBTAINED.
1898.	BUILDINGS.—		
Dec. 30	Cranford, Middlesex—Hospital Alterations, &c.	Joint Committee	F. C. Greville-Smith, 172, High-street, Hounslow.
30	Halifax—Extension of Boiler Works		W. G. Gray and Son, 28, George-street, Halifax.
30	Lossiemouth, Scotland—Lifeboat House	Royal National Lifeboat Institution	W. T. Douglas, per R. B. Pratt, County Bank House, Elgin.
30	Neath—Erection of Twenty Huts	E. Evans-Bevan	J. C. Rees, St. Thomas-chambers, Neath.
30	Nelson, Lancs.—Brewery Offices, &c.	W. Astley	T. Bell, 14, Grimshaw-street, Burnley.
30	Denton, Sussex—Engine-house	Newhaven and Seaforth Water Co.	F. S. Courtney, Broad Sanctuary-chambers, Westminster.
30	Willenhall, Staffs.—Greenhouse	Urban District Council	C. J. Jenken, Engineer, Town Hall, Willenhall.
31	Dartmouth—Erection of Boundary Walls, &c.	Urban District Council	T. O. Veale, Surveyor, Castle View House, Dartmouth.
31	Barmouth—School Buildings	Intermediate School Governors	J. E. Evans, Architect, Barmouth.
31	Northfleet, Kent—Rebuilding Cottages	Barkway and Hitchcock	W. W. Wabber, 55, Dawes-road, Fulham, S.W.
1899.			
Jan. 2	Leamington—Entrance Lodge	Town Council	F. G. Cundall, 41, Parade, Leamington.
2	Morley—Alterations, &c., to Schools	School Board	T. A. Buttery and S. B. Birds, Architects, Morley.
2	Elgin—Villa		A. and W. Reid and Witter, Architects, Elgin.
3	Birkenhead—Pier Pay Gates and Buildings	Corporation	C. Brownridge, Borough Engineer, Town Hall, Birkenhead.
3	Nottingham—Superstructure of Workhouse	Guardians	A. Marshall, King-street, Nottingham.
5	Glasgow—Goods Shed, Offices, &c.	Glasgow & Paisley Joint Ry. Committee	T. J. Nicolls, 14, Bridge-street, Glasgow.
5	London, S.E.—Boundary Walls	St. Saviour's Union Guardians	G. D. Stevenson, 13 and 14, King-street, E.C.
5	Pentre, Wales—Alterations, &c., to Schools	Ystradyfodwg School Board	J. Rees, Hillside Cottage, Pentre.
7	Heysham, Morecambe—Erection of Arcade	O. Lee	A. L. Lang, 128, Pedder-street, Morecambe.
7	Plastow, E.—Enlarging Hospital	County Borough of West Ham	E. T. Hall, 57, Moorgate-street, E.C.
7	West Ham—Enlargement of Hospital	Town Council	F. E. Hilleary, Town Clerk, Town Hall, West Ham.
9	Horsham—Infirmary Block	Union Guardians	C. H. Burstow, 6, West-street, Horsham.
9	Mickleover, near Derby—Asylum Wards	Committee of Visitors	J. S. Story, Surveyor, County Offices, Derby.
10	Bradford—Inland Revenue Office	Commissioners H.M. Works	Office, Storey's Gate, S.W.
10	Barnes—Fire Station	Urban District Council	G. B. Tomes, Council Offices, High-street, Mortlake.
11	Halifax—Infants' School	School Board	J. F. Walsh, Lancs. and Yorks. Bank-chambers, Halifax.
11	Kidderminster—Fire Engine Station	Town Council	A. Comber, Borough Surveyor, Kidderminster.
11	Selby—Public Baths	Urban District Council	W. Haustock and Son, Branch-road, Batley.
11	London—Pulling-down and Removal of Buildings	Islington Vestry	Vestry Hall, Upper-street, N.
12	New Barnet—Erection of School	School Board	W. Pywell, 10, Great James-street, Bedford-row, W.C.
14	Forres, Scotland—Semi-detached Villas	Building Company Limited	J. Forrest, Architect, High-street, Forres.
16	London, S.E.—Supply of 60,000 Bricks	Vestry, St. Mary Magdalen, Bermondsey	F. Ryall, Vestry Clerk, Bermondsey Town Hall, Spa-rd., S.E.
16	Knowle, near Fareham, Hants—Infirmary Wards, &c.	Committee of Visitors	W. J. Taylor, County Surveyor, the Castle, Winchester.
28	Wingate—Erection of Shop	Co-operative Society	Secretary, Station Town Co-operative Society, Wingate.

COMPLETE LIST OF CONTRACTS OPEN—continued.

DATE OF DELIVERY.	WORK TO BE EXECUTED.	FOR WHOM.	FROM WHOM FORMS OF TENDER MAY BE OBTAINED.
BUILDINGS—Continued.			
No date.	Carlisle—Eight Houses	Union Guardians	J. Beatty, Old Post Office-court, Carlisle.
"	Dorchester—Erection of Piggeries	"	D. Hinchcliffe, Surveyor, Union House, Dorchester.
"	Herbertstown, Limerick—Dwelling House	"	J. Ryan, 100, George-street, Limerick.
"	Winchester—Residence	"	G. A. Barnard, Architect, City Road, Winchester.
"	Wrexham—Additions to Premises	W. Aston	M. J. Gummow, A.R.I.B.A., Wrexham.
ENGINEERING—			
Dec. 30	1898. Londonderry—Arc Lamp Globes, &c.	Corporation	R. V. Macrory, City Electrical Engineer, Londonderry.
" 30	Brockenhurst, Hants.—Turbine Drive, &c.	E. J. Morant	Mrs. Jenby, Brockenhurst Mill, Brockenhurst.
" 30	Lutterworth—Water Tower, &c.	Freehold Land Society Ltd.	W. M. Cowdell, 12, Grey Friars, Leicester.
" 30	Hull—Pipes, Steel Roof Trusses, &c.	Corporation	City Engineer, Town Hall, Hull.
" 30	Sunderland—Supply of Dynamos	Corporation	J. F. C. Snell, A.M.I.C.E., Dunning-street, Sunderland.
" 31	Cairo—Steam Boilers	Administration of Ports & Lighthouses	Commercial Department, Foreign Office, S.W.
" 31	Ramsgate—Beam Engine	Corporation	W. A. Valon, Engineer, Corporation Offices, Ramsgate.
" 31	Rotherham—Sludge Pressing Plant	Sewerage Committee	R. E. W. Berrington, Bank Buildings, Wolverhampton.
Jan. 2	1899. Quebec, Canada—Bridge	Commissioners	Quebec Bridge Company, Canada.
" 2	Stirling—Electric Lighting	Magistrates and Council	T. L. Galbraith, Clerk, Stirling.
" 2	Edinburgh—Electric Switchboard, &c.	Commissioners	Resident Engineer, Dewar place, Edinburgh.
" 2	Stirling—Supply of Boilers	Commissioners	Prof. A. B. W. Kennedy, 17, Victoria-st., Westminster, S.W.
" 2	Milford, Ireland—Reservoir, &c.	Union Guardians	S. Watters, Clerk, Poor Law Office, Milford.
" 3	Glasgow—Electric Generating Plant	Corporation	W. A. Chamen, 75, Waterloo-street, Glasgow.
" 3	Ryde—Pumping Engines, &c.	Corporation Waterworks	J. T. Harvey, Waterworks Offices, Ashley, Brading, I.W.
" 3	Barkip, Ayrshire—Waterworks	County Council	P. C. Hart, 32, John Finnie-street, Kilmarnock.
" 3	Newchurch, Isle of Wight—Pumping Engines, &c.	Ryde Corporation	J. T. Harvey, Waterworks Office, Ashley, Brading.
" 4	Christiania—Goods Trucks	Norwegian State Railways	Commercial Department, Foreign Office, S.W.
" 4	Christiania, Norway—Telegraph Materials	State Railways Administration	Commercial Department, Foreign Office, S.W.
" 6	Brighouse—Inclined Retorts	Gas Committee	Engineer, Municipal Offices, Brighouse.
" 6	Johannesburg—Carburetted Water Gas Plant	Town Council	R. Whyte and Co., 22, Bury-street, St. Mary Axe, E.C.
" 7	Newport, I. of W.—Gasholder Tank	Gas Company	F. G. Cockey, 93, High-street, Newport, I. of W.
" 7	Armagh—Cisterns, &c.	District Lunatic Asylum	J. J. Phillips and Son, 61, Royal Avenue, Belfast.
" 9	Tunbridge Wells—Filter Beds	Corporation	W. C. Cripps, Town Clerk, Town Hall, Tunbridge Wells.
" 10	Burley—Electric Cables	Corporation	W. B. Wright, Boro' Electrical Engineer, Town Hall, Burley.
" 11	Tunbridge Wells—Telephonic Fire Alarms	Corporation	W. C. Cripps, Town Clerk, Town Hall, Tunbridge Wells.
" 17	Weston-super-Mare—Heating Apparatus	School Board	S. J. Wilde & H. F. Price, Architects, Weston-super-Mare.
" 20	Newmilns, Scotland—Reservoir	"	P. C. Hart, 32, John Finnie-street, Kilmarnock.
Feb. 1	London—Tunnel	London County Council	Engineer's Department, County Hall, Spring-gardens, S.W.
March 15	Townsville, North Queensland—Supply of Crane	Harbour Board	Chairman, Townsville Harbour Board, Townsville.
" 15	Be'en, Para, Brazil—Water Supply Transfer	Government	Brazilian Consulate, England.
" 15	Rio de Janeiro—Waterworks	"	Commercial Department, Foreign Office.
" 31	Shanghai, China—Electric Tramways	Municipal Council	J. Pook and Co., 8, Jeffrey's-square, St. Mary-axe, E.C.
" 31	Shanghai—Telephone System (30 years)	Municipal Council	J. Pook and Co., 8, Jeffrey's-square, St. Mary-axe, E.C.
No date	Orgreave Colliery, near Sheffield—Reservoir Works	"	Engineer, Orgreave Colliery, near Sheffield.
"	Taranto, Italy—Corn-milling Machinery	"	Signor Luigi di Matteo, Taranto, Italy.
"	Halifax—Electric Lighting Shop	Cash Supply Stores Ltd.	Cash Supply Stores Ltd., Portland-place, Halifax.
"	Normanton—Twelve Gas Lamps	Parish Council	F. C. Wilson, 153, Upper Dale-road, Derby.
FURNITURE—			
Jan. 4	1899. London, S.W.—Hospital Furniture	Metropolitan Asylums Board	T. D. Mann, Norfolk House, Norfolk street, W.C.
No date.	Barrow-in-Furness—Desks, &c.	School Board	W. Hutchinson, Clerk, Town Hall, Barrow-in-Furness.
IRON AND STEEL—			
Dec. 30	1898. London, E.C.—Railway Stores	Burma Railway's Co. Ltd.	Company's Offices, 76, Gresham House, Old Broad-st., E.C.
" 31	Dundee—Cast-iron Pipes	Water Commissioners	G. Baxter, 93, Commercial-street, Dundee.
" 31	Ramsgate—Supply of Iron Pipes	Gas and Water Departments	W. A. Valon, Engineer, Ramsgate.
" 31	Warrington—Stores	Gas Committee	W. S. Haddock, Committee's Offices, Warrington.
Jan. 4	1899. Christiania, Norway—Goods Trucks	State Railways Commission	Commercial Department, Foreign Office, S.W.
" 7	Carmarthen—Cast-Iron Pipes	Corporation	F. J. Finglah, Borough Surveyor, Carmarthen.
" 9	Malden, Essex—Cast-Iron Water Mains	Rural District Council	H. G. Keywood, Engineer, Malden.
ROADS—			
Dec. 30	1898. Durham—Roadmaking	Highway Committee	G. Gregson, District Surveyor, Weston-hill, Durham.
" 30	Elgin—Supply of Road Metal	"	A. Hogg, 24, Academy-street, Elgin.
" 31	Folkestone—York Stone	Corporation	Surveyor, Dover-road, Folkestone.
" 31	London—Supply of Materials, &c.	St. George's, Hanover-square, Vestry	G. Livingstone, 1, Pimlico-road, S.W.
" 31	Horsham—Supply of Flints, Granite, &c.	W. Sussex Roads & Bridges Committee	W. B. Purser, 31, Bedford-road, Horsham.
Jan. 2	1899. London, W.—Tipping Vans	Paddington Vestry	F. Dethridge, Clerk, Vestry Hall, Harrow-road, W.
" 2	Bootle, Lancs.—Improvement Works	Corporation	Borough Engineer, Town Hall, Bootle.
" 2	London, E.—Street Works	Limehouse Board of Works	S. G. Ratcliff, Clerk, White Horse-st., Commercial-road, E.
" 2	New Malden—Tar Paving	Urban District Council	T. V. H. Davison, C.E., New Malden.
" 3	Wimbledon—Making-up Road	Urban District Council	Surveyor's Office, The Broadway, Wimbledon.
" 4	Handsworth, Staffs.—Making-up road	Urban District Council	E. Kenworthy, Engineer, Council House, Handsworth.
" 4	Hove, Sussex—Roadmaking	Corporation	H. H. Scott, Borough Surveyor, Town Hall, Hove.
" 4	Middleton, Lancs.—Street Works	Urban District Council	W. Wellburn, Borough Surveyor, Town Hall, Middleton.
" 6	Litherland, Yorks.—Passages	Urban District Council	W. B. Gart, 25, Sefton-road, Litherland.
" 7	Wanstead—Making-up Roads	Urban District Council	Surveyor, Council Offices, Wanstead, N.E.
" 7	Surbiton—Making-up	Urban District Corporation	S. Mather, Council's Office, Victoria-road, Surbiton.
" 9	Southampton—Street Works	Corporation	W. B. G. Bennett, Borough Engineer, Southampton.
" 9	Wolverhampton—Road Works	Streets Committee	J. W. Bradley, Engineer, Town Hall, Wolverhampton.
No date.	Bradford—Completion of Streets	"	G. Bell, Estate Agent, Doncaster.
"	Elgin—Repairing Roads	"	Grigor and Young, Elgin.
SANITARY—			
Dec. 31	1898. London, S.E.—Drainage Work	Worshipful Company of Watermen, &c.	L. Jacob, 423, New Cross-road, S.E.
" 31	Malden, Surrey—Redraining, &c., Houses	"	— Wheeler, Motpur Park, Malden, Surrey.
Jan. 1	1899. Taunton—Construction of Sewer	Town Council	J. H. Smith, Borough Surveyor, Taunton.
Jan. 2	Eastbourne—Relaying Sewer	Highways and Drainage Committee	R. M. Gloyne, Borough Engineer, Town Hall, Eastbourne.
Jan. 3	Epping—Iron and Stoneware Pipe Sewers	Urban District Council	W. Smith, 41, Parliament-street, S.W.
" 26	Glasgow—Outfall Sewer	Corporation	City Engineer, 64, Cochran-street, Glasgow.
" 31	Melton—Rearranging Drainage	Suffolk County Asylum	A. T. Cobbold, County Hall, Ipswich.
No date.	Dalston, Cumberland—Relaying Sewer	Carlisle Rural District Council	G. Armstrong, 24, Bank-street, Carlisle.

COMPETITIONS.

DATE DESIGNS TO BE SENT IN.	DESIGNS REQUIRED.	AMOUNT OF PREMIUM.	BY WHOM ADVERTISED.
1899.			
Jan. 1	Hull—Public Library	£50, £30, £20	Public Libraries Committee.
" 2	Harrogate—Pump Room, &c.	£50, £30, £20	Corporation of Harrogate.
" 2	Harrogate—Alterations to Old Pump Room	£30, £20, £10	Samuel Stead, Boro' Surveyor, Municipal Offices, Harrogate.
" 2	Bradford—Fire Brigade Station	£100, £50, £30	Corporation of Bradford.
Feb. 1	Burnley—Higher Grade School, &c.	"	Burnley School Board, Ormerod-road, Burnley.
" 10	Bradford—Central Fire Brigade Station	£100, £50, £30	City Surveyor.
" 28	Dartford—Three New Schools	£31 10s., £10 10s.	Dartford School Board, Kent.
" 28	Knutsford—Laying-out Cemetery, &c.	£20, £10	W. J. Downes, Surveyor, Urban District Council, Knutsford.
No date.	London, S.W.—Covered Sanitary Dust-cart	£25	Clerk, London County Council, Spring Gardens, S.W.
	Charlbury, Oxon—Design for Fountain	"	The Vicar, Charlbury, Oxon.

Property and Land Sales.

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month throughout the year, at the MART, Tokenhouse-
yard, E.C. Remaining date for 1898 :—
December 15th.

The following are the appointments fixed for 1899 :—

January 5th	May 4th	September 7th
January 19th	May 18th	September 21st
February 2nd	June 1st	October 5th
February 16th	June 15th	October 19th
March 2nd	July 6th	November 2nd
March 16th	July 20th	November 16th
April 6th	August 3rd	December 7th
April 20th	August 17th	December 21st

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Brighton road of 2000ft., and perfectly ripe for develop-
ment, with residences of a good class. Prettily timbered.
Gas and water mains along the frontage. Would be
divided.

Plans and full particulars of the owner's agents,
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London, S.W.; or Mr. W. M. LEACH, Auctioneer and
Estate Agent, Crawley, Sussex.

FAIRMILE PARK, near Cobham, Surrey.—A FREE-
HOLD BUILDING ESTATE of about 40 acres, with
possession.

MESSRS. DRIVER and CO. have received
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Tokenhouse-yard, Lothbury, NEXT SPRING (unless
previously sold by private contract), the above property,
situate in a favourite residential district, about a
quarter of an hour's walk from the Oxshott and Fair-
mile Station, and about a mile and a half from Cobham
Station. The estate comprises Building Land, ripe for
development, the higher portion (sloping to the south)
possessing charming views over the intervening country
to Epsom Downs; and a Residence known as "South
Godge," with stabling and garden; Eight small Villas,
some Cottages, and the "Griffin" Beerhouse. On a
portion of the estate brickearth is being worked, and
will be included in the sale as a "going concern."

Particulars and plans, when ready, can be obtained of
CHARLES JUPP, Esq., Solicitor, 48, Lime-street, E.C.;
and of Messrs. DRIVER and Co., 23, Pall Mall, S.W.

By order of Trustees.—Preliminary Advertisement.—
Freehold Building Estate, Streatham, near West
Norwood Railway Station.

MESSRS. FIELD and SONS, and Messrs.
WALFORD and WILSHIN, who are jointly
concerned, will SELL by AUCTION, at the MART, at
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ESTATE, known as High View Park, comprising 16a.
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approach from Leigham Court-road; also a contiguous
Freehold Building Site of 2a. and 5p. in a new road
intended to connect Canterbury-grove with Thurlby-
road.

Particulars and plan, in due course, of Messrs. KINGS-
ORD, DORMAN, and Co., Solicitors, 23, Essex-street,
trading; of Messrs. WALFORD and WILSHIN, Auc-
tioneers, Ankerly, S.E.; and of Messrs. FIELD and SONS,
s above.

By order of the Executors of Miss Susanna Roycroft.—
Camberwell.—Leasehold Ground Rents.

MESSRS. FIELD and SONS will SELL by
AUCTION, at the MART, on WEDNESDAY,
JANUARY 18th, at TWO o'clock, in two lots, improved
LEASEHOLD GROUND RENTS, amounting to £45
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lots and six dwelling-houses, being Nos. 202, 204, and
206, Camberwell-road, and Nos. 34, 36, 38, 40, 42, and 44,
Aldison-street, adjacent, of the rack rental value of
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Particulars of G. ASTELL HALL, Esq., Solicitor, 8,
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MESSRS. FIELD and SONS will SELL by
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The TRAMWAYS COMMITTEE of the Manchester
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Salary £200 per annum.

The Committee also require a TEMPORARY
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Applications, stating age, qualifications, and enclosing
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Chairman of the Tramways Committee, Town Hall,
Manchester, endorsed "Engineer" or "Engineering
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DAY, the 31st December, 1898.

WM. HENRY TALBOT,
Town Hall, Manchester, Town Clerk.
16th December, 1898.

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An Architectural Causerie.

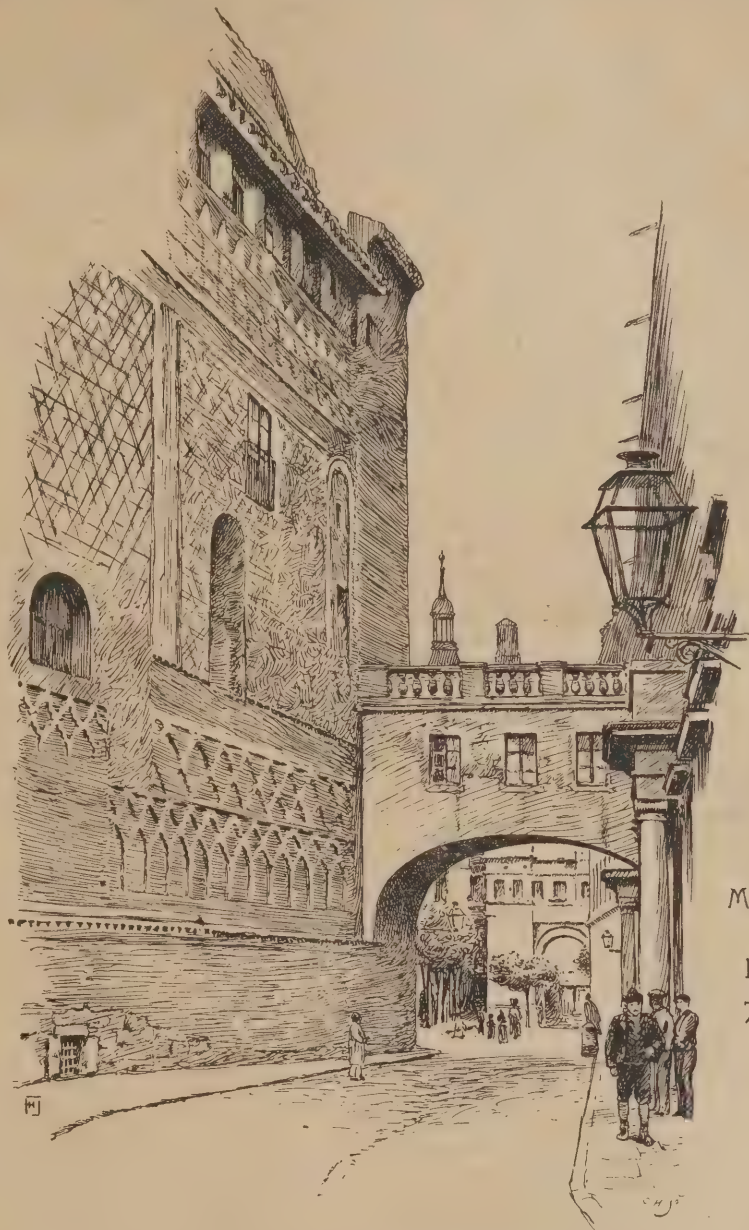
An Artistic Atmosphere.

WAS it not Schumann who, in his advice to young musicians, forbids them to

play bad music or even to listen to it? This by way of preserving intact what an esteemed contemporary once called—in a moment of inspiration—"the higher taste and fancy." This advice may be all very well for the musician, he may find it possible to carry it out. Nobody asks him to produce bad music, and nobody, but the organ grinder, asks him to listen to it. The door is always open to him to leave the room, or, as a last resource, he may stop his ears. As for his productions, good or bad, the world *could* roll on without them. The penny steamboats would still ply on the Thames—at intervals—and Parliament would meet again as usual. There is no more excuse for the musician than there is for the poet to produce aught but the best. But with the architect it is different. The world must have buildings, and so he must produce something—good if possible, but still he must produce. Parliament could not meet without a Parliament House. There is therefore some excuse for him if he produces the bad, or, at any rate, the mediocre. The spirit of genius cannot be for ever whispering in his ear. Haply she is truant at times—to inspire the courtly lays of the Poet Laureate, or the *obiter dicta* of metropolitan magistrates. But daily the mill grinds on; warehouses will not wait; ground rents are being paid, and the speculator hungers for his profits. The citizens increase, and they must be housed; old buildings decay, and they must be renewed—whether the architect be inspired or not. The streets of London bear witness that generally he is not. For if we thus turn out, day by day, our allotted tale of bricks and mortar, driven by the whip of the taskmaster, with one longing eye on the Promised Land—the echoing slopes of Parnassus, the flower enamelled meadows where Apollo sings—and the other gloomily fixed on the date for signing the contract, what chance have we? and what profit have our comrades? We force them to go about the streets in blinkers, or tap the pavement with a stick, in the interests of "the higher taste and fancy." The artistic temperament is sensitive and impossible; perhaps we never realise the precise effect the sordid appearance of our streets must have on anyone cursed with such a system of construction, or how far the mediocrity of the fathers is visited on the children. A certain groove fallen into; a certain atmosphere created; into this we all are born, and in this we live and breathe and work. There is little doubt that the lack of a clear and bracing artistic atmosphere will account, in a great measure, for much that is commonplace. The mental atmosphere in which London architects live is as depressing as the natural atmosphere, and has the same insidious effect, in a general lowering of tone. Is it not Ruskin who says that there is that in the streets of a town that "bricks up to death men's imagination, as

sure as ever perished forsworn nun." Hand and eye, heart and brain alike, grow inured to the commonplace; and how to avoid it is the puzzle. We cannot shut our eyes whenever we see a bad building, or when should we get a chance to open them? and some of us cannot even refrain from producing bad buildings ourselves, however much against our will. The world will have buildings; good or bad, it will have them, and it always wants them at once. A. R. J.

importance and interest of their subject, and to have concerned themselves more with a record and description of buildings than with the spirit which gave them birth. What seems to be still needed, is a broad and comprehensive review of the march of human progress in this direction. A treatise that should deal, not so much with the details of actual buildings, as with the physical and spiritual wants that called these buildings forth, and the skill that rendered them pos-



Moorish Wall
La Seo
Zaragoza

SKETCHED BY F. HAMILTON JACKSON.

European Architecture.*

It is no disparagement to the labours of many distinguished men to say that the ideal history of Architecture has yet to be written. It is a truism to remark that the history of Architecture is the most certain record of the progress of humanity. They, therefore, who would attempt this record, engage in an undertaking to which is attached a peculiar dignity and responsibility. They write the history of the growth of the human spirit, as traced in its noblest manifestations. With the exception of Viollet-le-Duc, most historical writers seem hardly to have realised the full

sible; that should demonstrate how the same reasoning power, whether applied at the Acropolis of Athens or the Isle of France, tends to produce its effect according to the materials upon which it acts, and so, in different circumstances, produces different results. Of this latest history before us, it cannot be said that it throws any new light on the working of the human mind. If it has any special feature, any unusual justification for its existence, it is that it is written by an American, partly with the idea of providing for those American students who cannot visit Europe, a help in the interpretation of their photographs and plans. To write a history of Architecture two things are indispensable,—an exact knowledge of facts, and a complete understanding—a firm grasp—of the nature of Architecture and its fundamental principles. On this last point, many of us would be inclined to join issue

* "European Architecture: A Historical Study." By Russell Sturgis, A.M., Ph.D., F.A.I.A. Macmillan and Co. Ltd.

with the author from the very first definition of Architecture in his introduction, where he states that "Architecture is what is known as a decorative art, that is, it consists in applying fine art to certain objects of utility—in this case to buildings." Would it not be more precise, to say that Architecture is a *constructive art*—the art of building? Again, the author sometimes appears to lose his grip of first principles, as for instance, when discussing Palladian work, he observes: "The fronts of churches such as S. Francesco della Vigna are criticised in the very guide books, as not agreeing with the interior; but this, after all, is a small fault, as the chief lighting of the interior is easily provided, and the building is a simple hall which any front may be thought to suit; it is a common fault, too, and all Italy joined with Palladio in building its church fronts as it pleased." But is this after all a small fault? and will any front suit a simple hall? and because the fault is common, is not this the greater reason it should be condemned? It seems to us that, if a history such as this is to be of any real value to students—beyond providing them with a pleasantly-written catalogue of names, dates, and details—it must keep a firm hold of principles, and discriminate between those buildings which embody them and those which do not; between those which are the work of skilful and accomplished architects, handing down principles and traditions, and those which are contemporary imitations and adaptations by comparatively ignorant men. For, in all ages, architects have been few and builders many. And for the illustrations of such a history, should they not be selected as typical examples of the various styles, rather than as isolated and abnormal instances? for the abnormal may interest, but the normal teaches. And should they not, where possible, be complete monuments, or sufficiently complete for us to tell what the original idea was, what the designer thought and felt, how he looked at things? for this is what we want to know. On page 221 is a reproduction from Viollet-le-Duc—a study of what a church of the character of Reims Cathedral would have been had it been completed according to the original conception. Does not this show us, at a glance, more of the men of that day, and their ideas and aspirations, than drawings of a dozen mutilated or unfinished examples, which are often a puzzle to the keenest minds? And while the author was by way of borrowing from Viollet-le-Duc, how many wonderful drawings might he not have found in the "Lectures," or "The Habitations of Man," such as the typical Venetian palace in the latter. As it is, the illustrations, both with regard to their selection and to their merits as drawings, leave much to be desired. There certainly are nine photographs, which, for beauty of subject, or of reproduction, could not easily be surpassed, and the drawings from Viollet-le-Duc would lend distinction to any book; but what can be said for the drawings of S. Sebaldus at Nuremberg, or S. Katherine at Oppenheim, from Foerster? or of many others which seem to have been prepared for this volume? Considering how many first-rate black-and-white draughtsmen America can boast of, it seems strange that these drawings should be so poor.

THE French Minister of Public Instruction has just presented to the trustees of the British Museum a cast of a bronze statue of a young charioteer, the original of which was recently unearthed by French archaeologists on the site of Delphi. The owner of the chariot can be identified by an inscription of two verses which has survived along with the statue, as Hieron, King of Syracuse, a frequent competitor at the Pythian and Olympic games, and the patron of Pindar and Bacchylides.

ON REFLECTION.

When Doctors Disagree.

ACCORDING to a late telegram, Dr. Baccelli, Minister of Public Instruction, has ordered the immediate evacuation of the three halls in the Doge's Palace, which, if the apprehended collapse of the structure should occur, would be the first portion of the building to suffer. The whole library of St. Mark's will then be removed into the rooms of the Zecca. This seems to show that the reported sinking of the structure adjacent to the Bridge of Sighs, and the yielding of the timbers supporting the floor of the library of St. Mark, is of a serious nature; although the architects of the Palace, and Signor Berchet, and Signor Rosso, respectively the director and architect of the district committee, state that the apprehensions entertained on the subject are of an unduly exaggerated character, that the alleged subsidence in the walls of the palace near the Bridge of Sighs does not exist, and that a slight movement of the wall is due only to the oxidation of the metal clamps and threatens no immediate danger. These gentlemen also deny that the floor of the library is in a dangerous condition; the decayed portions, they say, are being gradually renewed, and no stringent measures are necessary. Other distinguished Venetian architects, however, agree with the Report of the Council of Fine Arts, which first advertised the condition of the building, and the fact that it was necessary to shore up the floor of library three years ago, that parts of the ceiling of the Sala del Maggior Consiglio has fallen, and the settlement of the wall near the canal has broken the capitals of the pillars, would indicate that the building is in a bad state of decay. The action of the Minister of Public Instruction is no doubt authorised by the report of Signor Boito, the Milan architect who was appointed by the Government to report on the state of the building.

"The Church-going Bell."

WE are glad to notice that owing no doubt to the prolonged twilight of the 1898 silly season, incidental to the long Parliamentary vacation, the nuisance of London church bells has been exploited along with such old favourites as London Smoke, the District Railway, and Street Noises. We think that the poet who discredited the charms of solitude and bemoaned the immunity of the lonely valley and hill-side from the sound of "the church-going bell," can never have lived, laboured, or spent his Sundays in one of our cities or large provincial towns. Apart from the sentiments of tradition, there is a useful purpose served by the bells hung in the towers of our country churches; but the sentiment of a church bell pales very considerably when brought into close association with omnibuses and electric light and the clashing of those of numerous diverse sects and creeds. Besides this, the continuous clangour throughout Sundays and holy days is a great nuisance and distress to a large section of the community, more especially since the majority of these bells are cheap makeshifts which lack those essential qualities of timbre and calibre which gives dignity and a certain beauty to church bells. Modern bells are often, like many other modern things, but the crudest counterfeits and shams of what they assume to be. Often they are not bells at all, but steel tubes or rods, and when the form of the true bell is retained, they are commonly made of base metal, and are struck with a hammer because the building in which they hang will not allow of them being swung. When this arrangement is adopted the bells are rung by a mechanical contrivance that insures a rigorous accuracy in the stroke and rhythm—

and thus we are inflicted with bells from which every graceful and beautiful attribute has been stripped. Unfortunately it is not only in the smaller and less conspicuous churches that these sorry makeshifts are existent. Holy Trinity, Chelsea, is one of those churches which has been fitted with steel tubes struck with hammers, administered it would seem by clockwork. The din can be justly described by no other term than "infernal," and must certainly prejudice the value of the house property lying at that end of Sloane Street. Sorry makeshifts such as these, which exist not on their own merits but only because they assume to be something which we have learned to respect, are ill-fitted for any dignified use; and when connected with a place of worship, speak ill for the public ideals.

A Neurotic Age.

COMPLAINTS have been urged in particular, however, not so much against the "Church-going Bell" as that which may by a similar license be described as the Lunatic Asylum-going Bell. This bell has a weakness for playing tunes at unreasonable times, and is in particular addicted to telling the parish at length every three hours that "there's nae luck about the hoose." It then wakes folk up at three and six o'clock in the morning with four separate "cat-calls," and stammers out again that "there's nae luck about the hoose," a fact which, in the circumstances, it is a fatuity to insist upon. The Church of St. Clement Danes first drew forth the anathemas of lawyers living in the Inns, and now St. James' in Bermondsey is calling forth wide abuse. This church is distinguished with a "Diamond Jubilee set of chimes," and is so puffed out and flustered with self-consequence that it has fallen to the expedient of playing two tunes at once. This fact is guaranteed. At three o'clock in the morning "God save the Queen" and the "Old Hundredth" can be heard to fight it out, note by note, in the church tower. Contests between other rival tunes have also been noted. This public intolerance is characteristic of the present order of existence. The stress and strain of modern life will not brook distractions which were held to decorate and brighten the days of our grandfathers.

Improvements in Dublin.

LORD IVEAGH'S munificent gift of a quarter of a million towards the endowment of scientific research at the Jenner Institute, recalls his gift to Dublin of workmen's dwellings, recreation buildings and park, the scheme for which has just reached the stage of being set out in a Parliamentary Bill. The district involved in this handsome scheme of improvements is that lying about St. Patrick's Cathedral. The locality has long had an infamous reputation—even in Dublin—for its filth, ramshackle tenements, and abominable sanitation. The cathedral and the deanery, with its high enclosing wall, have been hitherto approachable only through foul and filthy by-streets, and are beset close on two sides by loathly slums. Perhaps in no city out of Ireland would this state of things be allowed to exist with the complacent satisfaction of the inhabitants; and even now we see that it is by private enterprise and munificence, and by no act of the Municipal Corporation, that the cleansing of this portion of the city is to be entered upon. Some time ago the authorities were compelled to demolish many of the old houses in this district, some of which fell, and there has long existed an unsightly tract surrounded by a high hoarding. Part of the ground to be presented to the city will be laid out in gardens; and the rest will be allocated to the widening of the streets abutting on the site, and to the erection of the buildings above mentioned.



Bridge over the Ebro
Zaragoza

DRAWN BY F. HAMILTON JACKSON.

SPAIN:

Its Picturesque Cities and Monasteries.

VI.—ZARAGOZA.

By F. HAMILTON JACKSON, R.B.A.

(Continued from page 197.)

ZARAGOZA may be easily reached by rail from Madrid, or from Barcelona, either by way of Lérida or Caspé. The lines run through scenery of the finest kind whichever route may be selected, though the Lérida line is the least interesting in spite of its passing close to Montserrat, owing to the large extent of barren country through which it runs. Near Zaragoza the country is rather flat, and for some distance outside Madrid it is featureless, but after passing Alcalá de Henares, the railway runs up the Henares valley and the landscape begins to be attractive. The name, Alcalá de Henares, means the Castle of the River—the Arabic “El Nahr,” meaning “river”—and from the railway the town presents an appearance of some importance, being girdled with towered walls, above which rise conical roofs and church towers. Formerly, there was a great and celebrated university here, now removed to Madrid. The place is also notable as having been the birth-place of Cervantes. The valley goes on gradually rising and narrowing, and the railway follows the course of the river, in the main, past the cities of Guadalajara (the river of stones, “Wada-l-ha-Jarah,” a most descriptive name), and Sigüenza (which presents an imposing appearance with its cathedral façade, and at the top of the town, the archbishop’s palace or alcazar), and many smaller places picturesquely situated and built, of which the curves of the line give travellers varying successive views. At the head of the valley the summit of the mountain range is pierced by a rather long tunnel, and then the line runs down the gorge of the river Jalon, crossing the frontier of Castile and Aragon between Huerta and Ariza. In this gorge, one looks

down on road and torrent passing together under the shade of abrupt precipices, which are hidden with greenery at their base, or through a rift into another tributary valley, the slopes of which sweep up to the sky, except for the crowning precipice—coloured of every warm earthy tint, contrasted with vivid green near the water. It is almost extravaganza-like, towns stand on isolated peaks of rock, round about which the line winds, giving many different views of the same place, while at the bottom of the valley the river rushes or lingers in pools, and the vineyards and orchards are only less green than the grassy meadows and cornfields. Above all stand mountain masses of fantastic shapes, often plunging down to the valley by precipitous descents, or rising to peaks which seem almost as if cut by the sweep of a sword, such as those blades of “ice-brook temper,” which used to be made at Calatayud, and plunged when hissing-hot in the icy waters of this river.

At Bubierca the scenery is particularly striking, the line tunnelling through small spurs of the mountain and passing beneath houses and churches with porches of Italian character, giving sudden glimpses of landscape, and odd views of village streets and mountain sides on issuing from the darkness of the tunnels.

If Zaragoza be approached towards sunset, the traveller may have the luck to see the sun throw a marvellous glow across the wide champaign to the distant mountains. The houses then flash out like jewels from the richly coloured plain, clouds and landscape mingling in one revel of colour of truly tropical splendour.

If the traveller start from Barcelona and travel by way of Caspé, at first the line runs through the rich lowlands near the sea, but after passing Reus begins to rise rapidly to pierce the mountain range which turns the Ebro southward from Mora. The scenery is very fine, the shapes of the hill crests magnificent, and the varying views of them up different valleys given by the curving of the line make the journey interesting. Just before entering the mountain gorges a fine panoramic view of the seaboard, bounded by the blue Mediterranean, is to be noticed, and at Mora del Ebro an equally fine mountain panorama, the hills forming, as it were, an enormous amphi-

theatre around the station. After arriving at this place the line runs up the valley of the Ebro for a considerable distance, not far from the bank, but high enough above the water to give extended views both up and down the river, and the train sweeps round curve after curve of the hillside, giving constantly changing views of river, of scattered villages, and of the country rising to the hills on the further side, tilled and fertile. One may see from the carriage windows pomegranates, figs, vines, carob trees, olives, walnuts, and many sorts of beautiful flowering plants, beside grain crops of different kinds, and quaint water wheels and other contrivances for irrigation. After the line leaves the Ebro Valley it runs through a barren land for a time, where the names of many of the stations are Moorish, such as La Zaida, but it returns towards the river some time before the towers of Zaragoza are seen in the distance.

Zaragoza is the capital of Aragon, and is a city of the greatest antiquity, dating from Celtiberian times. In the year 25 B.C. Augustus became its benefactor, and it was called *Cæsarea Augusta* in honour of him, a title of which the present name is a corruption. It was captured by the Moors in the eighth century, and was recovered from them in 1118 by Alonso El Batallador, after a siege of five years. It has two cathedrals, in each of which the Chapter resides alternately for six months; a curious arrangement, and one quite unique. The older of the two is called La Seo, “the seat” (the same idea as that expressed by “cathedral”), and it was used as a mosque during the Moorish occupation. On the outside are still some remains of decoration in the Moorish manner, arcading and interlacing patterns made of projecting bricks, with tiles and other pieces of decorative pottery inserted. The interior is a large oblong space with vaulted roof, supported by pillars at intervals, but not proportioned at all in the way our English cathedrals are. The high altar is in a little recess, and has above it a fine sculptured *retablo*, with rich Gothic canopies crowning the figure subjects, the whole surrounded by a rectangular frame, very richly and delicately carved. It was made in 1456. In front of it is the Gothic *Cimborio*, or lantern, which is octagonal. This was finished in 1520. The heart of Don Baltazar, the infante so often painted by Velasquez



NORTH DOOR, SAN PABLO, ZARAGOZA.

is deposited here; he died of smallpox in 1616. Ferdinand the Catholic was baptised in this cathedral. The *trascoro*, the back of the choir, is a fine work of Tudelilla in the plateresque style—it was executed in 1538. Around the choir runs a wide aisle, from which many chapels open, most of them shut in by *rejas*, or screens of good design, made of iron and a good deal gilded. At the right of the principal entrance is a largish chapel, which is used as a parish church. It has an *artesonado* ceiling, as those Moorish ceilings are called which are made in sunk geometric patterns coloured in blue, red, and gold. There is a fine fifteenth century organ, and the fittings of the choir are also of that period; in fact, there is very little work of an earlier date visible.

The other cathedral, Santa Maria del Pilar, is so called because it contains the jasper pillar on which the Virgin is said to have appeared to St. James in the year 40 A.D. He was bidden to raise a chapel on the spot, which he did, and the Virgin has since then frequently attended mass there—so the authorized legend says! It is a building of fine proportions, and seen from across the magnificent bridge over the Ebro (a work of 1437) the domes group splendidly. They are covered with glazed tiles, yellow, green, and white, which add a touch of colour and contrast to the bare walls. These walls, however, form an excellent background to the flower beds which are laid out in the plaza on the other side of the building, and in spring the aspect of that side is very pleasant, the bright colours of the flowers, and the children playing about between the beds in the sunshine giving accent and life to the scene, above which the sober, almost unornamented walls rise grey in the shadow. The church was a good deal modernised in 1753—

a great part being rebuilt, and the interior is cold and uninteresting. The *retablo* of the altar major is the masterpiece of Damian Forment, the Aragonese sculptor, and is a very fine piece of work, the figure subjects (which are taken from the history of the Virgin) being well grouped, while the whole composition is surrounded by a very rich border of scroll work and figures of the same shape as that at La Seo. The stalls in the choir are also earlier than the building, and there is a good organ in a fine case.

The "pillar" is housed within an oval chapel in the centre of the cathedral, behind the high altar, which is open on three sides and has a roof perforated with large oval openings, which is a fine piece of masonry. It is entirely constructed of precious marbles, and the *retablo* is much overcharged with statues and carving. At the right of the altar stands a figure of the Virgin dressed in most elaborate robes, upon the sacred pillar, to touch which, however, one has to go round behind, where there is a hole in the casing to enable the faithful to kiss it. The kisses of ages have worn a large dent, for the worshippers are fervent and are not contented with a single osculation. All around the shrine are hung votive tablets, models of eyes, noses, legs, &c., made of wax or silver.

The Church of Santiago, which has a fine Moorish-looking tower, contains a chapel said to mark the site where the apostle lodged when on his tour in Zaragoza. It also possesses his pilgrim staff, and a Gothic bell, which is of less doubtful authenticity. The Church of San Pablo, beyond the Mercado, is a very fine and impressive structure. It consists of a nave with aisles entirely surrounding it, and is lighted only by small windows high

up in the walls, so that the interior is very gloomy, and the figures of worshippers appear and disappear like shadows crossing the few places where the light is stronger, on their way to or from the altars, where in the gloom the twinkling tapers burn. The high altar is another work of Damian Forment's, and is of the same shape as the others already noticed. The tower of this church is fine; it is treated rather in a Moresque manner, something like the destroyed leaning tower which used to stand in the Plaza San Felipe, but more delicate.

Some of the houses of the old nobility and merchants are very fine, though rather over ornate. The most celebrated is that called Casa del Infante in the Calle de San Pedro, built in 1550 by Gabriel Zaporta. It has an entrance doorway with delicately worked pilasters and a beautiful iron balcony above, and the *patio* is most beautifully decorated with carved pillars, soffits and arches; figures are lavished all through the ornamentation, whether in medallion heads, caryatid torsos, or groups. The staircase is very delicate and beautiful, with a carved ceiling showing groups of musicians, and the arcading on the first floor is marked by the same qualities. After passing through many vicissitudes, and being used as workshops for various trades—the upstairs rooms being occupied as tenements—it is for sale, and will probably not exist much longer, being in a very bad state of repair. Other houses are noticeable, though not quite so much so; but all through the city the substantial style of building, the superbly carved soffits, rafters, and external cornices will strike the eye. The Coso is the principal street, and some of the most ornate and pretentious of the houses are to be found in it. There are many of them still pitted and riddled with shot marks, the honourable scars of memorable sieges.

The north-west gate, El Portillo, was the scene of the heroic deeds of the "Maid of Zaragoza." Outside it is the citadel, the Aljaferia, built originally by the Moorish king, Abu Giafar, and thence called Giafariya. It was assigned to the Inquisition by Ferdinand the Catholic, and in the French war was used as a barrack, then as a military hospital, and lastly was degraded into a prison. It has now been rebuilt, and is used as an arsenal and barracks, and consequently contains nothing worthy of notice save the remains of a little mosque, though the attendants take the unfortunate visitor with pride through wearisome rooms, containing interminable racks of guns, before allowing him to see what he wants to see.

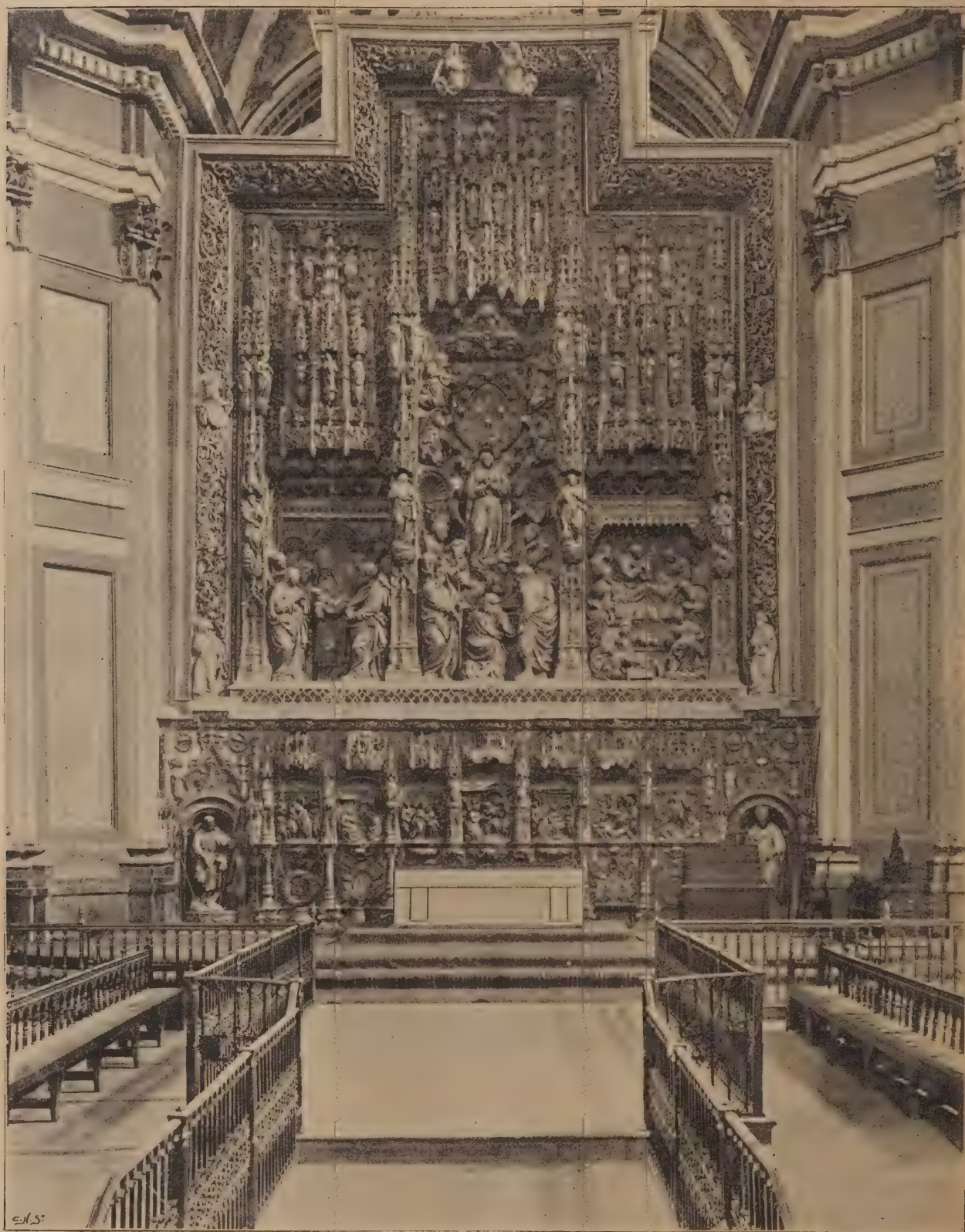
The market is filled with picturesquely costumed peasants, and with heaps of fruit and vegetables, making glowing combinations of colour, and such groups may also be seen at the fountains, though the national costumes are dying out even here in conservative Spain, and the universal Manchester print and galvanised iron pail threaten to drive picturesqueness from its last strongholds. One can still buy *botas*, the leather bottles which travellers sling at their sides and on the saddle peaks of their horses, and gourds grown for a similar purpose are also to be had.

The Zaragozans spend a great deal of their time in the open-air, and on *festas* make little excursions to certain *fondas*, or inns, some distance without the walls, where they enjoy themselves with eating and drinking and dancing. Those who visit the town towards the end of June may see them thus employed on the two festivals of St. John Baptist and St. Peter, which are specially observed.

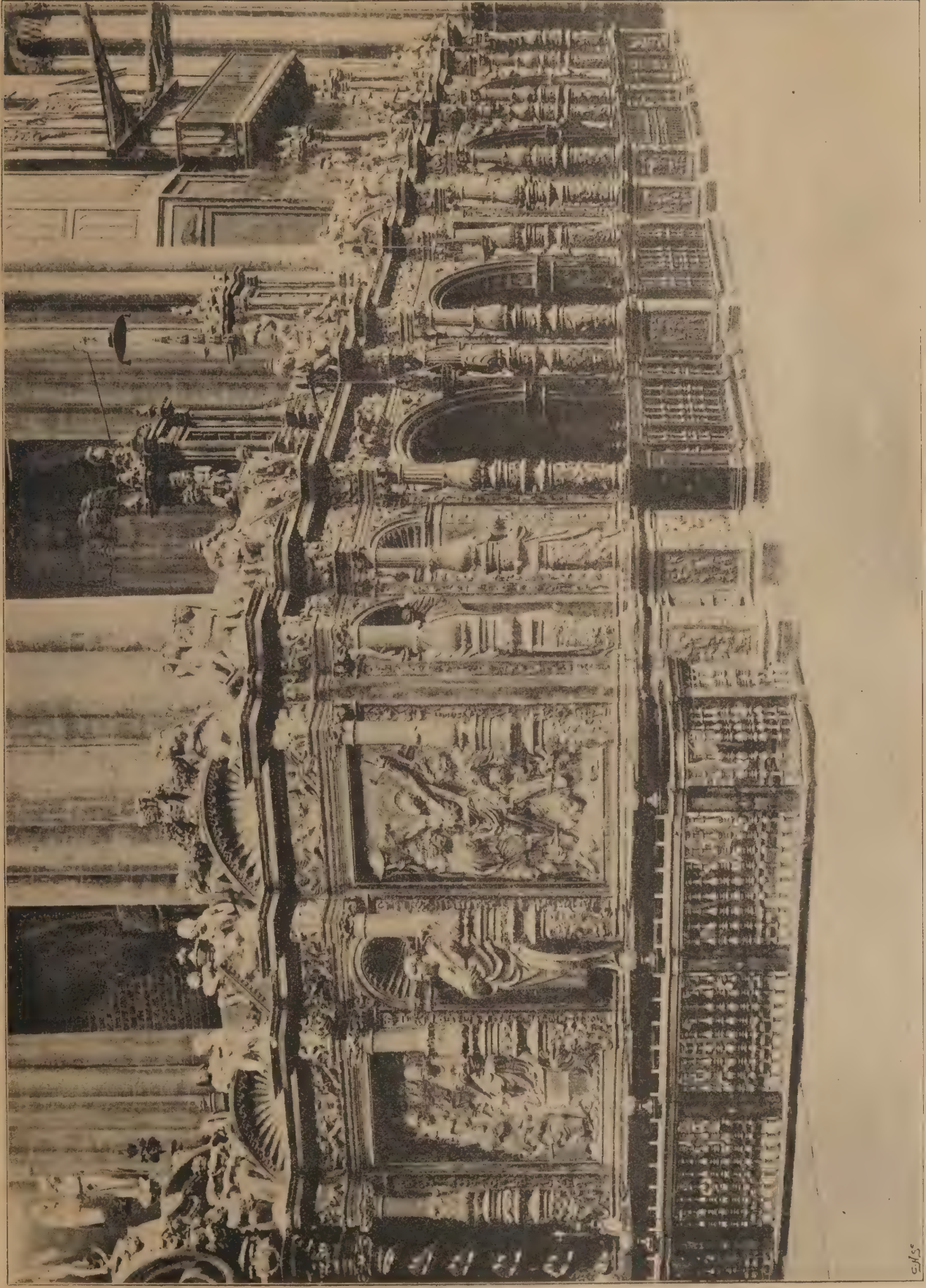
Mention of the Exchange or *La Lonja* must not be omitted. It faces La Seo, on the other side of the Plaza, which also has its beds of flowers, and is not far from the bridge. It was built in 1551, and it is a square brick building, with little turrets at the corners, and is ornamented with heads of kings and warriors let into circular frames in the manner of Holbein. The doors are studded with great nails and plaques of metal. The interior contains Doric columns and a fine staircase and ceilings. Needless to say it is not now used as an exchange.

Under Saracen dominion Zaragoza was at first a seat of provincial government, and afterwards the capital of an independent

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SANTA MARIA DEL PILAR, ZARAGOZA.

DRAWN BY F. HAMILTON JACKSON.



TOWERS OF SAN FELIPE AND LA SEO, ZARAGOZA.

kingdom. Here, as elsewhere, the Moor applied himself to agriculture, and the Ebro became known as the "River of Fruits," from the orchards through which it ran. The climate was so dry that provisions did not decay; and grain of all kinds could be preserved for an indefinite time.

The Sultans and Walids entertained philosophers and poets at their courts, though science was never pursued by them with the enthusiastic ardour of the Khalifs of Cordova and the princes of Toledo, who devoted consecutive days and nights to the solution of its fascinating problems. As the capital of Aragon, a kingdom gained foot by foot from the infidel, and whose inhabitants have never ceased to manifest the greatest jealousy of any infringement of their time-honoured liberties, Zaragoza has always exerted a more weighty influence in matters political than any other city of its size in Spain.

The forms of a constitution were observed in Aragon from the most ancient times, the royal authority being so abridged and curbed by restrictions as to make the power of the Sovereign merely nominal. The crown was elective, and the oath of allegiance taken by the nobles commenced with the phrase "We, your equals." The courts of justice were open to all; if the plaintiff were too poor to prosecute his suit, the Government was bound to furnish him the means, and provide him with counsel. Liberty of the individual was protected by a proceeding something like *habeas corpus*. Judges held office for life, and, while they performed other than judicial functions, were held strictly responsible for the proper discharge of all their duties, any lapse in which was punishable by death. The integrity of the magistrates was further secured by a council of inquiry, composed of the chief dignitaries of the realm, and presided over by the monarch, which assembled once a year to examine into any complaints made against them. The "General Privilege" of the kingdom of Aragon, which corresponded to our Magna Charta, antedated it by twenty-three years.

THE County Hospital, Bedford, is being warmed and ventilated throughout by means of Shorlands' patent double-fronted Manchester stoves with descending smoke flues, which have been supplied by Messrs. E. H. Shorland and Brother, of Manchester.

R. A.

LIST OF PRIZE-WINNERS.

SIR E. J. POYNTER, P.R.A., awarded the prizes gained by students of the Royal Academy Schools. The awards were as follows:—Landscape painting, A Bridge over a Trout Stream, Creswick prize (£30): Fred Appleyard. Painting of a figure from the life (open to male students only), silver medal: first, George Murray; second, Edward Francis Wells. Painting of a head from the life, silver medal: first, Mary Towgood; second, Fred Appleyard. Painting of a draped figure (open to female students only), silver medal: first, Grace Elizabeth Page; second, not awarded. Cartoon of a draped figure, Calliope, silver medal and prize (£25), George Murray. Design in monochrome for a figure picture, Joseph presenting his Father before Pharaoh—Gen. xlvii, 7, Armitage prizes: first (£30) and bronze medal, not awarded; second (£10), Frank Cadogan Cowper. Design for the decoration of a portion of a public building, Harvest prize (£40), George Murray. Set of six drawings of a figure from the life (open to male students only): first prize (£50) and silver medal, George Murray; second (£25), Frank Shelley; third (£15), Christopher David Williams; fourth (£10), not awarded. Drawing of a head from the life, silver medal: first, William Denis Eden; second, Annie Margaret Page. Drawing of a statue or group, silver medal: first, Fred Appleyard; second, Annie Margaret Page. Perspective drawing in outline (open to painters and sculptors only) the Summer House in Kensington Gardens, near the Fountains, silver medal, no competition. Model of a design, Endymion whilst asleep, is visited by Diana: first prize (£30), Stanley Nicholson Babb; second (£10); Alfred Bertram Pegram (disqualified, owing to having received the same prize before). Set of three models of a figure from the life (open to male students only): first prize (£50) and silver medal, Gilbert William Bayes; second, (£20), Alfred Bertram Pegram (disqualified, owing to having received the same prize before). Model of a bust from the life (open to female students only), silver medal: first, not awarded; second, Winifred Florence Hunt. Model of a design containing figure and ornament, Youths gathering Grapes, silver medal, Stanley Nicholson

Babb. Model of a statue or group, silver medal: first, Frank Arnold Wright; second, Stanley Nicholson Babb. Design in Architecture, A Town Church, travelling studentship (£60), William Hawke. Set of architectural drawings, The Hall of the Middle Temple, silver medal: first, no competition; second, no competition. Set of architectural designs (upper school), prize (£25), John Stevens Lee. Set of drawings of an architectural design (lower school), prize (£10), Alfred Edward Corbett. Plan of a building, A Town Club House, prize (£10), Arthur Campbell Martin. Original composition in ornament, silver medal, no competition. Perspective drawing in outline (open to architects only), The Interior View of the Library at Lambeth Palace; silver medal, no competition. The Landseer scholarships, in painting, of £40 a year, tenable for two years, have been awarded to Frank Shelley, Arthur G. Ackermann, and Christopher D. Williams (extra). In sculpture, to Gilbert W. Bayes and Mortimer J. Brown (extra).

THERE has just been completed, at the suggestion of Her Majesty's Government, a survey of the harbour at Famagusta, on the east coast of Cyprus.

A PORTRAIT of the late Alderman Emanuel Whittaker, one of late Mayors of the borough of Oldham, and the head of one of the oldest firms of builders in the district, has been presented to the Oldham Corporation for their permanent collection. The portrait is the work of Mr. Sam Stones, of Ashton.

THE Salvation Army Building Association, which went into liquidation, has made arrangements under which all the shareholders will receive back the full amount of their shares, together with a small dividend. A final instalment of 15s. per £1 share will shortly be paid to the shareholders.

WE have received the constitution rules of the Employers' Parliamentary Council (representing the employers' associations of the United Kingdom), the president of which is the Earl of Wemyss. The main objects of the Council are explained by Rule 6, which says: "The Parliamentary Council shall draft, sign, and present to Parliament petitions in favour of or against any Bills in respect of which action is taken by the Council." We wish the Council every success.

CONDITION OF THE DOGE'S PALACE, VENICE.

AFTER making a careful investigation, we now publish a report upon the true condition of the Doge's Palace, says the *Adriatico*. The subsidences are not all due to the enormous weight of the volumes composing the library of St. Mark, although they form a constant danger to the edifice. Subsidences have been observed in three of the principal parts of the building, and the wall, for some reason, is not in a position of stable equilibrium. In any case it is necessary to take measures for removing, if possible, all causes of subsidence. The points of movement are on the corner of the Ponte della Paglia, on that adjacent to the Ponte di Canonica, and on that by the Porta della Carta. We are unable at present to state the true causes of such movements, but it is ridiculous to attribute them to the oscillations mentioned by the architects of the District Committee. Other causes must exist, which must be discovered and removed at any cost. The movement at the corner by the Porta della Carta is apparent on the walls and arches, especially of the Sala della Scrutinio, which may possibly be due to the remains of the tower of the old Palace, which is said to have been built on a narrow foundation. At all events, cracks have continued to appear and to spread. The greatest vigilance is required, and they should not be neglected. On the corner overlooking the Ponte di Canonica, a more noticeable movement by cracks and displacements is visible, especially in the Sala del Senato and the Sala del Collegio (where the Doge and his Counsellors give audience to Ambassadors), and still more in the small church and ante-church, in which, in addition to cracks, the posts of the doors are out of position, so that some of the doors cannot be closed.

A VERY WEAK POINT

is that fronting the Canal, over the entrance by water, and here the cracks are, perhaps, of more importance. There is a break in the

Senators' Staircase, and here the movement is more evident. The steps are slightly separated from the walls, thus demonstrating that the lateral walls are not in a state of perfect stability. This movement tends towards the ground floor and the centre of the building. The column standing at the water entrance is not in a good position. The weight upon it is not uniformly distributed, and it shows cracks, which are constantly increasing. One of the reasons for this may be the abandonment, for seven or eight years, of the works commenced for testing the stability of the inner corner by the Ponte della Paglia. But the gravest reason is the great weight of the volumes of the library, which is increasing every day, owing to new books which are sent there. The props which now support the floor of the library were not erected to carry such a weight. Following the order of the Giunta della Belle Arti, we now come to the question of

WORM-EATEN WOODWORK.

After five centuries of filtration of water and damp, the heads of the beams at the junction with the walls in the Ducal Palace may be almost completely destroyed. Several beams were removed in such a state as to leave a great part of the upper floor supported solely by the cohesion of the cement of the flooring. Three halls of the library are now shored up, but merely as a precautionary measure. The beams in the Quarantia Cavile, one of the halls which appears to be most damaged, have been seriously bent. This curvature produces an effect different from that which is caused merely by the compression of walls supporting the beams. It was declared two years ago that some cracks appeared on the ceiling of the old Hall of Manuscripts, and, that ceiling having been demolished, the beams were found in a very good condition. But why, if they were good, were they changed? Where are the old beams? We know that not one of those beams could be used. The ceilings in several halls have

GIVEN WAY,

and the pieces have been lost. We have ascertained that many wood decorations fall

and are collected. This is not a proof that they are in a good state of preservation, and the fact of collecting and putting aside pieces without perhaps even knowing to what ceilings they belonged is not reassuring. We ourselves are persuaded that the ceilings will not fall either today or tomorrow, but it is not logical to wait for them to fall, or for some precious paintings to be damaged in order to adopt necessary measures. It is true that in one arch the metal clamp is wanting, because it is under repair; it is also true that the arch is shored up—but it is equally true that the arch has been in this condition for more than two years. With the Sala della Scudo, owing to movements and the presence of large iron bars, some capitals have been broken and portions of them have fallen down. The curvature of the wall occasions internal filtration of water, the consequence of which cannot be precisely ascertained, as they may not only damage the walls, but also spoil some paintings which could not be replaced. These facts seem to fully justify the action of the Junta of Fine Arts, which could not divide the responsibility falling upon it with the architects of the District Committee in Venice. So far the Adriatics. But the local authorities to some extent contradict these alarmist reports, which they state originated with two members of the Giunta della Belle Arti, who recently visited the palace (one being an architect and the other a painter). After a superficial examination of the building, and without communicating with the local authority responsible for the care of the palace, these gentlemen gave publicity to the alarming statements quoted above. It is satisfactory to learn, on the authority of Cavaliere Berchet, the Director of the local Department for the Preservation of Public Buildings, and Signor Rosso, the architect attached to the Department, that there is no ground for alarm with regard to the safety of the building, and that there is no necessity for any repair beyond what is already in hand. All that needs to be done is to remedy a slight settlement, a few broken lintels and arches, and the dilapidation of the carved work in the Marcian Library.



COURTYARD OF CASA DEL INFANTE, ZARAGOZA.

Bricks and Mortar.

EFFINGHAM HOUSE, ARUNDEL STREET,
January 4th, 1899.

"I know what it is to live in a cottage with a deal floor and roof, and a hearth of mica slats; and I know it to be in many respects healthier and happier than living between a Turkey carpet and a gilded ceiling, beside a steel grate and a polished fender. I do not say that such things have not their place and propriety; but I say this, emphatically, that the tenth part of the expense which is sacrificed in domestic vanities, if not absolutely and meaninglessly lost in domestic discomforts and incumbrances, would, if collectively offered and wisely employed, build a marble church for every town in England; such a church as it should be a joy and a blessing ever to pass near in our daily ways and walks, as it would bring the light into the eyes to see from afar, lifting its fair height above the purple crowd of humble roofs."—JOHN RUSKIN.

ONE of the most startling sensations of the year has been the merciless exposure of the management of the South Kensington Museum as a result of the inquiry into the methods of the Science and Art Department, held by the Select Committee appointed for the purpose. A great many serious mistakes in policy, and much carelessness of administration, were definitely condemned in the report, and a series of recommendations were made, which, if properly carried out, can scarcely fail to add greatly to the usefulness of the Museum. The report was a particularly full and exhaustive one, dealing at length with all sorts of details; and it was stated in terms sufficiently explicit to leave no doubt in the public mind as to the necessity for the changes suggested.

CONSIDERABLE interest is likely to be aroused by the rapidly-approaching completion of the Great Central Company's Metropolitan headquarters, off the Marylebone Road, as over a quarter of a century has now elapsed since St. Pancras, the last of London's great railway termini to be erected, was opened. Not only is Marylebone on a far more modest scale than the Midland Company's huge structure, but its plan entirely differs both from the latter's and those on which the Metropolitan termini of other railway companies have been arranged. The station itself is entered by an approach on the eastern side of the hotel, and consists of three clerestory roofs, in aggregate 155ft. broad, resting on columns and covering two island platforms and six sets of rails. Its modest proportions may, therefore, at once be guessed, for this arrangement provides only two departure and two arrival platforms. All the station buildings are of uniform pattern—namely, red brick, with terra-cotta dressings. The architectural design is simple; the frontage facing the hotel, from which it is separated by a broad roadway, might be that of an important country station; certainly it is totally different from that which one usually associates with a London terminus. The station will be supplied with both gas and the electric light, and for the latter eight dynamos are being installed on the premises. Immediately adjoining the station, and on the eastern side, in the triangle formed by Park Road, are located the horse-loading docks, the milk and fish platforms, and the carriage cleaning sheds, all in the order named. It will be seen, therefore, that the new terminus is compact enough, and that, unlike those of other companies, notably the Great Western and North-Western, trains of "empties" will not have to be sent out several miles in order to be prepared for their next trip. Everything, with the exception of the locomotive running sheds, situated at Neasden, is on the spot.

At last the Improvements Bill of the London County Council, embodying the scheme for a new street from Holborn to the Strand, has been deposited in the Private Bill Office. It

is proposed that the new street shall leave High Holborn opposite Southampton Row, and proceed southerly, intersecting Great Queen Street, Sardinia Street, Vere Street, and Stanhope Street. At this point it will bifurcate; the western branch will enter Catherine Street and the Strand close to Wellington Street, so as to form an approach to Waterloo Bridge, while the eastern branch will pass through New Inn to the Strand at St. Clement Danes Church. The main street and the two branches will all be 100ft. wide. It is proposed to widen the Strand for a considerable distance on the north side from St. Mary's Church, and to acquire the whole area bounded by the Strand and the two branch streets. The cost of the necessary property is estimated at £4,442,000, and the recoupment is expected to yield £4,088,300. The cost of works and of rehousing persons displaced is put at £420,000, making the total estimated net cost of the improvement £774,200.

At the prize distribution of the Chester School of Science and Art and Technical Schools, the Duke of Westminster, in emphasising the importance of architectural training, said how people could be content to live in villas with 9in. walls and bow windows facing north, with perhaps nothing to look at, was beyond him to be able to conceive. He feared that some of our descendants would never know what really Old England could show in the way of Architecture. In some of the older parts of the country—Hampshire and Wiltshire—there were to be seen very simple and beautiful buildings that had stood the test of time, but were now getting old, and perhaps our descendants would miss what we had been able to enjoy in the sight of beautiful buildings, not very expensive, but suited to their purpose. A square wall with four square windows just cut in that wall, a door in the middle, and a slate roof, could not be a very beautiful object.

WITH regard to Mr. Lethaby's writings upon the ruffianly restorer, the St. James's Gazette thinks more abuse than is exactly just has been lavished upon this unfortunate person, who is often only called in when absolute decay compels strong measures if the fabric is to be saved from utter ruin. We are not of the opinion that it is better to allow a masterpiece of any art to crumble into total ruin by degrees. If the world's best pictures and finest buildings could vanish suddenly like the Deacon's Post-chaise, it might, perhaps (being irrevocable), be the best solution of the worst problem that awaits posterity. But we have to face the fact that ever since their first construction the sound of mallet and chisel has scarcely ceased at all upon the greatest of the cathedrals all over the face of Europe. Many of them took so long to build, that when the last finishing touch was put to a western façade in the sixteenth century, the transept and choir of the thirteenth stood already in grave need of attention to the more weather-worn of their external details. Cologne Cathedral was only completed according to the original plans eighteen years ago.

But it seems to be an acknowledged fact that the inspiration which gave us the cathedrals has vanished with those temporary accidents of commercial economy which enabled the mediæval master-masons to be sure of loving and unhasty work. If that be so, and if the spread of artistic education be still insufficient to compensate for modern conditions of deteriorated workmanship, a still stronger argument is provided not merely for preserving all the ancient art we have, but also for following, wherever Time has saved them, the suggestions of the old designers. What havoc can be wrought by neglect of this obvious precaution may be seen by the miserable frigid modern distortion clapped on to the western façade of St. Ouen, although the original drawing and half of the original masonry actually existed in Rouen. But we are chiefly moved to these remarks by the sudden appearance of two white blemishes on the mellowed façade of Notre Dame, in Paris. White marble statues of Adam and Eve have

been put up on the west front. The guardian will tell you that they are to be "coloured in harmony with the rest." The Sainte Chapelle is already ruined; and the Palace of the Doges is in peril.

MR. ALGERNON ASHTON, that diligent keeper of the tombs, contradicts a report current lately that the grave of Constable, the painter, in Hampstead Churchyard, is in a neglected condition, but he says that another noteworthy resting place in the same churchyard—that of Joanna Baillie, the poetess—is in a bad state of neglect. The massive gravestone is mouldy and crumbling to pieces; the inscription can now hardly be deciphered, and the iron railing has become entirely rusty.

It is with regret we hear that Petersham Church is to be rebuilt by the purchaser of the Bute House Estate, who will add thereto a parish institute. The latter is no doubt a very praiseworthy idea, but the rebuilding of the church is surely a misfortune. It is practically certain that nothing so perfectly in accord with its surroundings will take its place; its little red-brick tower with quaint bell turret above, its tiled roof and time-stained plastered walls peeping out of a wealth of vari-tinted greens, all combine to produce, or rather compose themselves into, a dainty little picture that has been the subject of many a painter's brush. Nor is it without associations with the famous ones of bygone times. Here lie the bones of Vancouver the explorer, whose name lives in Vancouver Land; he was buried here in 1798. Here, too, lie Agnes and Mary Berry, the famous blue-stocking spinsters, whose society everybody courted, and who were so dear to Horace Walpole that he addressed them as his "twin wives," signing himself "Horace Fondlewives," and to whom he bequeathed, jointly, "Little Strawberry Hill," a house already famous as the abode of Kitty Clive. Mary, the more distinguished of the twain—Walpole's "Suavissima Maria"—was buried at Petersham in 1852. Another writer, the versatile Mortimer Collins, whose fertile pen produced many a pleasant volume, the most successful of which was "The Secret of Long Life," was buried here in 1876.

EXTENSIVE improvements to the interior of Cork Cathedral are now approaching completion. The entire church has been redecorated by Mr. John O'Connell, and special attention has been given to the treatment of the grained ceiling, well known as one of the finest examples of florid Gothic Architecture in the country. The baptistry is a chaste piece of decoration, the ceiling panels being occupied with symbolic panels typifying the descent of the Holy Ghost, the prevailing tints of blue and silver harmonising well with the warm colouring of the church. The principal lighting is from lamps placed on the caps of the clustered columns, the result of this arrangement is to give a soft light, perfectly diffused, and well above the line of sight. This portion of the work was carried out by Messrs. Porte, Sykes and Company. The old gallery front has been removed and a new one substituted more in keeping with the style of the church; cusped segments beneath serve to break the horizontal lines. A mortuary chapel is in course of erection by Messrs. E. and P. Flynn, builders. Two new stained glass windows are at present being fixed. When all is complete the cathedral will be the most elaborately decorated church in Munster.

In commemoration of Bishop Lightfoot, whose notable services to the diocese of Durham are still gratefully remembered, a very remarkable window has been placed in the church in Sunderland. It consists of nine pictures, illustrative of the late Bishop's life and work, interspersed with scenes and allusions to Scriptural and Ignatian times. These form a very bold blending of the ancient and the modern. The window is one of the most remarkable ever placed in an English church, and begins a revolution, so far as subjects for treatment are concerned, in ecclesiastical fenestral ornamentation.

DECORATIVE STONE WORK AS APPLIED TO ARCHITECTURE.*

BY WILLIAM VICKERS.

(Continued from page 331.)

ON Gothic work I cannot say that I am well pleased with the treatment it receives. A great deal of it reminds me of the notice that is frequently sent out from chemists' shops—"To be well shaken, &c." Well, it does seem to have been well shaken in some localities. Possibly I am a little severe in my views to suit some people, but I must emphasise my resentment to this mixing of early Gothic carving and mouldings with the ball flower ornament upon the same doorway, dog-tooth ornament and ball flower apparently trying to shoulder each other out, seemingly in dispute as to which had the right to be there. Late decorated crochets, quite correct upon an ogee moulded label, section of moulding also correct, but Early English ornament for the label termination. Now once again any carved ornament incongruous to the style of Architecture is an abuse of decorative work. These discrepancies should not occur on good architecture, and it either arises from what I shall term a want of knowledge or carelessness. I know of some modern churches where the late and early architecture are blended together. This sounds rather like a distiller's term. Perhaps the idea is taken from that industry, for the blending of several kinds of liquids help to make a success, consequently this blending of the early and late was desired to have the same result. But here the blending fails.

I have been told in regard to a single building where the mouldings have been a little mixed, that if it is a late Gothic label to put a late Gothic terminal, and if its neighbour should be of early work, then make terminal to harmonize with it.

With respect to church furniture, such as stalls, pulpits, reading desks, &c., that is another matter. I do not mind seeing these of a period of Architecture other than that of the church, providing that they are pure and unmixed. I should not go so far as was illustrated to me a short time ago by a minister of religion, who, in referring to an early Gothic church in London, in eulogistic terms said: "The church fittings were also in accordance with the architecture, even the choir boys' surplices had the same treatment in their manufacture, and the face of the minister of this truly Gothic church and surroundings likewise carried the same impress."

In enumerating a few examples, I will commence with Early English work. It will be admitted, I think, that in England there is more elaborate work, and a greater proportion of it, in the cathedrals, abbeys, and churches than what Scotland can boast; nevertheless, you have some very excellent work in Scotland: Glasgow Cathedral, Melrose, Elgin, and Holyrood Palace Chapel—at the latter place I found some good ornament resembling the English work. Of this period in England I will mention York, Salisbury, Wells, Lincoln and Lichfield for this purpose. I suppose it will not be known to all of my hearers that there is a great variety of treatment in the mouldings and carvings of this work, each cathedral having quite a distinct character—so much so, that I have heard architects giving their instructions to carvers before starting their work what particular type must be carved upon this building. Some would prefer Salisbury, this being much smaller in the mouldings, and likewise the carvings; others, again, would require you to give the Wells treatment—here, again, the treatment is larger and bolder.

There is also Stone Church, in Kent—a magnificent building with also a slightly different treatment. Amongst other good

examples are some spandrils that I know will be familiar to art students. There are, I think, just two used in these institutions, but at the church they continue and are varied all round the apsidal end of the chancel. In looking at this period of Architecture what do we observe. The lancet windows full of vigour, the moulding of arches bold and deeply cut. And what of the ornament? Foliage of a type that lends itself to the mouldings: capitals with Bosses, having open parts between, laying bare the bell mould of the cap, giving depth of light and shade agreeing so perfectly with the masonry that no other ornament could be conceived to take its place. Of transitional work in England which succeeds early English, a period where the moulded work is not quite so bold, coming between early English and the

it required a special ornament for these men to apply to it, and where could they derive it from if not from Nature. Then the conventional forms were cast aside, the craftsmen of those times had recourse to the natural forms, and so applied to their capitals and other work examples as nearly resembling Nature as it were possible for human hands to make in stone.

Of late decorated work England is very rich in examples, and Scotland has some very fine ones also: Melrose Abbey, Linluden Abbey, and Paisley Abbey. In the ruined parts of the latter, although decayed, there is some good work. I will mention of English work: the Percy Shrine at Beverley Minster, and the Lady Chapel, Ely Cathedral as being the finest I know. It is really marvellous this work, both masonry and carving, the executing



THE TOMB OF LADY ELEANOR PERCY, BEVERLEY MINSTER. FROM A PHOTOGRAPH BY C. C. HODGES, HEXHAM.

next and more distinct period of early decorated, but having parts of both, we find that the ornament is studied to go with it, the surface of the capitals are not broken into so much, and the carving is of a finer and more delicate treatment: mouldings smaller and more members, carvings with general outline much the same as early English leaves, but with serrations, thereby bringing it into scale with the masonry. The best examples that I know of this period are at South Hayling Church, Hants, Bishop of Bridport Memorial, Salisbury Cathedral, and York Minster. The Early Decorated period, I mention first Southwell Minster, but there is also good work at York, Selby Abbey, and Lincoln. There is great purity and refinement in this work, the mouldings of that date being of such delicacy that

of which required the carver to be a mason, and *vice versa*, the running together of different parts with such uniformity. The mouldings of this period began to take the form of the ogee in many of the sections, therefore, although the natural forms were kept in the carvings, the surfaces of the leaves were of that undulating kind that the sections of the mouldings could be observed also repeated on the carving. The perpendicular Gothic, the last but by no means the least of the true Gothic styles, follows. This is also truly wonderful. Take Henry VII's Chapel at Westminster, Oxford and Cambridge Universities, King's College Chapel, Hampton Court Palace, Bishop Alcock's Chapel, and Ely Cathedral. For the student, either mason or carver, who is desirous of knowing what it is to be conversant with

* A paper read before the Glasgow and West of Scotland Technical College Architectural Craftsman's Society.

decorative work, there is a mine in any one of these places for study. In putting the periods in this form, I know I am not conveying information to some of you, but I do so in order to make it clear to all that there is such a difference in the treatment of each one, and by these few fragments of specimens I have shown that I wish to more fully illustrate it.

Following the Perpendicular Gothic we have the Debased style, which has proved to be a boon, and a very interesting one, to architects and carvers also—a style that has contributed a very great deal to what architects were pleased to call “a new style.” There are some good specimens of this mixture of Classic and Late Gothic in some parts of England, and I remember copying some of that which came from Christchurch at least twenty-five years ago. There is another source with a foreign element in it which I like, and it gives great scope to the carver. This is the working together of the Flamboyant and Classic. The best of this work that I know is at Chartres Cathedral and Rouen. It does not seem to have been worked upon much in Scotland, but Mr. Washington Brown has favoured it a little both in Edinburgh, and slightly on a building in Buchanan Street, Glasgow. It certainly seems to me that there is a want of a little more knowledge on the part of the Scotch masons and carvers into the details of Gothic, which is much against themselves. In looking back for the last ten or twelve years at the amount of work that has been brought into this country from England we hear often an expression, “made in Germany,” which jars upon our ears, but we might say as regards a deal of artistic work in stone, “made in England.” For one denomination alone it would average nearly £1000 per year. And why? Simply because it could not be done here, and this state of things has been so engrafted into the minds of those people who require the work through long use, or abuse, that you cannot persuade them into giving up the old source. This state of things could be remedied, and how? Simply by making the Mediæval work—not only the carving, but the masonry—a study. I stated in one part of my paper that I would refer to the requirements that were needed to assist in this education. I chose the latter part of my paper for the reason that I wish to make an appeal on behalf of the craftsmen for something which your institutions, good though they may be, cannot impart. What I wish to see is a museum that is worthy of the name—an architectural Museum, not a structure with all the available funds lavished upon the exterior, but one well filled with casts, whole façades, or fronts of buildings, and not confined to Great Britain, but from the Continent also. You may feel dismayed at such a proposal, but look at our Continental neighbours. The Trocadero in Paris, the interior built up with casts of some of the finest Classic and Gothic architecture, taken from the great porches of their cathedrals, pulpits, fonts, monuments, fountains, and everything with any architectural merit in it—not satisfied with the work of their own country, but also magnificent examples from Italy and Greece, brought together regardless of expense, chiefly, and I might say solely, to educate their craftsmen.

We have in London at South Kensington an Architectural Court, which, though very grand, cannot compare with the Trocadero. Also at the Architectural Museum in Tufnell Street, Westminster, which is more devoted to ornament, is a very remarkable collection. I do not advocate this kind of museum. I wish for a more architectural element, so that our masons will have an equal share of study, with a reference library filled with all the useful works upon Architecture.

I think there are in Glasgow too many small shows, that are made to embrace too many subjects, or that we require just this one more, devoted entirely to my proposal. Some may think that we have ample in the way of reference libraries. What we have are really very good, but, unfortunately, in the wrong place. I suggest that the reference library should be attached to the Architectural Court in a similar way to the library at South Kensington. I have had many occasions to go to the Mitchell

Library, and have, after much trouble, found the book of reference that I required, but when I have attempted to make a sketch or note, have scarcely found elbow-room, being packed close to other visitors. Even Edinburgh leads the way for the Glasgow citizens in their attempt to procure an Architectural Court of Casts at the Royal Institution. But I feel sure Glasgow will not be behind. Possibly that stately building in Kelvin Grove, now rearing itself up in such dignity, may be arranged to supply all their needs, and if so, I hope and trust that nothing will be spared to make it a success. In conclusion, I wish to say that masons and carvers cannot travel to see all these great monuments of art; but bring them to their doors in a sense, let them have ample opportunities, as compared with their, or our, continental brother craftsmen.

SHAM BUILDING IN SAN FRANCISCO.

THE Baldwin Hotel fire in San Francisco was the result of sham building. This great six-storey structure was made to resemble an edifice of the most substantial and permanent character, but was in reality a mass of wood and gilding. Its size and magnificence gave its owner and the rest of San Francisco much pride. It was pointed to as an example of the greatness of the city, particularly in the days when it was new, and when few towns had anything that equalled it in appearance. Not that the sham was of the nature of a deception as to the fireproof qualities of the hotel. It made no pretence to being fireproof or even slow burning. It was frankly recognised by everybody as a fire-trap. It was a big house of cards, and its patrons accepted it as a house of cards, and preferred a vast and imposing card pile to a more modest structure of less dangerous materials. This sort of honest sham building is particularly common in new cities. The instant a man attempts to build a hotel in a place where the great expense of fireproof construction is not warranted, his temptation is to put up a great building of many stories to create a metropolitan impression, and the result is almost invariably a

FIRE-TRAP.

He thinks that if he should frankly adapt his plans to his materials he would rob his house of half his glory. Even the builder of a country hotel who has all the land he can possibly need prefers to erect three and four story piles of pine boards to getting the same amount of room out of a two-story building with larger ground space. A low building would be safer and more appropriate, but it would not be sufficiently indicative of city improvements. In San Francisco another reason led to much imitation of stone in wood. When the Baldwin and many of the great private houses were built, in the seventies, high brick buildings were not considered safe because of earthquakes. Consequently persons with ambitions in the direction of monumental structures adopted wood as their building material. Since that time the invention of

STEEL CONSTRUCTION,

which gives a structure a frame as of a bridge able to stand shaking, has led to the erection of great blocks in San Francisco of a thoroughly safe and substantial character. The mistake of the earlier builders was their unwillingness to follow the Spanish custom and adapt their houses to the natural conditions and climate. Great low buildings would have been more comfortable for house or hotel than wooden skyscrapers, but ambition for imitating Parisian palaces carried the day. Baldwin's was one of these, and it has paid the penalty for its shamming. One defence of high buildings that are not fireproof sometimes made is that land in towns is too valuable to be wasted on low structures. But this is hardly a good defence, for if natural conditions such as earthquakes do not warrant a really substantial building of materials corresponding to appearance, then the true value of the land cannot be such as to call for the size of building put on it.

A NEW THEATRE AT BIRMINGHAM.

MR. THOMAS SERGENSON, proprietor of the Grand Theatre and Opera House, Blackpool, proposes to erect the new Alhambra Theatre, with suite of shops, arcade, offices, &c. at the top of Corporation Street, Birmingham. In December last, says the Birmingham Daily Gazette, the Corporation granted Mr. Sergenson 75 years' lease of the plot of land—now occupied by the Royal English Circus—opposite the Victoria Courts, and on this site he intends to erect a theatre which may be made adaptable to the purposes of a circus or any other form of high-class entertainment. The total area of the site is 2800 square yards, and it is let at a yearly rental of £1050. The plans, which have already obtained the sanction of the Improvement Committee, have been prepared by Mr. Frank Matcham, of London. The site for the proposed Alhambra Theatre has a frontage to Corporation Street of 225ft., to Ryder Street of 113ft., and to Dalton Street of 285ft. The building will be arranged on the most modern lines both in regard to the character and decoration of the auditorium, stage equipment, and in other respects. The main entrance will be placed at the corner of Ryder Street and Corporation Street, but the whole frontage in the latter thoroughfare will be devoted to eight shops with either residential chambers or offices above. The property on the Dalton Street side of the building will be utilised as warehouses, or business premises of similar description, and an arcade will run from Corporation Street to Dalton Street containing ten other shops or offices. The stage—at the John Watt Street end of the site—will be 70ft. wide by 45ft. deep, with the necessary dressing-rooms, &c. The pit, which will be on the floor level, will provide accommodation for 800 persons, with 150 stalls immediately in front. The dress circle and stalls will be reached by means of a spacious vestibule and staircase in marble and mosaic, opening out at the corner of Corporation Street and Ryder Street. A decided novelty will be noted in the placing of the private boxes—five of them—at the extreme back of the circle, instead of at the sides nearest the stage. The dress circle will seat 275 persons, which, with the 25 provided for in the boxes at the rear, will bring up the accommodation in this part of the house to 300. In the upper circle, and in the gallery above, the accommodation will be on proportionate lines. Special attention has been paid to the exits. In no case will there be less than two separate exits, and in some cases as many as four are provided from the various parts of the house. The passages and staircases forming these exits are to be built of fireproof materials, the latter having handrails on both sides, and in addition the principal staircase will be provided with a handrail down the centre. All doors will be made to open outwards, and be fitted with patent exit bolts. The scheme of decoration will be Moorish throughout. The total cost of the buildings is estimated at something between £70,000 and £80,000.

THE Town Council of Glasgow has decided to erect a new bridge over the Clyde at Govan Street, Glasgow Green. It is intended to make a 50ft. bridge out of the material of the existing temporary bridge at Jamaica Street.

A SERIES of most instructive visits have just been paid on Saturday afternoons by the students of the architectural department of the Glasgow and West of Scotland Technical College. The structures visited in course of erection were Ruchill Hospital, Pollokshaws Town Hall, and Glasgow Bridge. One afternoon was spent at the Sewage Purification Works; another at the Cathedral, where Professor Gourlay conducted a special Architecture class visit for the study of the vaulting; while on a third the Honours Stage students joined the Craftsmen's Society on a visit to the Weir, now being constructed on the Clyde. All these visits were very largely attended.

THE FEUDAL PRINCIPLES OF REAL PROPERTY LAW.

BY WILLIAM H. STACPOOLE, LL.D.

PART III.

THE effect of the celebrated statute 12 Car. II., ch. 24, was, as we saw in the last article, to reduce all tenures of land in England to free and common socage, except frankalmoin, grand serjanty, and copyhold. I propose now to consider, first, the nature of free socage, and then of copyhold, which grew out of villenage—either pure villenage, where the services were both base and uncertain, or villein-socage, where they were base but certain. Afterwards we will consider the character and history of what are called estates in fee simple and in fee tail.

The derivation of the word socage has given rise to a good deal of controversy, some getting it from the Saxon word *soke*, a plough, but according to what appears to be the better opinion, it comes from the Saxon *soc*, meaning jurisdiction, and referring to the jurisdiction the lord had over his tenants at the time of the Conquest. Waiving, however, any discussion on this point, socage denotes the tenure of land by any certain and determinate service; it is in the quality of the services it involves as being certain, so that they are capable of being fixed beforehand, that the socage tenure differs from the tenure in chivalry or knight's service, where the services, depending as they did upon contingencies of a military nature, could not be exactly pre-ordained.

The tenure of land by knight's service undoubtedly existed in England long before the Norman Conquest,* though it was not so widely diffused as afterwards, and it was, perhaps, for this reason that the socage tenure, which was of Saxon origin, became so imbrued with the feudal spirit as to be itself of the feudal nature. It is described by Blackstone and Sir Martin Wright as an *improper feud*; the epithet "*improper*" referring only to the services attached to it not to its essential nature. Thus Blackstone says that socage "partakes very strongly of the feudal character," and so in Wright's "*Tenures*," where five canons are laid down with regard to improper feuds. The third is as follows:—"That *improper* feuds are distinguished from *proper* feuds by such qualities only as are varied or superadded to the feud by express provision of the parties, and that they in all other respects retain the nature of an *original feud*," p. 36 (1730). Again (*ib.*, pp. 145-6), "All our English fees or holdings; whether they be frank or emphyteuticary, burgage or gavelkind (though burgage and gavelkind have many qualities different from common socage), do now fall under the notion of socage tenures, which, though they vary in point of service, succession, and the like, as *improper* feuds, do nevertheless retain the nature of feuds; inasmuch as they are held of some lord or superior, by fealty, and usually by some other certain service or acknowledgment; and inasmuch as they yield or pay relief, and may escheat."

As in the case of knight's service, so also in socage, land is held either of the king directly or of a mesne lord, who himself must hold directly or indirectly through another, of the king as lord paramount. Homage, which was an inseparable incident of knight's service (and abolished by the statute 12 Car. II., ch. 24), was rarely required from the tenant in socage, who, however, was bound to take an oath of fealty to his lord, and sometimes he owed no other service than fealty. Aids for knighting the lord's son and marrying his daughter (also abolished by the same statute) were incident to socage as well as knight's service, but these were fixed by statutes passed in the reigns of Edward I. and Edward III. Both tenures were subject to the feudal return, render, rent, or service of some kind or other, if only bare

fealty, which arose from a supposition of an original grant from the lord to the tenant. Relief also was incumbent on tenant in socage, as well as in knight's service, but in the former case, it was only one year's rent or render, be it great or small, while in the latter it was one quarter of the supposed value of the land. This relief not being touched by the statute is still due. Suit of Court and escheat (left also untouched) were and are still due from the tenant in socage. The practical superiority of socage before the Act (12 Car. II., ch. 24), was with respect to wardship and marriage, which in the case of an infant heir of a tenant in socage devolved not upon the lord (because, as regarded wardship, in this tenure, no military or personal service being required, there was no occasion for the lord to take the profits to provide a substitute), but on the nearest relation upon whom the inheritance could not descend. The guardian in socage had to account to the heir for the profits of his land, and for the value of his marriage, if he married him under fourteen, at which age the ward might have disposed of himself in marriage, without any consent of the guardian. Wardship and marriage were, however, as we have seen, abolished by the Act. Thus, to quote Mr. Williams in his well known *Principles of Real Property* (Part I., ch. 1, sec. 3, Ed. 18):

"A small occasional quit rent, with its accompanying relief,—suit of the Court Baron, if any such exists—an oath of fealty never exacted—and a right of escheat seldom accruing—are now, it appears, therefore, the ordinary incidents of modern socage tenure."

Of socage there were two kinds, as we saw in the last article, viz.: free socage, where the services were both certain and honourable; and villein socage, where the services, though certain, were base in kind, or unworthy of a free man. This villein socage exists to the present day as the tenure in ancient demesne—described by Blackstone as "an exalted species of copyhold" (Bk. ii., ch. 6); we shall consider it presently in connection with copyholds. Of free socage, we may say that it was the tenure by which freemen held their lands in England before the Conquest, and it is defined by Littleton to be "where the tenant holds his tenement of the lord by any certain service in lieu of all other services" (Littleton's "*Tenures*," s. 117). Burgage and gavelkind, which I shall describe briefly, are two species of free socage tenure, which were only feudalised after the Conquest, an exception being made in favour of those incidents (the result of ancient local customs), which were suffered to remain, though at variance with the new kind of tenure on which they were grafted, or, shall I say, to which their ancient parent tenure was changed.

The words burgage and borough are derived from the Saxon "*burg*," "*burh*," which meant originally a hill or mountain, and were afterwards applied to the little towns that grew up round the castles that were usually situated on hills for protection against assault. The termination age, as in socage, is from the Latin *agium*, denoting the services of the tenure.

Burgage tenants were tenants who held lands of their lords by socage tenure in towns, and so burgage is often spoken of by the older writers as town socage. It is thus defined and described by Blackstone (Bk. ii., ch. 6).

"Tenure in burgage, or burgage tenure, is where houses, or lands which were formerly the site of houses, in an ancient borough, are held of some lord in common socage by a certain established rent. And these seem to have withstood the shock of the Norman encroachments principally on account of their insignificance, which made it not worth while to compel them to an alteration of tenure, as an hundred of them put together would scarcely amount to a knight's fee.* Besides, the owners of them being chiefly artificers and persons engaged in trade, could not, with any tolerable propriety, be put upon a military establishment, as the tenure in chivalry was."

* Land of the annual value of £20 in the reigns of Henry II. and Edward II.

A city is a town incorporated, which is, or has been, the seat of a bishop. A borough is a town, whether corporate or not, that sends burgesses to Parliament, and this is the explanation of bury in the names of towns such as Canterbury, Salisbury, Bury St. Edmund, etc.

Burgage tenures are the ancient customs (meaning, thereby, customs that existed before the Conquest) of ancient boroughs. There are different species of these tenures, and concerning all of them we may lay down the following general propositions which will also apply to gavelkind and ancient demesne:—

1. They are essentially local, and attached to particular pieces of ground, so that, to use the words of Chief Justice Hale, "the custom is fixed to the land."*
2. For this reason (being fixed to the land) they cannot be either created, or transferred from one place to another, even by Act of Parliament or Royal Prerogative. "For the custom runs with the land and is by reason of the land,"† and "Customs receiving their perfection from the continuance of time, come not within the compass of the King's prerogative."‡
3. Where these tenures have once existed they always exist, until they are extinguished by an Act of Parliament. They cannot be "*changed nor extinguished* beyond a possibility of revivor, neither by alteration of the tenure, nor by possession of the King, nor by the act of the party, nor, indeed, by any other means but by Act of Parliament only."§

The most remarkable species of burgage is that which is known as borough English, where the youngest son, and not the eldest, succeeds to the tenement on the death of the father. This is called ultimogeniture, as distinct from primogeniture, and various reasons have been offered to account for it. Littleton supposes that the youngest son was preferred because, by reason of his tender age, he is not so capable as the rest of his brethren to help himself; and others have conjectured that he was selected to be heir because he was the most likely son to be found in the house at the time of the father's death. Another explanation is thus suggested by Blackstone: "Other authors have indeed given a much stranger reason for this custom, as if the lord of the fee had anciently a right to break the Seventh Commandment with his tenant's wife on her wedding night; and that, therefore, the tenement descended, not to the eldest, but to the youngest son, who was more certainly the offspring of the parent. But I cannot learn that ever this custom prevailed in England, though it certainly did in Scotland (under the name of '*mercheta*' or '*marcheta*') till abolished by Malcolm III.||

The word borough English is derived from burgh Engloyes, and came into use in this way. About the time of the Conquest a new French borough grew up beside the old English borough at Nottingham, so that the town of Nottingham was divided (it is believed until 1713) into the English borough to the east and the French borough to the west. In a celebrated case that was tried in Nottingham in 1327, it was found that while in the French borough lands descended to the eldest son, in the English borough they descended to the youngest son, and the lawyers, finding a name for the custom in the circumstances of the case, ultimogeniture, or the custom of lands descending to the youngest son, was called borough English.¶

Ultimogeniture, which we call borough English, and which is known abroad by such terms as "*Mainete*" and "*Yungsten-Recht*," is common among Ugrian tribes about the Ural Mountains, in Slavonic communities, the villages of Hungary, in Central Asia, and on

* Hist. Com. Law, 223.

† Per Montague, Ch. J. Dalis, 12, 13.

‡ "*Coke's Copyholder*," sec. 31. See also Elton's "*Tenures of Kent*," pp. 157-60.

§ Robinson on Gavelkind, p. 39; Elton's "*Tenures of Kent*," p. 175.

|| 2 Bl. Com., ch. 6.

¶ "*History of English Law*," Pollock and Maitland, vol. 1, pp. 631-2; vol. 2, p. 277. See also Elton's "*Origins of English History*," 179; "*Tenures of Kent*," 162; "*Year-book*," 1 Edw. III., 12a.

* See Coke on Littleton, 76 b., and preface to Third Report. Case of Tenures upon the Commission of Defective Titles, 8vo., London, 1720. The substance of the case on this point will be found in Bishop Gibson's preface to Spelman's "*Treatise on Feuds*." See also Seldon's "*Titles of Honour*," pp. 513, 520; and Elton's "*Tenures of Kent*," ch. 13, 14.

the confines of China. It was unknown in Ireland and in Scotland, though, strange to say, it was usual in the Shetland Islands.*

Borough English, though the principal species, is yet only a species of burgage tenure. The following are examples of burgage of a different kind:—

(a) In some boroughs the widow has all the tenements of her husband instead of her third.

(b) In London, Canterbury, and other boroughs, the citizens had a custom of devising their freeholds within the liberties of the city. The wives of citizens of Canterbury enjoyed the same privileges.

(c) It appears from the Year-book, 11 Henry IV., 29, that the custom of some boroughs allowed the infant to alienate his property as soon as he could measure a yard of cloth. In other boroughs the infant was of full age when he could tell money, measure cloth, and the like. These customs were, however, subsequently disallowed in Hereford, Gloucester and Ipswich during the reigns of Edward II. and Edward III., on the ground that a custom to be valid must be reasonable.

(d) As an instance of what may be established by custom, Mr. Elton tells us ("Tenures of Kent," ch. 7) that, "In 53 Henry III., the jury, on an inquisition post-mortem, found that the heir of the said John Gerveis was of full age on the day of his birth, according to the use and custom of the town of Bridport (Dorset)."

When, to use a technical expression, a thing is said to be *judicially noticed*, what is meant is that the thing so spoken of is taken as being within the knowledge of a court of law, so that the court will not require any explanation or proof concerning it. Now, between borough English on the one hand, and the remaining species of burgage (amongst which there is no principle of uniformity, depending as they do on the customs of different localities) on the other hand, there is this important difference, that the former is, while the latter are not, judicially noticed. In the case of every other kind of burgage, it is necessary to prove two things; first, that the alleged custom does exist; secondly, that the land in question is subject to the custom. But in the case of borough English the only question that can arise is whether the land comes within the custom, for the custom itself is taken as being already known to the court. Gavelkind, I may here mention, is also judicially noticed.

Until very near the end of the reign of Hen. VIII., burgage tenants had this advantage over other tenants that they were able to devise their lands by will. This power was, however, given to all tenants by 32 Hen. VIII., ch. 1. and 34 and 35 Hen. VIII., ch. 5.

As I have already said, burgage (like gavelkind which we have next to consider), being "fixed to the land," can only be extirpated by an Act of Parliament. In their first report the Real Property Commissioners urged the following amongst other reasons why an Act should be passed to abolish borough English.

1. "That the youngest son is often a minor when the father dies. During the minority the land is unalienable and often mismanaged."

2. "It is difficult to ascertain the limits of the land covered by the custom."

3. "It is sometimes difficult to prove the extent of the custom sufficiently to satisfy a purchaser."

4. "There is a great deal of ignorance and a great likelihood of forgetfulness of what lands are subject to it."

* Elton, "Origins of English History," 186.

BRONZE statuettes, about 2ft. high, of the Emperor William as a knight of one of the crusading orders, are now being offered for sale in Berlin.

The present pile of buildings which stand in Bishopsgate Street Within, City, known as the "Wesleyan Centenary Hall and Mission House," was acquired at an outlay of £30,000. So enormously has the value of property in the City increased of late years, that the site on which the building now stands is alone estimated to be worth £230,000.

Professional Items.

ABERDEEN.—A new hotel is to be shortly erected in Guild Street, at a point almost directly opposite what will be the main entrance to the extended Joint Station. The new building will have a frontage of 60ft. to Guild Street, and will extend backward for a distance of 124ft. The plans, being prepared by Mr. R. G. Wilson, architect, show a building five stories high. The main entrance will be in the middle of the front. On the west side of the main entrance there will be a restaurant with open front to Guild Street. On the east side of the main entrance the corresponding ground floor space will be given up to two shops. The hotel itself will be built of grey granite.

BIRMINGHAM.—The formal opening of the Friends' Hall and Institute, Moseley Road, which has been erected by Mr. Richard Cadbury, will take place in May, but the building is even now sufficiently advanced that meetings may be held in it. As has been previously stated in these columns, the first part of the scheme was the erection of the institute in the Moseley Road, and the second part the establishment of almshouses and private dwellings at Bournville. The whole will involve an outlay of about £70,000, and the cost of the institute will be about £30,000.

DUMFRIES.—A new organ has just been erected in St. Andrew's Pro-Cathedral, Dumfries. It is by Messrs. Cousans, Sons & Co., of Lincoln. The great organ is provided with ten stops, and the total number is twenty-eight. Attached to the manuals and pedal board is a patent electric connection of Messrs. Cousans' which secures instant repetition.

FALKIRK.—A new United Presbyterian Church is about to be erected at the corner of Thornhill Road and the new street at Firs. The building, of which Mr. G. Deas Page, is architect, will cost £4000. In the Gothic style, it is being constructed of red stone from Locharbriggs Quarry, Dumfries.

GLASGOW.—In the ventilation of the large new warehouses erected in Ingram Street, for Messrs. J. and W. Campbell and Co., and designed by Messrs. Baird and Thompson, architects, "Cousland's Improved Climax" Patent Direct Acting Turret Ventilators have been used, supplied by the Climax Ventilating and Heating Company, Glasgow.

KIRKCALDY.—A special meeting of Kirkcaldy Harbour Commission was held recently, to receive and consider the report of Mr. Henderson, C.E., Burntisland, as to the proposed deepening of the harbour at the top of the east pier. The rock there is to be excavated to the depth of 4ft., which will give an additional quayside at that part of 50ft. The report was approved, and Mr. Henderson was instructed to see the work carried out to his satisfaction.

PENDEEN (Cornwall).—The Elder Brethren of Trinity House have lost no time in completing the preliminaries for the erection of a lighthouse and fog signal station at Pendeen, a particularly dangerous point on the north coast of Cornwall between the Land's End and St. Ives, which has been the scene of many a shipping disaster. The tender of Mr. Arthur Carkeek, of Redruth, has been accepted, and the work has already been commenced, although as yet it is principally confined to excavations. The plans have been prepared by Mr. Matthews, the engineer to the Trinity Board.

PONTYPRIDD.—The foundation stone of the "Eglwysbach" Memorial Chapel, which is now in course of erection at Pontypridd, has been laid. The chapel which, when completed, will cost £2300, will be a Corinthian structure, capable of seating about 500 persons. The builder is Mr. W. R. Davies, Barry Dock, and the architect Mr. Price Powell, Cardiff.

PORT ELIZABETH (South Africa).—Arrangements are now being made for the erection of a number of semi-detached cottage villas in Port Elizabeth. They will be constructed of timber throughout, except party walls and chimney-breasts, which will be built of breeze concrete. The outside walls will be covered with rustic joint weather boarding on felt, coated with "Carbolineum Avenarius" up to first floor line, and plaster above. Inside walls and ceilings will be lined with match-boarding, and finished with Hall's patent distemper; roofs will be covered with Italian pattern galvanised iron, painted in two tints on felting. All the lower timbers will be covered with two applications of Carbolineum to repel damp and white ants. The accommodation of each house will be living room, parlour, with large bay, small hall and stairs, pantry, washhouse, coals, and w.c. to ground floor, and three bedrooms on the first floor, all entered from a small landing, one bedroom having a bay window. It is proposed to have them made in England, shipped over in sections, and erected by local workmen on a bed of concrete. Messrs. Boulton and Paul, of Norwich, have submitted estimates for the construction and erection of twenty pairs, and the architect is Mr. George E. Clare, of Chelmsford.

ROTHERHAM.—On a site immediately above the Crown Hotel, in Moorgate Street, the York City and County Banking Company has built a branch bank. Grey Aberdeen granite has been used up to the first floor level, from which point there is brickwork, with stone dressings. The bank itself measures 30ft. by 24ft., and is 15ft. high. The floor in front of the counter is of mosaic work. There is a strong room, manager's room, &c. Manchester tiled work has been plentifully made use of in the entrances, lobbies, &c. Messrs. Denman and Brierley, of York, were the architects, and Messrs. Wm. Ives and Co., of Shipley, the contractors.

SHEFFIELD.—We understand that plans have been prepared by Mr. W. J. Hale, architect, for the erection, on the site already acquired at Bole Hill, of a new chapel, with vestry and school accommodation, at an outlay of about £4000. Mr. and Mrs. S. M. Johnson have undertaken to bear the whole of the cost of this undertaking, and to present the chapel and premises to the Wesleyan Connexion free of debt. The scheme comprises a chapel to seat some 300 persons, with entrance porches and a chancel; a schoolroom for 320 children, and vestries of varying sizes, together with kitchen and other accommodation. The exterior elevations will be faced throughout with rock-faced stone, laid in narrow courses, and relieved with Ashlar dressings, the windows being carried up with traceried heads, those to the front being flanked with turrets having carved and buttressed tops. The roofs will be tiled, and the interior woodwork will be of pitch pine.

SPRINGFIELD.—The dedication of the new Church Hall at Springfield, which has been erected at a cost of about £700, exclusive of £300 for the site, took place recently.

WAKEFIELD.—New buildings have been added to the Wakefield Workhouse, which will be opened on the 19th, and comprise a new infirmary and a steam laundry. These additions were designed by Mr. Wm. Watson, of Wakefield. The infirmary will accommodate 150 patients with the requisite staff. The buildings, which are in the rear of the workhouse, consist of a central administrative block, with waiting rooms and a surgeon's room on the right, with the kitchens and pantries behind. The men's pavilion is on the left, at a distance of 42ft. from the central block, with which it is connected by a covered corridor. The women's pavilion is on the right. Substantial brick walls have been built to entirely surround the workhouse premises. The laundry block is near the eastern boundary of the site, and is 45ft. by 200ft.

Under Discussion.

EDINBURGH ARCHITECTURAL SOCIETY.

On Wednesday night, the 21st December, the annual business meeting took place; Mr. W. A. Cumming, A.R.I.B.A., the president, in the chair. After the usual reports and private business had been gone through, the following office bearers were elected:—President: Mr. A. Lorne Campbell; Vice-President: Mr. Alfred Grieg; Hon. Treasurer: Mr. John A. Matthew; Librarian: Mr. J. A. Patterson; Joint Hon. Secretaries: Mr. Percy E. Nobbs, Mr. Andrew Muir. On the following evening the supper took place and proved quite a success. Mr. A. Lorne Campbell was in the chair, and Mr. Tarbolton, in place of Mr. John Kinross, A.R.S.A., the Hon. President, who was unavoidably absent, presented the prizes. The results of the competitions are as follows:—Hon. President's prize of £10 for three designs: P. E. Nobbs; Prizes given by Mr. J. A. Morris, F.R.I.B.A., for Summer's work, first prize, £5; J. H. Rutherford; second prize, P. E. Nobbs. President's prize, £3 3s., façade design: Ramsay Tragnair. Vice-President's prize, £2 2s., wrought iron gate design: P. E. Nobbs.

WILLIAM TERRISS MEMORIAL LIFE-BOAT-HOUSE.

A writ has been issued against the Duke of Devonshire by Mr. Henry Mandy Simmons, who claims £10,000 damages in respect of alleged loss of the sea view of the Alexandra Hotel and other houses at Mostyn Terrace, on the sea front at Eastbourne. The action arises out of the erection of the William Terriss Memorial Lifeboat-House. After the assassination of William Terriss a memorial fund was started, and a considerable sum was collected for the construction of a lifeboat-house. The Duke, on being applied to, gave a site in the hollow of the Wish Tower grounds. The building, which has now been completed, is constructed of red brick, with stone ornamentation. The plans were passed by the Town Council. The new structure shuts in the grand parade from the western lawns, and it also interferes with the view from west to east; but the claim of Mr. Simmons has only reference to the alleged loss of view from his property.

THE LONDON BUILDING ACT.

At a recent meeting of the Surveyors' Institution, Mr. W. Weaver read a paper on "The London Building Act and the Official Supervision of Buildings," his object being to call attention to the unsatisfactory state of affairs at present existing owing to the dual and overlapping jurisdiction exercised by the district surveyor and the surveyor to the local vestry or district board. It was suggested, the lecturer pointed out, that the proposed district councils for London should be entrusted with the duty of seeing that buildings were erected and maintained in a sound, safe, and sanitary manner. The imposition of that duty would tend to elevate the functions of the local authority, and the work would be placed on the footing prevailing throughout the kingdom. The district surveyor and the parish surveyor would merge into one official, corresponding to the borough surveyor and engineer outside London. By the proposed change, the lecturer urged, the loss and inconvenience arising from the present dual system of supervision would be saved, and every information connected with building operations would be ascertainable at the public offices or town hall of the district. The unsatisfactory nature of the present procedure as to dangerous structures was alluded to by Mr. Weaver, who also pointed out that under existing circumstances it was nobody's duty to find out dangerous structures, the collapse of a building being the first notification of its dangerous condition.

A MONUMENT to the memory of the Empress Elizabeth of Austria is about to be erected at Mentone. The monument is to take the shape of a column 21ft. in height.

Correspondence.

THE NEW GOVERNMENT OFFICES.

To the Editor of THE BUILDERS' JOURNAL.

SIR,—Is it not nearly time that the designs for the New Government Offices in Whitehall and Parliament Street were published, seeing that the architects were appointed more than five months ago? and have you any idea as to when building operations are likely to be commenced?—Yours truly,

W. G. WILSON.

Hastings, Dec. 20th, 1898.

Enquiry Department.

SMOKY CHIMNEYS.

To the Editor of THE BUILDERS' JOURNAL.

DEAR SIR,—Can you suggest a simple remedy to stop a chimney flue in a stack smoking? The case in point is this:—In a pair of newly-built cottages the chimney flues are gathered over into a centre stack; the flues smoke from the kitchen ranges, but not from the bedrooms over, which have separate and straighter flues; there is no obstruction to cause draughts, such as trees or adjoining buildings. The cottages are in the country, and I should be glad to hear of a sure and simple and reliable remedy, as the buildings are some distance from the nearest town and builder. I want, if possible, to avoid putting a "tall-boy," or other objectionable chimney-pot, on a chimney stack which is conspicuous, and upon which just the ordinary sized chimney-pots have been put. The flues in question are gathered over just above the opening, with a small bend, and they then run practically straight up.—Thanking you in anticipation, yours very truly,

T. J. P.

From your description, the reason of the kitchen chimney not acting satisfactorily is probably owing to one of the following causes, viz.: 1. Leakage from the bedroom flues into the kitchen flues, causing a check to the draught when the bedroom fires are not in use. 2. The kitchen chimney may be gathered over too quickly at the bottom, in which case this should be cut away, and the flues from range carried well up into the throat of the chimney. 3. It may also be due to the top of the chimney-pots being all of the same height, as this sometimes causes the smoke from one flue to be drawn down the other. This could easily be remedied by fixing pots on the kitchen flues a few inches higher than the others. Of course, it is assumed that your kitchen flues are of the proper area, and that your range is one which acts well, and is properly fixed.

R.I.B.A. EXAMINATIONS.

To the Editor of THE BUILDERS' JOURNAL.

SIR,—Could you inform me, through the medium of the Enquiry Department, as to where I can obtain information with regard to the R.I.B.A. Exams., and oblige

"RUGBEIAN."

The Royal Institute of British Architects' "Kalendar," price 2s. 6d., to be obtained from the Secretary, R.I.B.A., 9, Conduit Street, Hanover Square, London, W., will give you full particulars, including examples of papers set at the examination, and list of books which are recommended for study.

CLEANING STONE, &c.

To the Editor of THE BUILDERS' JOURNAL.

SIR,—Please let me know through your "Enquiry Department" if there is any chemical for cleaning a stone carved reredos, and also if there is any solution for polishing granite columns.—Yours truly,

"CHURCHWORKER."

Of course, a "Churchworker" is not a church builder, or he would not ask the questions he does! Any reredos made of soft stone may be cleaned down with ordinary drags and coxcombes; and if it is Caen stone,

sandpaper may be useful. If it is of alabaster, it will require re-polishing after washing with hot water and soap. There is no solution for polishing granite; the polish is acquired by hard work only.

PRESERVING TIMBER.

To the Editor of THE BUILDERS' JOURNAL.

DEAR SIR,—I shall be much obliged if you will kindly inform me through your BUILDERS' JOURNAL if there is any solution to wash moth-eaten timber with, to prevent it getting any worse.—Yours truly,

"ANXIOUS."

We have heard of moth-eaten clothes, but never of timber so afflicted; probably "Anxious" means worm-eaten. If so, soak well in paraffin oil.

PROPORTIONS OF GOTHIC BUILDINGS.

To the Editor of THE BUILDERS' JOURNAL.

DEAR SIR,—Could you kindly tell me whether anything is known of the proportions used by the Mediaeval architects in planning and designing their buildings, and if so, where I could get hold of such information?

All that I have picked up so far from books is that Norman openings are, as a rule, twice their width in height, i.e., two squares; that some Norman towers are a square. Most spires in Northamptonshire are three-fifths of the whole height of tower and spire, while some are one-half. I take it the former are Early English or Decorated, and the latter Perpendicular; that the naves of English Cathedrals are two widths in height as against the French three widths. Again, in English cathedrals the first string course is half the whole height, and the second one-third of the remainder. At Ely I believe the distances are all equal.

I have made a few observations myself, particularly in regard to plans, and hence my appetite has been whetted for accurate information.

I believe there are plenty of theories as regards the application of geometrical figures and numbers with their multiples, but surely, after all these years of study and accurate measurements since the Gothic revival began, some definite facts have been arrived at.

From the letters I have noticed in the enquiry column, I take it that the information I seek will be gladly welcomed by others.

Is any work published calculated to guide the maiden efforts of a young designer, or has he to measure and draw old buildings—measure and draw—keeping on until he deduces the principles that guided the first designers for himself, or until he gets the "feel" of the thing from sheer habit, and consequently produces designs more or less correct and proportionate, according as he has learnt and formed a habit more or less approaching perfection?

What, e.g., is the usual angle for spires, or, in other words, what proportion does the base bear to the height?

Would the base of the spire—if continued to the ground—coincide with that of the tower (a) as regards its real diameter, (b) as regards the spreading out of plinth or of buttresses?

How is the disposition of the various stories—real or apparent—as indicated by strong corners, determined on, and so on?

The answers to such questions must exist somewhere in print.—Yours truly,

R. A. DAVIS.

Your questions involve wide-reaching theories which it is impossible to deal with in these columns. The proportions of Gothic buildings depend upon much more subtle and intricate principles of design than are indicated by you, and have never, we believe, been absolutely formulated. The rule of proportion you state of height to breadth in naves of English and French cathedrals, is only generally and comparatively true, and differs widely in various examples. Nor can any rule be stated for church spires. There is a characteristic type of proportion belonging to the various styles and epochs of design, but the actual lines of the examples cannot be arrived at by any fixed rule. In the last century it was sought to establish definitely the lines of beauty and the proportion essential to beauty, not only in

Architecture, but in sculpture and drawing. Durer attempted to reduce the human form to a fixed type of perfect beauty. Hogarth, in his "Analysis of Beauty," has this same object of establishing precise rules by which certain aesthetic effects might be obtained, and the principle was even sought to be established in literature, notably by Jeremy Bentham. It is now, however, generally admitted that this reduction of forms to cyphers paralyses art rather than perfects it. If you are desiring to become an architect, we would advise you not to pursue your studies deeply in this subject. The most intimate knowledge of the theories of proportion in Gothic buildings will not enable you to design; a complete ignorance of them will not prevent you from acquiring mastery of your art, and we hold very strongly that studies of design from this precise and mathematical point of view are inimical to the growth of the creative process, and to ability in design. When you see a building which appeals to you as expressing itself with some approach to perfection, roughly analyse the proportions, and note them in conjunction with other features of the design; remembering always that the main dimensions can establish no excellence for the building apart from the treatment of the minor members of the composition. When you come to design yourself you will naturally set out your main lines in some simple geometric relation, but beyond that it is advisable to use your knowledge of Mediæval proportions rather as a test of your composition than as a guide to it. For the rest we subsume a list of works which will give you much information on this subject. In Gwilt's *Encyclopædia* (1891) you will find an exhaustive treatise by the late Edward Cresy—a reprint from his "Encyclopædia of Civil Engineering"—which embodies the whole history of the subject. Read the chapter on "Superimposition" in Ruskin's "Stones of Venice," Vol. I. You may also refer to Professor Cockerell's "Architectural Works of William of Wykeham," read before the Archaeological Institute, 1845, and to the following works:—Hon. T. L. Donaldson: "Architectural Maxims and Theories;" W. W. Lloyd: "General Theory of Proportion in Architectural Design."

ELECTRIC lighting mains for both public and private supplies up the West Hill, Highgate, have now been laid by the St. Pancras Vestry, and to the summit of Highgate Hill, and, as soon as the necessary connections are made, the current will be switched on. The top of Highgate Hill is the highest spot in the North of London to which electric lighting mains have yet been carried.

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Views and Reviews.

HOUSING OF THE WORKING CLASSES.

It appears to have become a matter of course that an explanatory book should be produced upon every new piece of domestic legislation, and it is only surprising that such an explanation of the "Housing of the Working Classes Act," passed in 1890, should not have appeared earlier. Messrs. Allan's book, however, fulfils its purpose well. It is arranged in the usual form, with first a general introduction, then the Act itself and its Amending Acts, considered clause by clause, and finally, an appendix containing various forms, orders, and instructions, the whole being handily arranged and having a good index for reference.

"The Housing of the Working Classes Act, 1890, and Amending Acts, annotated and explained, together with the Statutory Forms and Instructions." By Charles E. Allan, M.A., LL.B., assisted as to the practice by Francis J. Allan, M.D., D.P.H. London: Butterworth and Co., 7, Fleet Street, E.C.: Shaw and Sons, 7, 8, and 9, Fetter Lane, E.C.

THE NEWSAGENTS' CATALOGUE, 1898.

The Annual Catalogue of the Newsagent and Bookseller's Review is the representative journal of the trades. The catalogue is a complete illustrated guide to all the best books for Christmas and the New Year, also novelties in cards, fancy stationery, &c. It is a large volume, and excellent as a reference book for the season's printed works. It includes an important section devoted to printing machinery, of the best and most up-to-date kinds. It is bound in an attractive and artistic cover, printed in colours. The published price of the annual is 1s.

THE PAGE.

The Page, which has hitherto been published as a monthly magazine, will in future appear as a quarterly. It is to be limited to 400 copies, each copy being numbered, and offered to subscribers at 10s. yearly subscription. It will be enlarged and altered in many ways, and will contain the work of the following artists:—Max Beerbohm, Will Rothenstein, Martin Shaw, Oliver Bath, W. H. Downing, S. M. Fox, Edward Gordon Craig, James Pryde, and others. A single copy of The Page (1898 series) may be obtained by sending on 1s. 2d. for a specimen to the Publisher, at the Sign of the Rose, Hackbridge, Surrey.

A BRONZE statue of the celebrated Polish poet and patriot Adam Mitskevitch was unveiled at Warsaw on the centennial anniversary of his birth.

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Trade and Craft.

HENRY HOPE AND SONS, LIMITED.

The well-known business of Henry Hope, of 55, Lionel Street, Birmingham, which was established in 1818, has recently been converted into a private limited liability company, under the title of "Henry Hope and Sons, Ltd.," of which the directors are Messrs. Henry Hope (chairman), Henry Donald Hope, John Arthur Hope, and John Sutton Nettlefold. The branch of the business devoted to heating engineering will remain, as formerly, under the personal direction of the chairman. Of late, however, the firm has been developing the branches devoted to the production of metal window casements and fittings, and to stained glass and patent glass roofing, and in the new catalogue just issued special attention is given to those sections. Exhaustive details and prices are furnished, and the whole catalogue will repay perusal.

PRODUCTION OF IRON IN RUSSIA.

Ten years ago, Russia took the seventh place as an iron producing country amongst the countries of the world; last year her place was fifth, as in the meantime her production had become greater than that of Austria-Hungary or Belgium. In 1897 Russia produced 2,043,000 tons of iron, and in the last ten years tripled her production—a proportionate increase which it took Germany twelve, Great Britain twenty-two, and the United States twenty-three years to accomplish. The quality of Russian iron is inferior, but this is due to primitive methods, to the slow development of the iron manufacturing industry, and to the limited railway accommodation, which has retarded all Russian industries. The development of the industry in the southern provinces and in the Urals has been greater than elsewhere, but quite lately there have been more enterprise and activity everywhere. Between 1888 and 1893 the production of iron increased by an annual average of 99,000 tons; in 1894 the increase was 162,000; and in 1897 270,000 tons. Consequently there was a considerable decrease in the importation of pig iron, but an increase in that of manufactured iron and steel. In parts of Southern Russia ore is becoming scarce, as the deposits are being exhausted. The demands of Siberia for Ural iron are constantly increasing; Ekaterinburg is the chief market, and the Volga basin also takes large quantities from the same source.

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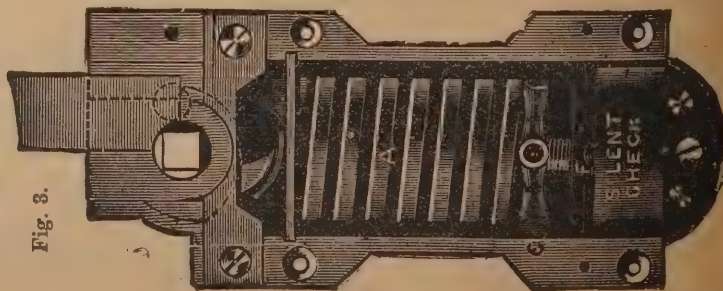
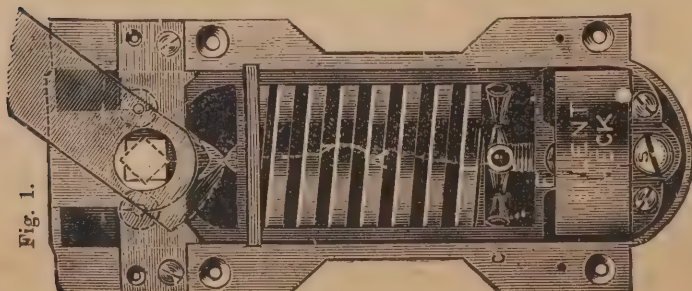
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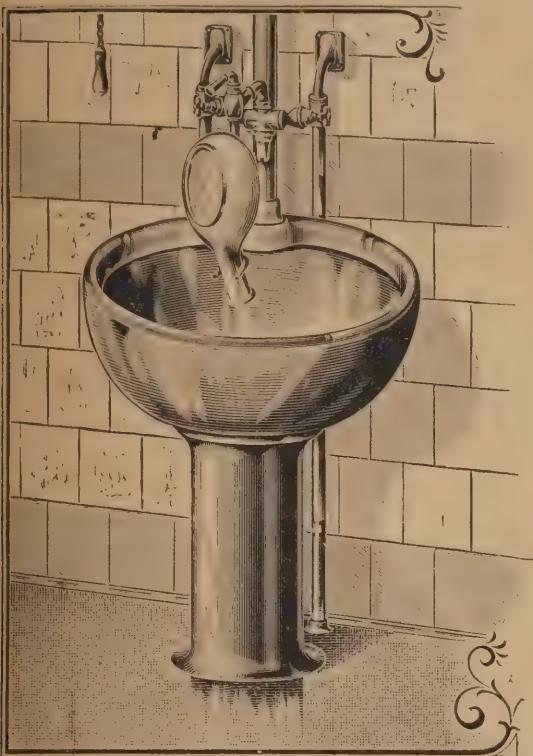
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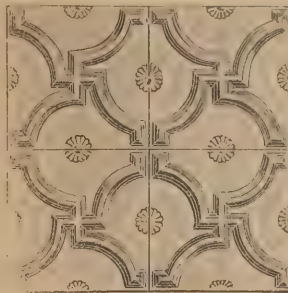
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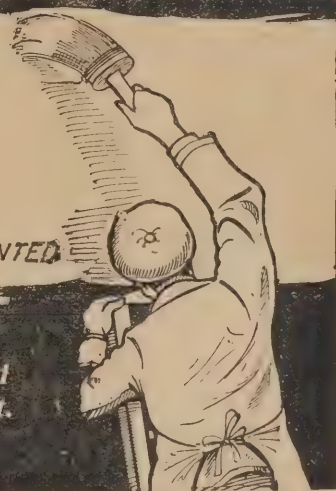
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A NEW COMBINATION BATH AND LAVATORY.

Messrs. Morrison, Ingram, and Co. Ltd., Manchester, have recently brought out a new combination bath and lavatory, which is designated "The Cottage Bramstone Patent Combination Bath and Lavatory," and has been designed for cottage property and workmen's dwellings. It is adapted for fixing in the scullery or other suitable position, and can be connected to the water supply from main, and hot water from low pressure L boiler, fixed behind the kitchen range. It may also be had for cold water only. As the lavatory is capable of being used also as sink and washtub, it will be obvious that the usual scullery sink, with plumbing and fittings thereto, may be dispensed with. The waste water from the lavatory does not pass into or through the bath. The price is moderate, and we think the patent will be greatly used and appreciated.

WALTHAM ENGINEERING COMPANY.

The Waltham Engineering Company has lately opened new showrooms at 46, York Street, Buckingham Gate, S.W., and here may be seen examples of the Art Metal Work for which the firm is justly famous. The work of the firm is largely associated with the making of art metal electric light standards, brackets, and other fittings, but it has executed a quantity of excellent designs in the wider scope for wrought iron afforded by verandahs, gates, balustrades, grilles, and other objects of the same description. Instances of the wide range and versatility of the company's work and the ample scope and opportunity it has secured for the application of its metal work designs of all kinds, are to be met with at the Bath and Cheltenham Hotel, and the "Norfolk Square," "The Golden Cross," "Shelley's," and other hotels, where the metal work throughout has been fitted up by the Waltham Engineering Company. The electric light fittings and other examples of art metal work exhibited in the Company's showrooms embrace designs derived from many dates, and suited to many styles of decoration. They include brackets, standards, and chandeliers of many patterns and various treatments of metal, and we

particularly remark the Company's designs for switches, bell pushes, wall sockets, "cut-outs," and ornamental covers, which show a great variety both in choice and treatment of the metal employed, and in the style of design selected. A special feature of the Company's work is their "armour-bright steel" fittings, of which they chiefly avail themselves in their larger pieces. In the cover plates, bell pushes, &c., they have made use of silvered, oxidised, and gilt (bright or antique) metal work in many charming designs. The field of design opened up by the demand for electric light fittings is one which offers wide opportunities to the thoughtful and skilful metal worker, because the forms required to be decorated are new, and because there is little prejudice in the public mind as to the direction which that decoration should take, or the medium of expression it should select. The coincidence of a revived appreciation for ancient metal work, and the resultant activity among art metal workers at the same date as the application of electric light to the practical needs of existence, pointed to the use of metal as a decorative medium. Metal work has now established itself as the most natural and becoming material for electric light fittings, and, as exemplified in the work of the Waltham Engineering Company, with excellent results. The Company's hammered brass, copper, and iron-work is well worth inspection, and should recommend itself to those who are in want of well designed decorative metal-work fittings.

THE Roman Catholics of Chester have protested against the erection in that city of a proposed monument to the Lancashire martyr George Marsh, who was burned for his Protestant principles in the sixteenth century.

ALL that is known of the new quick-firing gun which is being supplied to the French army is that it has a calibre of 7.5 centimetres, and is capable of discharging twenty shots a minute. The projectile, shrapnel, has a muzzle velocity of 600 metres. The cartridge weighs 6.5 kilogrammes. The recoil of the gun is greatly reduced by means of an ingenious contrivance.

KEYSTONES.

THE King's Bastion Barracks at Gibraltar have been converted into an up-to-date electricity supply station, with Siemens' machinery capable of creating sufficient current to light the whole garrison.

By the appointment of Mr. Walter Crane as Principal of the Royal College of Art at South Kensington, the Government system of art education has gained a most valuable supervisor. No better choice could have been made for a school which exists professedly to help on the art of design and to train workers in all those branches of practice which are held to be commercial.

THE historic mansion, Marble Hill, which is on the Thames bank at Twickenham, is to be sold. It was built at the expense of George II. for the Countess of Suffolk, Mistress of the Robes to Queen Caroline, after designs by the Earl of Pembroke. The grounds were laid out by Pope. "The staircase," says Cobbett in "Memorials of Twickenham," "is made entirely of finely carved mahogany, and some of the floors are of the same wood."

TENDERS.

Information from accredited sources should be sent to "The Editor." No results of tenders can be accepted unless they contain the name of the Architect or Surveyor for the Work.

BOWMORE, N.B.—For the erection of water supply works, for the Islay District Committee of Argyll County Council. The work will be carried out under the direction of Mr. J. T. D. Drummond, plumber, Thornhill, Dumfriesshire:—
 Thomas Mochau £3,667 1 1 Wm. Simpson ... £1,781 0 0
 David Allan 2,215 10 1 Wallace and Con-
 R.C. Brebner and ... nell 1,622 15 0
 Co. ... 1,994 0 0 Peter Smith,
 Peter Bow ... 1,858 7 9 Bowmore* ... 1,588 15 3
 *Accepted.

FALKIRK, N.B.—For the erection of a manse, Cemetery-road, Camelon. Mr. Alex. Gauld, architect, Melville-street, Falkirk:—

Masonry.—James Abercrombie, Camelon
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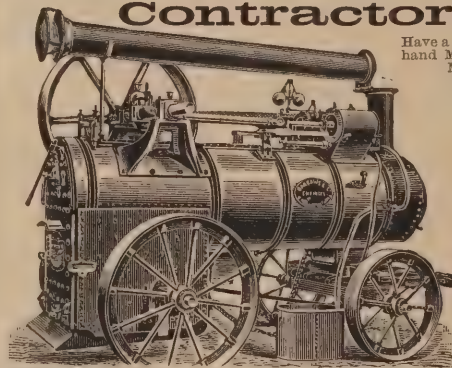
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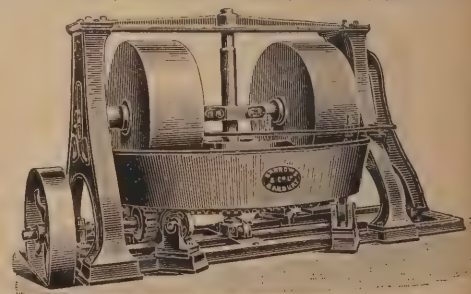
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The Kent Road Main-tenance and Stone Supply Co., Ltd.....	648	Masters and Co., New-road, Gravesend	364

* Accepted.

HASTINGS.—For erecting a semi-detached dwelling-house, Castle Down Estate, West Hill, Hastings, for Mr. T. Tassell. Mr. William Cooper, architect, 21, Havelock-road, Hastings:—

W. Coussens	£1,280	W. Dobbie	£1,000
Padgham & Hutchin-son	1,198	J. Simmonds and Co.*	990
F. G. Hatton.....	1,103	W. E. Warman	960

* Received late.

LONDON.—For alterations at the "Duke of St. Albans" pub-house, Highgate-road. Mr. A. R. Barker, architect, 11, Buckingham-street, Strand:—

Batley, Sons, & Hol-ness	£3,608	Mallock Bros.	£3,006
G. H. R. Roberts	3,475	Ransome	2,865
Vallen	3,163	Dixon	2,793
		Marchant and Hirst	2,779

LONDON.—For rebuilding the north-west side of Webber-row and 72, Webber-street, Southwark, for the trustees of the late John Marshall (Marshall's Charity). Messrs. F. S. Breton and Son, architects, 292, High Holborn. Quantities by Mr. E. G. Hardcastle, 61, Chancery-lane:—

W. H. Wagstaff and Son	£25,197	E. Triggs	£23,500
W. Downis	24,992	Batley, Son, and Hol-ness	23,169
Lathey Bros.	24,989	Asbby Bros.	22,870
W. H. Lascelles and Co.	24,197	J. Grover and Son	22,734
		J. Carmichael	22,247

Accepted subject to the approval of the Charity Commissioners.

LOUGHTON (Essex).—For the erection of a house in the High-road, Loughton, for Mr. G. R. Matland. Mr. E. Egan, architect:—

Turner	£1,080	Walter Lawrence	£1,045
Warriner	1,075	F. W. Foster	1,044
Poster	1,056		

LOUGHTON (Essex).—For the erection of seven cottages, for Messrs. Gould Bros. Mr. E. Egan, architect:—

Warriner	£1,115	C. S. Foster	£1,042
Walter Lawrence	1,099	F. W. Foster	1,022
Cuthbert	1,047	Keen	980

MIDDLESBROUGH.—For the erection of a villa residence, Harrow-road. Mr. J. M. Bottomley, architect, 23, Albert-road, Middlesbrough:—

Perks and Son	£2,863	Allison Bros., Middles-brough*	£2,415
Bastiman Bros.	2,723		
Newby and Co.	2,722		

* Accepted.

MIDDLESBROUGH.—For reconstructing a sewer, Marsh-road, for the Corporation. Mr. F. Baker, C.E., Municipal-buildings, Middlesbrough:—

Per ton for 36-in Diameter Cast-iron Pipes.
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For Special Castings.
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The Staveley Coal and Iron Company Ltd.,
near Chesterfield

Per ton for Special Castings.
The Staveley Coal and Iron Company Ltd.,
near Chesterfield

Pipes.
Cochrane, Grove, & Co., Middlesbrough*

Cochrane, Grove, & Co., Middlesbrough*

The remainder of the work will be carried out by the Corporation workmen.
*Accepted.

PETERBOROUGH.—For the erection of six houses, Dogsthorpe, for Mr. Frank. Mr. J. G. Stallebrass, archi-tect, North-street, Peterborough. Quantities by architect:—

F. Colls	£893	R. J. Nichols	£815
Watson and Lucas	820	Sibley Bros. (accepted)	814
G. Brown	845	G. Nichols	805

SEAFOORD (Sussex).—For alterations and additions to "Crouch House," Seaford, Sussex, for Mr. J. F. Plaister. Mr. William Cooper, architect, 21, Havelock-road, Has-tings:—

C. Morling, Seaford*	£2,140	S. H. Berry	£2,120
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*Accepted.

WEMBLEY (Middlesex).—For additions and alterations to St. John's Church, for the Vicar and Churchwardens. Mr. Hayward Brakspear, architect. Quantities by Mr. F. G. W. Buss:—

Charles F. Kearley	£2,931	Courtney & Fairbrain	£2,086
Bulled and Co.	2,540	Charles Brightman	2,084
Webster and Cannon	2,539	Whitehead & Co. Ltd.	2,628
Dyerman	2,730	F. J. Shopland, Sutton, Beer and Gash	2,716
		Surrey (accepted)	2,579

CONTRACTS OPEN.

EAST BARNET SCHOOL BOARD.

TO BUILDERS.

Tenders are invited for the ERECTION of a SCHOOL, to accommodate about 860 children, at Victoria-road, New Barnet.

Plans and specification may be seen any day (except Saturday) between the hours of TWO and FIVE, on application to the Architect, Mr. W. PYWELL, 40, Great James-street, Bedford-row, W.C., of whom bills of quantities may be obtained on payment of a fee of £2 2s., which will be returned in any case in which a bona-fide Tender is made.

Tenders on printed forms, and endorsed "Tender for Victoria-road School," must be addressed to the Chair-man of the Board, and sent to me by NOON of THUES-DAY, JANUARY 12th, 1899.

The acceptance of a Tender will be subject to the approval of the Education Department. A bond in the sum of £2000 will be required for the due performance of the work.

ARTHUR WILSHIRE,

Lancaster-road,
New Barnet,
Clerk of the Board.
December 15th, 1898.

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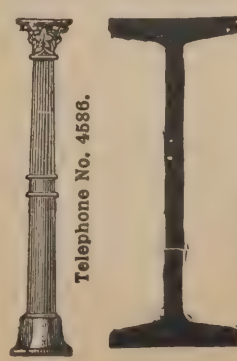
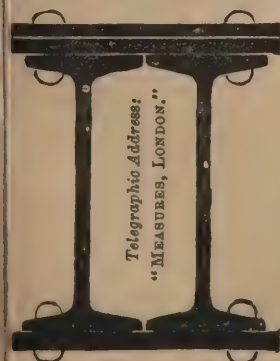
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CHIPPING NORTON MAIN DRAINAGE.

The Town Council of the Borough of Chipping Norton are prepared by the advice of their Engineer to receive TENDERS for CERTAIN WORKS of MAIN DRAINAGE, partly within and partly without the Borough of Chipping Norton.

The plans, specifications form of Tender, and form of proposed contract, can be inspected, and bill of quantities obtained upon application at the offices of Mr. NICHOLSON LAILEY, F.G.S. Assoc. Mem. Inst. C.E. 16, Great George-street, Westminster, on and after JANUARY 16th, 1899, until JANUARY, 30th, 1899, between the hours of TEN o'clock a.m. and FOUR o'clock p.m. (Saturdays excepted).

A copy of all documents are deposited with the Borough Surveyor, Chipping Norton, where they can be seen at similar hours in the dates before-named.

The Engineer will attend (or his Chief Assistant) at Chipping Norton, upon a date to be subsequently named, in order that the nature and extent of the undertaking can be explained, and Contractors will be advised thereon.

Tenders endorsed "Chipping Norton Main Drainage," must be delivered at my offices at SIX o'clock p.m. on JANUARY 31st, 1899.

The Town Council do not pledge themselves to accept the lowest or any Tenders, and contractors Tendering must do so at their own sole cost and expense, as the Local Government Board have not yet given their sanction to the works.

By order,
THOS. MACE,
Solicitor,
Town Clerk.

Chipping Norton,
December 19th, 1898.

COUNTY of SOUTHAMPTON.

BREAMORE BRIDGE.

RECONSTRUCTION.

CONTRACT No. 1. SUPERSTRUCTURE.
TO BRIDGE CONTRACTORS.

Persons desirous of TENDERING for the CONSTRUCTION and ERECTION of the SUPERSTRUCTURE of Breamore Bridge (over the River Avon),

consisting of two pairs of 45ft. Trellis Girders, together with Pender Plates, Steel Trough Decking, &c., may obtain copies of plan and specification, &c., and all other information, at the office of Mr. W. J. TAYLOR, County Surveyor, The Castle, Winchester, on and after MONDAY, JANUARY 9th next, between the hours of NINE a.m. and FIVE p.m., SATURDAYS, NINE a.m. and ONE p.m.

A deposit of Two Guineas will be required for plan and specification, and will be refunded on receipt of a bona-fide Tender and the return of the plan and specification.

Tenders, strictly in accordance with the forms supplied by the County Surveyor, to be delivered to me on or before SATURDAY, JANUARY 23th next.

The County Council do not bind themselves to accept the lowest or any Tender.

H. BARBER,
Clerk of the County Council.

The Castle, Winchester,
December 25th, 1898.

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CARBOLINEUM AVENARIUS entirely prevents dampness in brick and stone walls, also wet and dry rot in timber above or below ground, and is used by all the leading Railway Companies, and by Builders, Brewers, Contractors, Estate Agents, Mine Owners, &c., &c., in the United Kingdom.

CARBOLINEUM AVENARIUS, the most successful preservative and antiseptic for Wood Paving Blocks. Used in the Metropolis and many Provincial Towns. Superior to Creosote or Hard Wood.

For further Particulars and Testimonials, apply

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FOR FLANGE JOINTS OF STEAM AND WATER PIPES.

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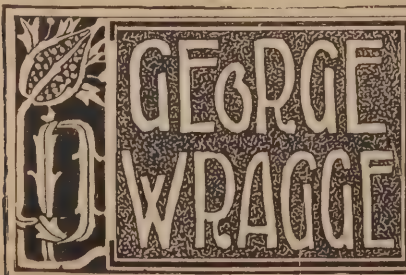
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LIME.

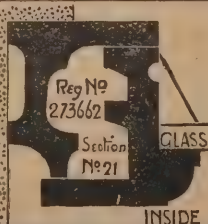
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JANUARY 4TH, 1899.

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ROBT. BOYLE & SON, LTD., 64, Holborn Viaduct, LONDON; & 110, Bothwell St., GLASGOW.

See Large Advertisement, Back Page, Monthly.

INTRODUCTION OF NON-FLAMMABLE WOOD INTO EUROPE.

The British Non-Flammable Wood Co. Ltd.

Beg to announce that their Works in London, the first erected in Europe, are now completed, and they are prepared to
Take Orders for the supply of "NON-FLAMMABLE WOOD" in large quantities.

"NON-FLAMMABLE WOOD," as produced by the Company's process, is now in use on the following

UNITED STATES WAR VESSELS:—

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GUNBOATS.—"HELENA," "WILMINGTON," "NASHVILLE," "ANNAPOLIS," "WHEELING," "MARIETTA," "NEWPORT," "VICKSBURG."

And is being used for the Battleships "KEARSAGE," "KENTUCKY," "ALABAMA," "WISCONSIN," and "ILLINOIS," now being built.
"NON-FLAMMABLE WOOD" has also been used for all the Carpentry and Joinery Work in the following well-known
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"NON-FLAMMABLE WOOD" has been tested by H.M. Admiralty, and Large Orders have been given to the Company
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Quotations will be furnished on receipt of Specifications.

Address all applications to the General Manager,

BRITISH NON-FLAMMABLE WOOD CO. Limited,
2, Army and Navy Mansions, Victoria Street, London, S.W.

DESIGN AND DETAIL OF DOMESTIC BUILDING.

BY JOHN E. NEWBERRY, A.R.I.B.A.

IV.

THE subject of these notes is the design of a house with stone mullioned windows and dressings. It may be presumed that when such a monumental material is to be used the building will be of more pretension and importance than any that have hitherto been considered in this series.

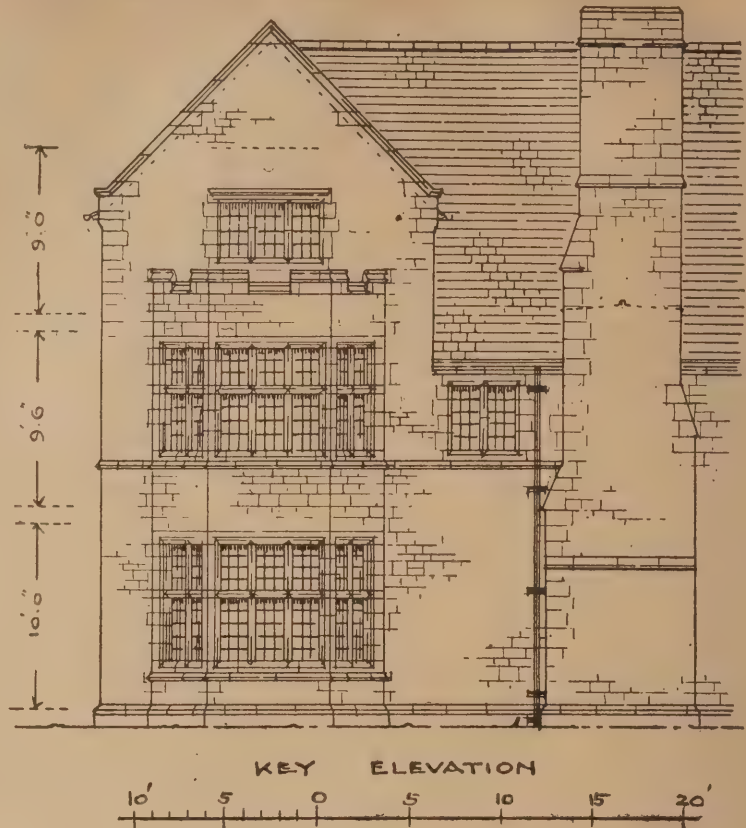
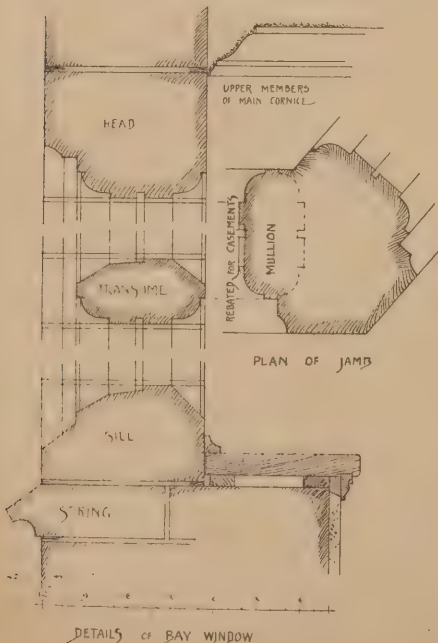
The successful treatment of such a house depends in a great measure upon the size and proportion of the windows and the detail of the stonework. Failures are often owing to an inexperienced designer using more stone than is appropriate or necessary, particularly in the width of mullions and the depths of lintels and sills. Big windows, filled in with single sheets of glass, are also a frequent source of failure.

The portion of a house shown upon the key elevation, treated in a simple late Gothic manner, is of an ordinary type and with no pretence to any originality of design. It must be borne in mind that the object of these notes is an endeavour to help those students of Architecture who have not had the advantages of studying accepted methods in a good office. The simplest things puzzle a beginner when he attempts to evolve a design and the relative or usual sizes of the different parts is often one of the greatest difficulties he has to contend with.

MATERIALS.—In a stone country, no material can be more suitable than the native stone for the general external facing of the walls. The portion of the house shown on the accompanying details is intended to be faced with rubble stone in random courses, varying from 4in. to 10in. deep; the surface would be roughly dressed with a hammer. Such walls should not be less than 20in. thick for the main structure.

The dressed stonework might be finished externally with a chiselled face, and set in finely ground mortar, with the beds and joints $\frac{3}{16}$ in. thick. Rubbed stonework, with fine joints, has a mechanical appearance when used externally, and does not harmonize well with the irregularities of a rubble wall, but, internally, the stonework might be rubbed to give a more finished effect.

If brick is used for the general facing, care must be taken to design the strings, lintels, sills, &c., so that they may work in with the brick courses. Attention must also be given to the outline of stone quoins where they abut against brick facing. The quoins look best when they are neither too large nor too regular,



and it is worth while to make careful studies to show the effect aimed at.

ROOFS.—The pitch of the roofs may generally be about 45deg., although with gables it is preferable to make them a little steeper and so avoid a right angle. But much depends upon the roofing material to be employed:—47½deg. or 50deg. are useful angles to work one's roofs to; the late Mr. Street frequently made use of an angle as steep as 53deg.

GABLES.—The gable on the key elevation is terminated with a simple coping of a slightly hollow section. The wall immediately under the coping might be 12in. thick if of stone, or 13½in. if of brick, and the bottom of the coping should be kept fairly close to the intersection of the gable wall with the roof:—3in. of wall surface is probably as much as should be exposed above the tiles or slates. The horizontal joint indicated is perhaps an unusual form, but it has the advantage of being a weather joint, and has been found to work well in practice. Each joint is intended to be secured with two slate dowels in the bed.

PARAPETS.—The parapet coping is intended to surmount an ashlar wall 7in. thick. A point to bear in mind when designing copings of this form is to keep the upper member well forward, so as to allow for the foreshortening effect when seen from below.

EAVES.—An appropriate method of treating the eaves is to finish the walls with a projecting stone eaves course, splayed or moulded, with shaped sprocket pieces spiked to the rafters, and the half round eaves gutter screwed to brackets fixed to these sprockets.

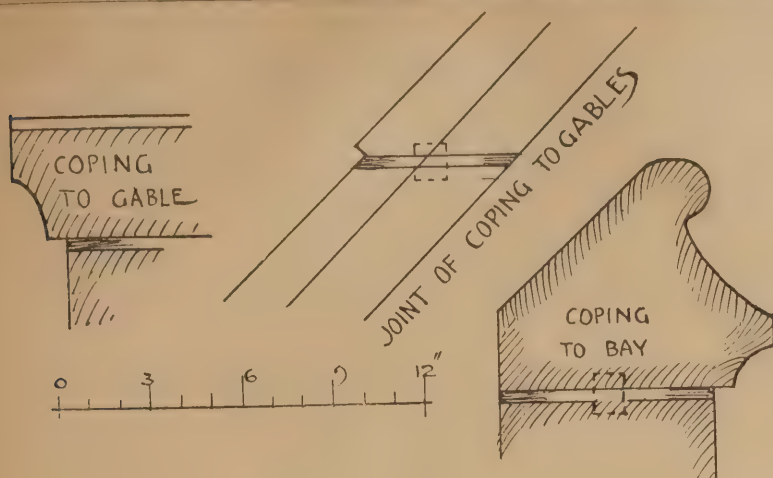
CHIMNEYS.—The external walls of chimney-stacks should not be less than 9in. thick in brick or 7in. in ashlar stone, in order to prevent rain soaking through and cooling the flue. Generally speaking, the larger a chimney-stack, the more it adds dignity to the building. Flues should, therefore, be grouped together as much as possible for economy as well as effect, and ventilation flues from the principal rooms may be provided with advantage. The top of all chimney-stacks should be carried to a higher level than the nearest ridge to prevent down draught. It is often necessary to introduce a small pitched roof behind a chimney-stack when it is against an outside wall, to reduce the apparent height. Such a roof is often useful in providing a fireplace in an attic room.

WINDOWS.—The main point to remember in

designing stone mullioned windows is to keep them in scale with the building. However large the window, I would not make each individual light more than 18in. to 21in. in width, or 3ft. to 3ft. 6in. in height. Lofty windows should be divided horizontally by transoms, and the lights may be made to diminish vertically; care must be taken to keep the lowest transom quite 6ft. from the floor, so as to be above the level of the eye. The mullions and transoms are usually 4in. to 5in. wide, 8in. to 9in. deep, and they have a "wraggle" or groove cut in them to receive the lead glazing. Those lights in which casements are to be fixed require a rebate for the metal frame, and care should be taken to keep the glazing in the casements in the same plane as the fixed lights.

The upper lights are best provided with casements hung to the transom to fall inwards, with a cord and gunmetal spring catch. The lower casements should be hung at the side to open outwards. The mullions are shown to be moulded, but a simpler treatment is to chamfer or hollow them, though if the latter it should be very slight. If the windows are to be glazed with single sheets of glass it will generally either be necessary to provide casements for every light, or fixed metal frames to those lights which are not intended to be opened. Another method is to rebate the stone and secure the glass with oak fillets, secured with brass screws to lead plugs let into the stone. The enlarged detail shows a "double order" window, as the mullions and transoms are slightly set back from the wall face, and enclosed in a frame consisting of a small moulding on the jambs and head. If the window consists of a number of lights, say five or more, it becomes necessary to introduce wide mullions, on which the extra order is carried round. When a drip moulding is placed over a window, it should always be worked on the head. A common mistake is to make heads and sills too long and too deep; they should only just be long enough to get a good bearing at either end, and need seldom exceed 9in. in depth. If they tail far into the wall, the slightest settlement is sure to crack them.

BAY WINDOWS.—I would refer my readers to Mr. Paul Waterhouse's exhaustive paper on this subject, which has been lately published in the BUILDERS' JOURNAL. When three sides of a canted bay form part of a regular octagon, the effect is good in some situations, but one often requires the central opening to be wider



than the canted sides. In such cases there is no need to restrict the angle to 45 deg. In the example given the angle is somewhat steeper. A mullioned bay in an important position should always have the central part divided into an uneven number of lights, say three or five, as a central mullion is awkward and should be avoided. The side lights may be a little smaller than those in the centre, but the difference should not be very perceptible. In a large room, a bay generally looks best when its ceiling is divided from the main ceiling by a lintel or arch. If the room is finished with a panelled plaster ceiling the arch is useful in keeping it a regular shape.

The window back and returns on either side of the bay are shown to be plastered, but if funds would allow they would be better panelled in wood. In designing the junction between stonework and plaster, the effect when the room is papered should be considered.

GLAZING.—My remarks on lead glazing in the first article (see the BUILDERS' JOURNAL, March 23rd, 1898) will equally apply to stone-mullioned windows. The saddle bars may be a little larger with advantage on the outside—say, $\frac{1}{2}$ in. by $\frac{1}{2}$ in. If it is desired to enrich the upper lights, a good geometrical pattern looks well; or, if colour is to be used, shields, wreaths, or even figures, in stained glass, can be worked into the clear glass squares with good effect. It is well to remember that all artistic work should be of the best only, if this cannot be had it is far preferable to omit all carving, stained glass, etc., altogether; nothing betrays vulgarity of taste more than bad sculpture, or cheap coloured glass windows.

ENTRANCE.—One advantage of the manner of building which we are discussing is its adaptability. Anything, from a pointed arched doorway to a classically treated entrance with columns or pilasters, might be made suitable for such a dwelling. A somewhat low and wide opening would be most appropriate, with delicately detailed stonework, and oak panelled doors with beaten metal hinges.

RAIN WATER PIPES.—The down pipes will probably look best if of a circular section, as this will admit of the stone strings being carried around them; $3\frac{1}{2}$ in. to 4 in. in diameter is quite large enough.

SOME artesian boring operations carried out near Peterborough Station, for the Great Northern Railway Company, by Messrs. Le Grand and Sutcliffe, of Bunhill Row, have proved very successful. At a depth of 132 ft. a spring has been struck, which flows at the rate of 300,000 gallons per day.

It is stated that the Board of Trade is contemplating the promotion of an Act of Parliament to make the use of automatic couplers compulsory on the railways of the United Kingdom. The possibility of such legislation is a very serious matter for our railway companies, involving, as it may, in the estimate of one general manager, an expenditure of no less than £7,000,000 in refitting the existing rolling-stock, besides having a most important bearing upon the safety both of employes and passengers.

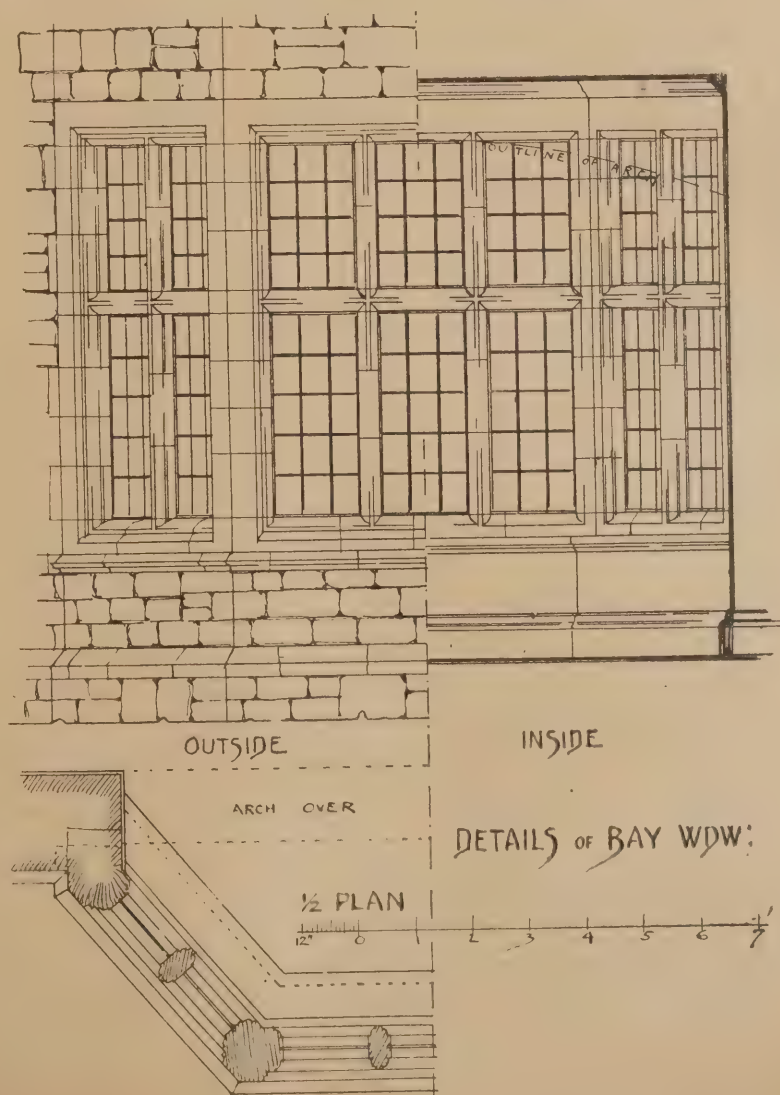
A YEAR'S BUILDING IN THE NORTH.

THE prosperity of a city may be fairly gauged by the condition of its building trade. So many industries are centred in Leeds that there is scarcely any rise or any depression which is not reflected here without delay. "It has been almost a phenomenal year for us," said one of the leading contractors, "and there has been so much building going on that the workmen have practically not had an idle day." This verdict includes nearly every kind of building operation—factories, banks, hotels, shops, offices, places of worship, places of amusement, and private dwellings. "General good trade," says the same authority, "is at once the cause and the explanation." A short comparative statement for three years past shows at a glance the

marked progress and development of the year just closed. A separate record is kept of the number of houses erected, and every other kind of permanent structure is classified "Miscellaneous" in the statistics so far available:

	Houses erected.	Average per working day.	Miscellaneous buildings.
1898	2400	8	1289
1897	1850	6 1-6	1053
1896	1681	5 1-2	918

A strike of twenty-two weeks' duration among the bricklayers terminated with a dearly-acquired advance of a halfpenny per hour, and a farthing to the labourers, with another farthing at the expiration of six months. The year has passed without any further conflict between employers and employed. There has consequently been a considerable demand for men right up to the autumn, and the better class of artisan has been able to obtain even more than the standard rate of wages. In one or two instances builders had to refuse contracts because they could not get either the men or the material to proceed with the contracts in a satisfactory fashion. Wages have been higher than for some seasons past. Since May last the masons, joiners, and plumbers have all been raised a halfpenny per hour. A notice, which expires next May, has been received from the bricklayers asking for an advance of a penny per hour. On the other hand, a counter notice has been served on the men by the employers suggesting a reduction of a halfpenny per hour, and the two proposals will no doubt be considered together. Any increase in the present rate of wages must, however, have the effect of checking enterprise, particularly in the erection of villa houses and cottage property. Cottage houses now cost so much that even the speculative builder can hardly prosper on existing rents. Increased rents seem inevitable in view of the fact that £40 to £50 more has been recently paid for cottages; and, in spite of this,



builders say that, owing to the enhanced cost of labour and material, they have reaped less profit.

Among the more important buildings now in course of erection may be cited the Leeds Empire Palace, and the long rows of shops which are being erected by the Leeds Estate Company in connection with the Wood Street and Cheapside improvements, the Hotel Metropole in King Street, large insurance offices on the site of the old Post Office, new premises for the Yorkshire Banking Company opposite to the Exchange in Boar Lane, a new arcade off Land's Lane and Upperhead Row, a large clothing factory in Park Lane, ice stores in York Street, a boot and shoe factory in the rapidly developing Harehills district, near to the new clothing factory of Messrs. Albrecht, and the Pupil Teachers' Training College in Great George Street. A cheapening of the price of material has been looked for in vain. Bricks were a little more plentiful and easier to obtain on the old terms. Stone has throughout the year been in great demand. None of the quarry proprietors in the district could complain of lack of orders. They have had more than they could fulfil, and, owing to the impossibility in some cases of getting stone of dimensions ordered from Yorkshire quarries, architects, contractors, and proprietors have lately been obliged to seek what they required much further afield. Timber has been kept up largely through the high freights from America and the Baltic, and lead is considerably dearer.

BRADFORD.

The year has been a fairly busy and active one. Dwelling-houses show the biggest increase, and the large number of these that have been erected forms one of the most prominent features of the trade of the year. The plans for dwelling-houses total 1200, as compared with 769 for 1897. The localities where the activity is most noticeable are Bradford Moor, Gillington, East Bowling, and the Horton Grange Estate. The plans for warehouses and mills number thirty-two, as against twenty-six for the previous year. Buildings of the shop and house class show an improvement not only in numbers but in size. The only branch of the trade which has not shared in the general prosperity is the building of public-houses, and in this no work of any significance has been carried out.

HALIFAX.

The building trade has perhaps been more brisk than in any previous years, and the supply of workmen has not always been equal to the demand. The extensive new Workhouse Infirmary still affords employment to men engaged in different branches of the trade. A new court house and police station are in course of erection, and the contracts for a large new public hall have recently been let. Taking advantage of the briskness of trade the operative joiners have asked for an advance of 3d. per hour in their wages.

HUDDERSFIELD.

Although not many works of an extensive character have been carried out during the year, the building trades generally have been brisk, and the demand for workmen has been greater than the supply. This and the trades' union restrictions and high wages have led to the employment of more machinery in quarries and masons' yards and in joiners' workshops, while the use of terra-cotta and ornamental and other glazed ware for walls, and fibrous plaster in sheets, and wood mouldings for ceilings is extending rapidly. The prices of building materials have gone up, Crosland Hill stone to the extent of at least 10 per cent. The building of the Victoria Tower at Castle Hill, the completion of the Sanatorium, the extension of Huddersfield Technical College, the new police station, and the doubling of the size of the Corporation's electric lighting supply station are the chief big works of the year. The opening of the Master Builders' Exchange on the 1st September is a feature of interest. It has over 300 members, and is working very successfully.

HULL.

Although exact details are not available as to the number of building plans passed during the year by the Hull authorities, it is stated by the Building Surveyor that busy as the trade was in 1897, the operations for that year have been far exceeded during 1898. Building, so far as residential property is concerned, has been especially active in the western and northern suburbs, where several hundreds of houses are now in course of construction. The whole appearance of the Hessle Road has been changed by the long lines of shops built during the year on what were previously open fields. As regards commercial buildings, several very expensive warehouses have been built mostly on the sites of older constructions. Flour mills, some of them of gigantic size, are springing up along the banks of the River Hull, this being a favourite site for the mills from the fact that craft can go alongside the mills and be discharged direct into the buildings.

MANCHESTER.

The dispute among the stonemasons in the earlier half of the year greatly affected building operations. Many large contracts were brought to a standstill after the foundations had been put in, and it is only recently that in some of these cases the erection of the stone superstructures has begun. Where the question of stone was at rest there was exceptional briskness in the building trade throughout the year. Whatever may be said as to the failure of the Ship Canal to serve the purposes of the shareholders, its influence has brought a great increase to the industrial population, and along with that have necessarily come great schemes of construction for manufacturing, storage, handling, and residential purposes. Railway companies and the sanitary authorities have swept away many old dwellings, and cottages, barrack buildings, and model lodging-houses are being prepared in fresh places. The speculative builder has been busy, and thousands of houses have been put up in the outskirts. Quite a transformation is going on in the heart of the city in the erection of the Great Northern Goods Station, the Midland Railway Hotel (to cost £1,000,000), and the rebuilding of warehouses, shops, and business premises. A municipal technical school and a University Hall at Owen's College, to cost £50,000, are among public works in progress.

SHEFFIELD.

Builders and contractors were never busier than they have been during the past twelve months. The greatest development has been on the Ecclesall and Abbeydale side of the city. A large estate on the Ecclesall Road, adjoining the General Cemetery, is fast being covered, and not only is the Abbeydale district being built up, but Millhouses, only a few years ago a rural district, altogether cut off from the town, is now joined to the city. During the year the work of completing High Street has proceeded. Mr. John Walsh is building vast piles of premises on either side of the street, and these are quickly approaching completion; the Angel Hotel has been rebuilt, and the Star Hotel and King's Head are being replaced by new structures. Another bit of the old street will shortly disappear, and in its stead will be erected a grand pile of buildings, a portion of which is to be occupied as a bank. The Corporation have had in hand the new baths for Brightside, and they have built two destructors.

The Whitechapel Board of Works has just decided to light its district by electricity. To carry out the work the engineer estimates that a capital expenditure of £60,000 will be required during the first two years, and it is anticipated that by the end of 1899 the principal streets will be served by the new illuminant. The engineer says that the works can be made self-supporting in at most three years. A sliding scale of charges will be drawn up, but it is estimated that the light can be profitably supplied at less than 42d. per unit to consumers regularly using their lamps after eight p.m.

CONDITIONS WHICH RENDER HOUSES UNHEALTHY.*

By JAS. I. LITTLE,

Late County Sanitary Inspector, Renfrewshire.

(Continued from page clxxiii.)

CLAYEY and alluvial soils are very retentive of damp, and are always liable to be cold, and a house built over such soils is never healthy, as there is always an upward current of damp ground air into the house, and there is always a tendency to dampness. In fact, a district with a clay subsoil is more liable to fogs, and therefore more unhealthy than the dryer situations. In one of the reports by the Registrar General for Scotland, when referring to an enquiry as to the causes of consumption, he said:—"It was found that the towns, villages, hamlets, and houses which were situated at or near undrained localities, or were on heavy impermeable soils, or on low-lying ground, and whose sites were consequently kept damp, had a very much larger number and proportion of cases of consumption than towns, villages, hamlets, or houses which were situated on dry or rocky ground, or on light porous soils, where the redundant moisture easily escaped." This tendency to phthisis, by people living on damp soils, is more observable when the nature of their employment necessitates their being confined in houses, offices, or workrooms during the day.

We may take it, therefore, that all soils are more or less porous and damp, and the interior of the building will, unless special precautions are taken, be liable to be affected by the exhalations rising up from the ground on which they are built, as the warmth of the houses when occupied has a tendency to assist the upward passage of damp or ground air. All sites should be prepared and means of protection adopted which will render the house safe from inroads of damp or ground air. Unfortunately this is seldom properly performed, and when anything is done, it is carried out in such a prefatory manner generally that the house benefits very little. The Public Health Act and the Burgh Police Act enact that it is unlawful to erect a new building on any ground which has been filled up with any decomposing matter until such has been removed. It is very important to have this power, but how is it possible to know, or to prove, that decomposing matter has been buried in the ground on which thousands of houses are erected every year? It is only in very rare instances that these powers can be taken advantage of, with the result that many houses are erected every year over ground containing very objectionable matter. There are also provisions in various local acts and by-laws providing for the draining and concreting or asphaltting of the sites for new buildings, but even then the builder can, and does, deceive the authorities.

If a house is to be healthy, it must be thoroughly protected from ground air, as the exhalations arising from damp and undrained soils are poisonous. It is not sufficient to merely remove the surface soil and lay a thin layer of asphalt, which may or may not cover all the ground surface. Damp courses in walls are now considered imperative in all new buildings. These, however, are often mere imitations, and the substances used not capable of resisting the capillary attraction of the water in the walls. The material is also often carelessly laid, not properly jointed, and not extending through the wall. In a word, many of the substances used are a fraud. Every damp course should be bedded with a good layer of cement mortar so as to ensure no interstices being left.

If the site is not drained to lower the subsoil water and the surface covered with an impermeable material the house cannot be healthy.

* A paper read before the Glasgow and West of Scotland Technical College Architectural Craftsman's Society.

A wet hill slope should always be avoided as a site for a building; but if it must be used the site and the ground above it should be thoroughly drained, and on no account should the house be built on a terrace cut out of the hill. The experience of the 42nd and 79th regiments at Balaclava is a good instance to explain this. The huts of the 79th were placed on terraces cut out of the hill, while the huts of the 42nd were placed on projecting terraces. The result was the 79th suffered severely from fever, while the 42nd had none.

A hill overhanging a house also causes a stagnation of air around it.

DESIGN.

On the architecture lies the responsibility of the unhealthy condition of many of our houses. Unhealthy conditions are generally associated with defective sanitary appliances, but unless buildings are so planned and constructed that every room and corner be efficiently ventilated, and that without a sense of draught, the house cannot be healthy. It may be said, with the late E. W. Godwin, "Science and Art must walk hand-in-hand if life is to be worth living. Beauty without health is incomplete. Health can never be perfect for you so long as your eye is troubled with ugliness." Professor Gourlay, in one of his lectures, described Architecture as a constructive art, and as the art of giving to a building all the perfection which can be given to it; and this perfection, he said, is attained when a building is perfectly suitable, perfectly stable, and perfectly beautiful. These are just the points required to make a house healthy, and if these were honestly kept in view by architects and craftsmen in the planning and construction of dwelling-houses, instead of endeavouring, as is often the case, to erect the greatest number of dwellings on the least possible space, and at the least possible cost, the conditions which render houses unhealthy would be less frequently met with. A writer in one of our evening papers lately, in referring to the working-class houses, said:—"They (the houses) need improvement, and some of them that are being put up will be anything but comfortable or useful. If the builders or designers were of the working-class, I am quite sure they would use their brains towards making the houses different from what is put up. They are built with shoddy attempts at grandeur—the size of the houses does not permit of style—and, in the attempt, use, healthiness, and comfort are sacrificed for silly show." The present-day designers of buildings unfortunately study the law on the subject more than the health of the community, and the closer they can sail to the wind the more satisfied are they with their handiwork. Their responsibility ends with the completion of the buildings; they leave the health of the occupiers of the houses in the hands of the sanitary official—that is what he is paid for, let him do his duty, and the general health of the community will be improved. Mistaken idea! The laws relating to the requirements for buildings will never be perfect until our engineers, our architects, and our craftsmen become impressed with the knowledge that on their shoulders lies the primary responsibility for the health of the people. There is no Act of Parliament or Building Regulation but can be evaded in one way or

other, and until the important relation in which Architecture stands to sanitation is thoroughly recognised, the conditions which render houses unhealthy will continue to exist. A relation there is, and that this is a very strong one, could be very easily proved if closely followed up. The relation of the construction of our houses to the health of the occupants seems to have been entirely lost sight of in the designing of the majority of our old buildings, but the idea that some actual relation between beautiful and artistic surroundings and health did exist must have been present in the minds even of ancient writers, as in Plato's "Republic" we find the following paragraph:—"Let our artists be those who are gifted to discern the true nature of beauty and grace; then will our youth dwell in the land of health, amid fair sights and sounds; and beauty, the effluence of fair words, will visit the eye and the ear, like a beautiful breeze from a purer region, and insensibly draw the soul, even in childhood, into harmony with the beauty of reason." Thus the great philosopher held that the productions of art, acting through the eye on the mind, exercise a distinct influence on bodily health.

That, however, did not deter the late Sir Edwin Chadwick from viewing the idea of any relation between Architecture and hygiene with disfavour. He seemed to think that art and hygiene were not only unconnected, but even in some respects incompatible. Other men of standing in the scientific world, however, who have given much study to this question, have shown very clearly that unless art is combined with science a house will never have the cheering influence that is required in our homes, if the health of the community is to be improved. The chief of these was Sir B. W. Richardson, who has occupied the foremost rank of sanitary authorities, and, who, during his life, thoroughly considered this aspect of sanitary science. In a lecture he delivered on the relation of Architecture to Hygiene, he began by showing that much prejudice has been excited against some of the best sanitary inventions and labours, because leading sanitarians have failed to consider artistic construction as part of sanitary construction; their whole minds have been absorbed in the useful, and they have permitted all that is ornamental to pass by, as if good taste were disconnected from sanitation. He argued that this was a great mistake; that ugliness was an offence to good health, and that beauty was an aid to the best health. He showed that when mind and body are enfeebled by bad health, the introduction of disagreeable objects into the sick room or ward is painful and injurious to the occupants, whilst the presence of beautiful flowers, pictures, and designs is curative in its effects—a kind of mental tonic, which gives tone also to the body. This thought led him to the consideration of the best forms for hospital wards, having regard to the effect on the eye, and through the eye on the mental and bodily health.

(To be continued.)

The engineering and boilermaking works, known as Tay Foundry, situated in Maryfield, Dundee, has been sold to Mr. William Mair, Crieff.

Surveying and Sanitary Notes.

It appears from a report presented by the engineer to the Rural District Council that the £10,000 borrowed for carrying out the Northend Drainage Scheme, at Gloucester, had been expended, and that another £5000 or £6000 would be necessary to complete it.

An inquiry into the proposed scheme for the drainage of the Lea and Roding Valleys was recently held at the Urban District Council Office by Major-General H. J. Crozier. The object was to ascertain the feeling of the Urban Council as to the appointment of a Board of Management to carry out a scheme suggested by the Lea Conservancy.

The experts appointed by the Rivers Committee of the Manchester Corporation to advise them upon the treatment of the sewage at their outfall works at Davey Hulme, have made a preliminary report to the committee, recommending the bacteriological system for the treatment of the Manchester sewage. The experts were Mr. Baldwin Latham, C.E., of London, Dr. Frankland, of London, and Mr. W. H. Perkins.

At an examination in practical sanitary science held at Manchester on December 16 and 17, 1898, six candidates presented themselves. The following candidate was granted a certificate in practical sanitary science:—William John Ball, 17, Wellfield Street, Warrington. At an examination for inspectors of nuisances, held at Manchester on December 16 and 17, 121 candidates presented themselves. Fifty-six candidates were certified, as regards their sanitary knowledge, competent to discharge the duties of inspectors of nuisances.

The resolution of the London County Council of November 29th, according to which all clearances under the Housing of the Working Classes Act, 1890, which involve rehousing are to be done at the sole cost of the Council, has not been long in bearing fruit. The more impecunious vestries are already looking out for areas to be cleared, and for sites to be built upon, at the expense of the ratepayers at large, and among them the parish of St. George-the-Martyr is well to the fore. Already a special report on unhealthy areas and on vacant sites has been drawn up, and the vestry is being urged, without loss of time, to make representations to the County Council on the subject. We do not, however, gather that, according to the resolutions, the Council is in any way bound to rehouse in the same parish as that in which the clearance is made, and it is much to be hoped that, as the Council is now committed to building, it will take care to obtain sites for the purpose on something like a general plan, and one which shall lessen instead of merely perpetuating the present overcrowding. We hope that before the Council spends a penny on new sites for workmen's dwellings, it will draw up a general plan of action, so that the excess of population shall be removed from the central parishes, and located where the people can lead more healthy lives.

COMPLETE LIST OF CONTRACTS OPEN.

DATE OF DELIVERY.		WORK TO BE EXECUTED.	FOR WHOM.	FROM WHOM FORMS OF TENDER MAY BE OBTAINED.
BUILDINGS—				
Jan. 6		Barnstaple—Alterations, &c., to House, &c.	A. and F. Northcote	A. Thorne, 16, Cross-street, Barnstaple.
" 6		Barnstaple—Erection of Stables, &c.	— Dockings	A. Thorne, 16, Cross-street, Barnstaple.
" 6		Brackenthwaite, Cockermouth—Erection of Bridges	Rural District Council	J. B. Wilson, A.M.I.C.E., Court-buildings, Cockermouth.
" 6		Derby—Extension of Buildings	Midland Railway Company	Company's Architect, Cavendish House, Derby.
" 6		Nelson—Erection of Brewery Offices, &c.	Wm. Astley	Office, 4, Grimsshaw-street, Burnley.
" 7		Gillingham, Kent—Erection of School	School Board	F. Smith, Bank-chambers, High-street, New Brompton.
" 7		Reedley, Nelson, Lancs.—Semi-detached Villas	H. Walton	J. T. Landless, Station-buildings, Nelson.
" 7		Tadcaster—Tramp Wards at Workhouse		Bromet and Thorman, Architects, Tadcaster.
" 7		Heysham, Morecambe—Erection of Arcade	C. Lee	A. L. Lang, 12a, Pedder-street, Morecambe.
" 7		Plaistow, E.—Enlarging Hospital	County Borough of West Ham	E. T. Hall, 57, Moorgate-street, E.C.
" 7		West Ham—Enlargement of Hospital	Town Council	F. E. Hilleary, Town Clerk, Town Hall, West Ham.
" 9		Horsham—Infirmary Block	Union Guardians	C. H. Burstow, 6, West-street, Horsham.
" 9		Mickleover, near Derby—Asylum Wards	Committee of Visitors	J. S. Story, Surveyor, County Offices, Derby.

COMPLETE LIST OF CONTRACTS OPEN—continued.

DATE OF DELIVERY.	WORK TO BE EXECUTED.	FOR WHOM.	FROM WHOM FORMS OF TENDER MAY BE OBTAINED.
BUILDINGS—Continued.			
Jan. 9	Crofton, near Wakefield—Hotel Alterations, &c. ...	Bentley's Yorkshire Breweries, Limited	B. W. Higgins, Architect, Oulton, near Leeds.
" 9	Keighley—Erection of Five Houses, Four Shops, &c. ...	Canon's Park Estate Company Limited	W. H. and H. Sugden, Architects, near Keighley.
" 9	Edgware—Two Houses ...	Trustees of Bible Christian Church ...	J. H. May, 249½, High Holborn, W.C.
" 10	Wellington, Somerset—Erection of Church, &c. ...	Commissioners H.M. Works ...	F. W. Roberts, 2, Hammet-street, Taunton.
" 10	Bradford—Inland Revenue Office ...	Urban District Council ...	Office, Storey's Gate, S.W.
" 10	Barnes—Fire Station ...	School Board ...	G. B. Tones, Council Offices, High-street, Mortlake.
" 11	Halifax—Infants' School ...	Town Council ...	J. F. Walsh, Lancs. and Yorks. Bank-chambers, Halifax.
" 11	Kidderminster—Fire Engine Station ...	Urban District Council ...	A. Comber, Borough Surveyor, Kidderminster.
" 11	Selby—Public Baths ...	Islington Vestry ...	W. Hanstock and Son, Branch-road, Batley.
" 11	London—Pulling-down and Removal of Buildings	Vestry of St. Mary, Islington ...	Vestry Hall, Upper-street, N.
" 11	London, N.—Greenhouses ...	School Board ...	J. Stubbs, Supdt. of Islington Cemetery, East Finchley.
" 12	New Barnet—Erection of School ...	Central London School District ...	W. Pywell, 40, Great James-street, Bedford-row, W.C.
" 13	Hanwell, Middlesex—School Buildings ...	Building Company Limited ...	J. T. Newman and Jacques, 2, Fen-court, E.C.
" 14	Forres, Scotland—Semi-detached Villas ...	Vestry, St. Mary Magdalen, Bermondsey	J. Forrest, Architect, High-street, Forres.
" 16	London, S.E.—Supply of 60,000 Bricks	Committee of Visitors ...	F. Ryall, Vestry Clerk, Bermondsey Town Hall, Spa-rd., S.E.
" 16	Knowle, near Fareham, Hants—Infirmary Wards, &c. ...	Lancaster County Council ...	W. J. Taylor, County Surveyor, the Castle, Winchester.
" 17	Preston—Police Station, Dwelling-houses, &c. ...	Gas Committee ...	H. Littler, Architect, County Offices, Preston.
" 17	Rochdale—Electricity Works ...	Burial Board ...	T. B. Ball, Manager, Gas Works, Rochdale.
" 17	Handsworth—Laying-out Cemetery, &c. ...	Gray and Son ...	E. Winder, jun., Corn Exchange-chas., Wharf-st., Sheffield.
" 17	Southminster, Essex—Railway Hotel ...	School Board ...	P. M. Beaumont, Maldon, Essex.
" 25	Little Ilford—School Buildings, &c. ...	Co-operative Society ...	S. Jackson, 65, Fenchurch-street, E.C.
" 28	Wingate—Erection of Shop ...	Urban District Council ...	Secretary, Station Town Co-operative Society, Wingate.
No date.	Grays, Essex—Cast-iron Bandstand and Shelter ...	Littleborough School Board	A. C. James, Surveyor to the Council, Grays.
"	Smithy Bridge, Lancs.—Erection of School ...	Corporation ...	S. Butterworth and Duncan, Architects, Rochdale.
"	Ipswich—Drinking Fountain ...		F. Wheeler, 6, Staple-inn, W.C.
ENGINEERING—			
Jan. 6	Brighouse—Inclined Retorts ...	Gas Committee ...	Engineer, Municipal Offices, Brighouse.
" 6	Johannesburg—Carburetted Water Gas Plant ...	Town Council ...	R. Whyte and Co., 22, Bury-street, St. Mary Axe, E.C.
" 7	Newport, I. of W.—Gas-holder Tank ...	Gas Company ...	F. G. Cockey, 93, High-street, Newport, I. of W.
" 7	Armagh—Cisterns, &c. ...	District Lunatic Asylum ...	J. J. Phillips and Son, 61, Royal Avenue, Belfast.
" 7	Beverley—Construction of Vessel for Fishery Offices ...	N.E. Sea Fisheries District Committee	Clerk to Committee, County Hall, Beverley.
" 9	Southampton—Sewage Tanks, &c. ...	Corporation ...	W. B. G. Bennett, Borough Engineer, Southampton.
" 9	Belfast—Locomotive Tipping Wagons ...	Harbour Commissioners ...	G. F. L. Giles, Engineer, Harbour Office, Belfast.
" 9	Edinburgh—Electric Switchboard and Boosters	Magistrates and Council ...	Resident Engineer, Dewar-plate Edinburgh.
" 9	Tunbridge Wells—Filter Beds ...	Corporation ...	W. C. Cripps, Town Clerk, Town Hall, Tunbridge Wells.
" 10	Burnley—Electric Cables ...	Corporation ...	W. E. Wright, Boro' Electrical Engineer, Town Hall, Burnley.
" 11	Tunbridge Wells—Telephonic Fire Alarms ...	Corporation ...	W. C. Cripps, Town Clerk, Town Hall, Tunbridge Wells.
" 11	Houghton-le-Spring—Steam Road Roller ...	Rural District Council ...	D. Balfour, M.I.C.E., Houghton-le-Spring.
" 11	Hamilton, Scotland—Reservoir ...	Waterworks Commissioners ...	W. E. Coplan, 146, West Egeant-street, Glasgow.
" 11	London, N.—Alterations, &c., of Heating System	Hornsey Urban District Council	E. J. Lovegrove, Council's Engineer, Southwood-la-Highgate.
" 12	Sicily—Dredging Harbours ...	Ministry of Public Works ...	Ministry of Public Works, Rome.
" 16	Glasgow—Main Line of Railway ...	Caledonian Railway Company	Formans and McCall, 160, Hope-street, Glasgow.
" 17	Weston-super-Mare—Heating Apparatus ...	School Board ...	S. J. Wilde and H. F. Price, Architects, Weston-super-Mare.
" 19	London, N.—General Engineering Installation at Baths	St. Mary's Vestry, Islington	A. H. Tiltman, 6, John-street, Bedford-row, W.C.
" 20	Farnham—Sewage Cooling Tanks, &c. ...	United Breweries Ltd. ...	T. W. Tovey, Secretary to United Breweries Ltd., Farnham.
" 20	Barrow-in-Furness—Wiring Free Library ...	Corporation ...	Borough Electrical Engineer, Town Hall, Barrow-in-Furness.
" 20	Newmilns, Scotland—Reservoir ...	Corporation ...	P. C. Hart, 32, John Finnie-street, Kilmarnock.
" 21	Glasgow—Electricity Generating Plant ...	Harbour Commissioners ...	W. A. Chamen, 75, Waterloo-street, Glasgow.
" 23	Belfast—Supply of Cranes, &c. ...	London County Council ...	G. F. L. Giles, Engineer, Harbour Office, Belfast.
" 24	London—Tunnel ...	County Council ...	Engineer's Department, County Hall, Spring-gardens, S.W.
" 24	London—Overhead Traveller ...	County Council ...	Engineer's Department, County Hall, Spring-gardens, S.W.
" 27	London, N.—Alterations to Engines ...	County Council ...	Engineer's Department, County Hall, Spring-gardens, S.W.
" 27	Newhaven and Seaford, Sussex—Sea Wall, &c. ...	Defence Scheme Commissioners ...	Engineer, L.B. and S.C. Railway, London Bridge, S.E.
" 28	Southampton—Superstructure, &c., of Bridge ...	County Council ...	W. J. Taylor, County Surveyor, The Castle, Winchester.
" 31	London—Four Gas Engines ...	County Council ...	Engineer's Department, County Hall, Spring-gardens, S.W.
Feb. 1	Townsville, North Queensland—Supply of Crane	Harbour Board ...	Chairman, Townsville Harbour Board, Townsville.
March 15	Be'ém, Para, Brazil—Water Supply Transfer	Government ...	Brazilian Consulate, England.
" 15	Rio de Janeiro—Waterworks ...	Municipal Council ...	Commercial Department, Foreign Office.
" 15	Shanghai, China—Electric Tramways	Municipal Council ...	J. Pook and Co., 8, Jeffrey's-square, St. Mary-axe, E.C.
" 31	Shanghai—Telephone System (30 years)	Municipal Council ...	J. Pook and Co., 8, Jeffrey's-square, St. Mary-axe, E.C.
No date.	Tumble, near Llanelly—Driving Drifts ...		Manager, Great Mountain Collieries, Tumble.
IRON AND STEEL—			
Jan. 7	Carmarthen—Cast-iron Pipes ...	Corporation ...	F. J. Finglah, Borough Surveyor, Carmarthen.
" 9	Malden, Essex—Cast-iron Water Mains ...	Rural District Council ...	H. G. Keywood, Engineer, Maldon.
" 9	Stockport—Cast-iron Pillars, Cages, &c. ...	Rural District Council ...	H. H. Turner, Davenport-road, Hazel Grove, Stockport.
" 10	Ashford, Kent—Supply of Cast-iron Mains, &c. ...	Urban District Council ...	Stevenson and Burstal, 33, Parliament-st., Westminster.
ROADS—			
Jan. 6	Wanstead—Making-up Roads ...	Urban District Council ...	Surveyor, Council Offices, Wanstead, N.E.
" 7	Abersychan—Repairing Path ...	Urban District Council ...	E. Cooke, Surveyor, Council Offices, Abersychan.
" 7	Surbiton—Making-up ...	Urban District Corporation	S. Mather, Council's Office, Victoria-road, Surbiton.
" 9	Southampton—Street Works ...	Corporation ...	W. B. G. Bennett, Borough Engineer, Southampton.
" 9	Wolverhampton—Road Works ...	Streets Committee ...	J. W. Bradley, Engineer, Town Hall, Wolverhampton.
" 9	Beckenham—Paving Works ...	Urban District Council ...	J. A. Angell, Surveyor, District Council, Beckenham.
" 9	Beckenham—Making-up Road ...	Urban District Council ...	J. A. Angell, Surveyor, District Council, Beckenham.
" 9	Crewe—Road Works ...	Town Council ...	G. Eaton-Shore, Borough Surveyor, Earle-street, Crewe.
" 9	Stockport—Supply of Broken Stone	Rural District Council ...	H. H. Turner, Davenport-road, Hazel Grove, Stockport.
" 10	Dover—Completing Road ...	Town Council ...	H. E. Stilgoe, Borough Engineer, Town Hall, Dover.
" 11	Clacton-on-Sea—Road Works ...	Urban District Council ...	A. E. Robinson, Town Hall Buildings, Clacton-on-Sea.
" 14	Newport, I.W.—Widening Road ...	Rural District Council ...	E. Humphries, Surveyor, Newchurch.
" 19	Eccles, Lancs.—Street Works ...	Highways Committee ...	Borough Surveyor, Town Hall, Eccles.
" 21	Banbury—Supply of Hartshill Stone ...	Town Council ...	N. H. Dawson, Borough Surveyor, Town Hall, Banbury.
No date.	East Greenwich—Granite Setts		E. A. Edmonds, Surveyors, Point Wharf, East Greenwich.
"	London, N.W.—Forming Road ...		Stone Granite, 4, Mackeson-road, Hampstead, N.W.
SANITARY—			
Jan. 10	Swansea—Sewers, &c. ...	Urban Sanitary Authority ...	R. H. Wyrill, Engineer, Guildhall, Swansea.
" 13	Melton—Rearranging Drainage ...	Suffolk County Asylum ...	A. T. Cobbold, County Hall, Ipswich.
" 14	Denbigh—Pipe Sewers ...	N. Wales Counties Lunatic Asylum	J. T. Wood, 3, Cook-street, Liverpool.
" 16	Hendon—Sewerage Works ...	Urban District Council ...	S. S. Grimley, Offices, The Burroughs, Hendon, N.W.
" 21	Withnell—Sewerage Works ...	Urban District Council ...	T. Beaver, Surveyor, Brinscall, near Withnell.
" 28	Glasgow—Outfall Sewer ...	Corporation ...	City Engineer, 64, Cochrane-street, Glasgow.
" 30	Amphill—Sewerage Works ...	Urban District Council ...	T. Hennell, 6, Delahay-street, Westminster.
" 31	Chipping Norton—Drainage Works ...	Town Council ...	N. Lailey, 16, Great George-street, Westminster.
No date.	Armagh—Sewering Pipe ...		Manager, Co-op. Wholesale Society, Dublin-st., Armagh.

COMPETITIONS.

DATE DESIGNS TO BE SENT IN.	DESIGNS REQUIRED.	AMOUNT OF PREMIUM.	BY WHOM ADVERTISED.
Jan. 14	Burnley—Higher Grade School, &c. ...	£100, £50, £30	Burnley School Board, Ormerod-road, Burnley.
Feb. 1	Bradford—Central Fire Brigade Station ...	£31 10s., £10 10s.	City Surveyor.
" 10	Dartford—Three New Schools ...	£20, £10	Dartford School Board, Kent.
" 28	Knutsford—Laying-out Cemetery, &c. ...	£25	W. J. Downes, Surveyor, Urban District Council, Knutsford.
" 28	London, S.W.—Covered Sanitary Dust-cart	£150, £100, £50	Clerk, London County Council, Spring Gardens, S.W.
April 14	Bradford—Cartwright Memorial Hall and Art Gallery ...		City Surveyor, Bradford.
No date.	Charlbury, Oxon—Design for Fountain ...		The Vicar, Charlbury, Oxon.

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December 15th.

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January 5th	May 4th	September 7th
January 19th	May 18th	September 21st
February 2nd	June 1st	October 5th
February 16th	June 15th	October 19th
March 2nd	July 6th	November 2nd
March 16th	July 20th	November 16th
April 6th	August 3rd	December 7th
April 20th	August 17th	December 21st

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By order of Trustees.—Preliminary Advertisement.—Freehold Building Estate, Streatham, near West Norwood Railway Station.

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By order of the Executors of Miss Susanna Roycroft.—Camberwell.—Leasehold Ground Rents.

MESSRS. FIELD and SONS will SELL by AUCTION, at the MART, on WEDNESDAY, JANUARY 18th, at TWO o'clock, in two lots, improved LEASEHOLD GROUND RENTS, amounting to £45 per annum, arising from and amply secured upon three shops and six dwelling-houses, being Nos. 202, 204, and 206, Camberwell-road, and Nos. 34, 36, 38, 40, 42, and 44, Mansion-street, adjacent, of the rack rental value of about £200 per annum.
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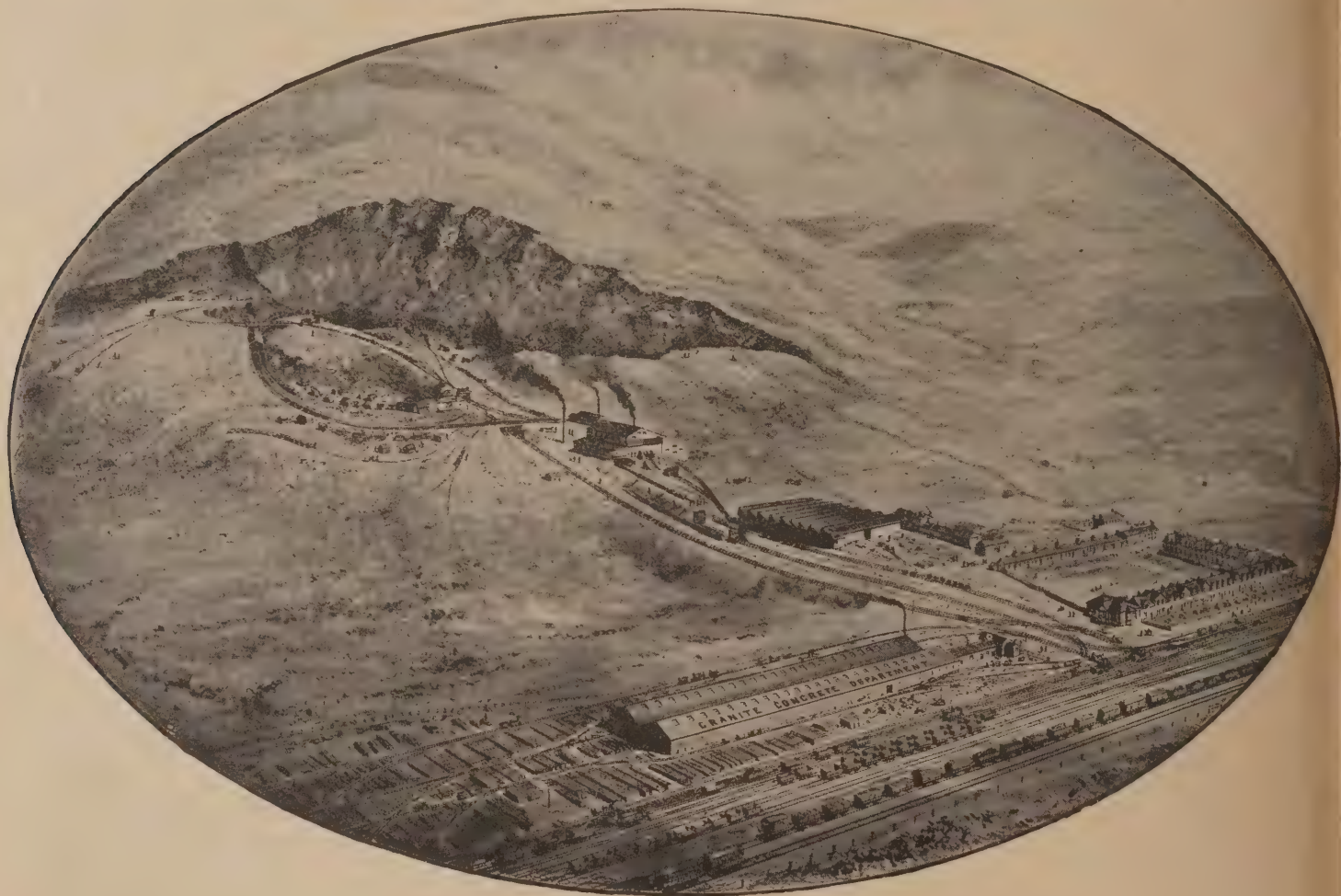
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An Architectural Causerie.

Suggestion for a "Client's Exchange." It must be a matter of very general observation and surprise that, in Architecture, the knack of getting work and building up a practice has little or no relation to the acquirements or real abilities of the architect. Thus we often see men of magnificent qualifications and proved abilities who wait in vain for work which does not come, while in the same street a drawing-room *dilettante* of no experience or attainments, or a self-styled "architect" of no education or artistic discernment, is kept busily and profitably employed. One proffered this remark to one's predominant partner, and he honoured it with a prompt endorsement. "You're right," he said, emphatically, "it is so, it's the incompetent men, not the brilliant and distinguished men, who get clients most readily. I've been in practice now over seven years, as you know, and how many commissions have I got? What are you laughing at? I tell you I could count every client I ever interviewed on my fingers." One here interposed and told him he should say his "thumbs." This remark annoyed one's predominant partner very much, and he remained dumb with disgust for several minutes. Then he turned round from his drawing and said savagely, "Well, then, why don't you bring some work into the office?" To which one replied, "It's the incompetent men, not the brilliant and distinguished men, who get clients most readily;" but after the protracted wrangle which followed, causing one's predominant partner, among other things, to miss his train, the matter suggested itself to one as presenting most remarkable opportunities for commercial enterprise if only the Profession could be persuaded to set aside prejudice and rules of etiquette and frankly view the relations of client and architect on the basis of their true limitations and possibilities. What specially held one's thoughts was the conviction that as ability in the practice of Architecture and ability to acquire clients were obviously not identical, and evidently implied distinct qualities and gifts, certain men were specially fitted to win the confidence (and building commissions) of the public, while others were specially gifted for the designing and supervision of works. This being the case, one perceived that if each practitioner were to employ himself solely upon the work in which he was best fitted to excel, he would advance his own success, and, upon a well-established principle, the division of labour would benefit the community by allowing the practice of Architecture to be conducted with greater perfection and economy. On following out this idea to its issue, one realised that the first essential for securing an efficient and proper facility for the application of the notion to the needs of the time would be the introduction of a system of mart and exchange, where architects who had clients to negotiate might do so, and where those who were in a position to purchase might have an opportunity of finding what they wanted. The need for some

such convenience for architects, whether the system here suggested is literally adopted or not, is very apparent. We may see on one side young men of power and attainments who wait year after year for a chance of showing their capabilities, and, on the other, established men who, having passed the waiting period, have so much work that they are obliged to turn away would-be clients from their doors. Now why should any architect feel under obligations to refuse a client whom he has acquired through his own ingenuities, the exercise of humiliating self-repression, practised craft, and masterly tact? Such a client is his fairly earned property, and the Profession should sell and exchange clients as advocates sell their briefs

inauguration of such a publication, a column set apart for these advertisements in the professional journals would serve all present needs. It would probably be unadvisable to insert these advertisements in the daily or general press, as it is possible that a certain class of clients, should they chance on the advertisements of their own exchange, would perhaps become a little "difficult." In order to show the thoroughly practical nature of this proposal, to illustrate the need there is for some such institution, and to impress our readers with the undoubted feasibility of the suggestion, a few advertisements are appended, such as might be expected to appear under the heading "Clients for Sale!"

CHEAP! TO YOUNG ARCHITECTS. For



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in the Scottish Courts. The transfers might be difficult to effect at first, and would always call for subtle tact, but there need be no fear of a revolt of clients, and the usage would soon become a matter of precedent, and a privilege of the Profession. So far as one can see, the best medium for making architects' wants known to one another would be a publication which would advertise clients "Wanted," or for "Sale" or "Transfer." The periodical might be called "The Clients' Exchange." In time, quotations of the largest transactions of the week would be looked for, and there would be undoubted need of an article on the state of the client market from time to time. Pending the

Sale. Three Maiden Ladies. A crack has appeared in back wall of town house. Family nervous, as District Railway below. With a little pressure would undoubtedly consent to underpin throughout. Vendor has no reason to suppose drains not to be thoroughly out of order. First-rate opening for pushing gent of good appearance and address. What offer? Money returned if Vendee does not obtain commission. "Squillgee," Box A9372.

£500. A GREAT BARGAIN. £500.—Will take £500 for rising GLUE BOILER in the prime of life (43). Owing to family circumstances, will part with said client as above for £500, CASH DOWN. Has already built at vendor's suggestion: vat house,

£15,000; town residence in provincial city, £20,000, with £3000 extra in carved brick and terra-cotta tiles on front. J. P. and Chairman of District Council. Could easily be induced to pull down vat house and build another. Country seat in contemplation; house in Park Lane final ambition. Price only £500 (cash), including all privileges. "Jumbo," Box 9321.

VICAR (Low Church). Will be glad to exchange my SUFFOLK VICAR or negotiate same for ten guineas. This sum includes complete contract drawings with specification and quantities for new tower and spire to church (1872). Ditto, ditto, doxas mission house (1875). Ditto, ditto, additional study and conservatory to vicarage; stables to same; classic temple and fountain in garden (1876, 1878, 1881). Also seventeen alternative sets of sketch designs for other works not yet approved for contract (1870 to 1895). None of the works here mentioned have been executed so far, and no payment has yet been made to architect. Will sell the lot with full privileges for £10 10s., and will pay *bonâ-fide* intending purchasers third class return fares into Suffolk to view sites and vicar, if desired. "Rus.," Box 72311.

B. C.

On Reflection.

Two Picture Exhibitions.

THE collections of pictures at Burlington House and the New Gallery will no doubt attract the wide attention they deserve. The Rembrandt exhibition constitutes probably the finest display which has been arranged within the walls of Burlington House since the inauguration of the winter "Old Masters" exhibitions thirty years ago. Four rooms are filled with the paintings, and in a fifth are arranged some of Rembrandt's choicest drawings. From time to time this painter has been included in these winter exhibitions, but we believe that he has not been represented since the "one-man show" became a popular usage. Nearly all the pictures shown are the property of English lenders; they include most of those which chiefly distinguished the late Exhibition of 123 paintings at Amsterdam, and many more besides, for England is richer in the great works of this master than any other country. The exhibition of pictures by the late Sir Edward Burne-Jones is aptly displayed within the walls of the New Gallery. The little Regent Street Gallery was inaugurated largely with the intention that it should form a home for works of Art of ideal aspirations, such as ill recommended them to the conservative policy of the Hanging Committee of the Royal Academy. It has from the first been associated with the designs of Burne-Jones, and it is only six years since the directors of the Gallery arranged an exhibition of his exclusive works. The present collection of two hundred and twenty-five paintings, drawings, and designs comprises the majority of those which found place in the Gallery on the above-mentioned occasion, with certain additions; and little of the painter's most conspicuous and notorious work is absent, although the reason which excluded the Briar-Rose series on the first instance holds good also for this. The pictures are framed into the panelling of the room for which they were designed, and cannot conveniently be moved. The fact of an exhibition being repeated at such an unusually short interval, although popular sympathy with the painter is no doubt enhanced by his lamented death, speaks eloquently for the wide acknowledgment which has crowned the long, solitary years of ungrudging labour, and unflinching zeal and conviction, which the painter lavished towards the perfecting of his art.

"One Man" Shows.

ALTHOUGH the system of collecting the work of one painter upon the walls of an Art Galleries, which has found such general favour among promoters of exhibitions in London during the last few years, may have little to recommend it to the connoisseur or to the accomplished student of Art, the usage fulfils far more valuable purposes than its wide popularity would lead us to expect. To understand the work of an artist, whatever his medium of expression may be, we need to have close sympathy with his personality; with his æsthetic and intellectual purpose; and with that subtle quality which distinguishes the man from all others of his craft. When once this peculiar essence of any artist has been grasped and assimilated, and not till then, can we thoroughly appreciate his good work or confidently condemn his failures. A practical student and critic may be able to read the generative impulse of the artist from a single work, but most of us, if we are to be brought into this intimate sympathy with the man, need first to be set in an exclusive atmosphere of his achievements. In such circumstances we see the man in many moods and many modes and phases; we are persuaded to a sympathy with him, and therefore to a supreme understanding of him, which we could never attain from a desultory acquaintance with his works. Particularly does this principle apply in the case of picture galleries, where in general the several ideas of each painter are seen in an inharmonious proximity to the ideas of others, and the sympathy is no sooner attuned to the ideal of one artist than it is required to leap to a similar intimacy with a new and diverse personality. The one-man exhibition finds favour with painters; and it may be remembered that Turner's bequest to the nation was conditional upon the exhibition of his pictures being self-contained and exclusive. It is probable that this usage has done much to educate public taste and popularise pictures—the Christmas supplements to the weeklies, of humorous cats and puppy-dogs, notwithstanding.

Clonfert Cathedral.

THE Rev. Canon McTearney, writing to the Saturday Review from Banagher, draws attention to the decayed condition of Clonfert Cathedral. During the last five years nearly £1100 has been collected, and the restoration of the chancel and sacristy is now completed, but some £2000 more is needed to put the nave and transepts into proper repair, and, as Canon McTearney points out, it is difficult to raise money for such purposes in Ireland. "Mr. Ruskin has sent me a donation," he adds, and in this he should congratulate himself, not only on the addition to the fund he is interested to raise, but also in that he has succeeded in urging Mr. Ruskin to mitigate his hitherto vigorous intolerance for all kinds of restoration. Devotees of Mr. Ruskin's teaching on the subject of Architecture may in future therefore hold that, while the highest ideals and sentiments of Architecture dictate that an ancient building shall be allowed to succumb to natural decay, and that the period of its gradual dissolution may be protracted only with props and "crutches"—to use Mr. Ruskin's term—there are yet demands of practical usefulness which may justify timely and judicious restoration. Many of us may have regretted that, in the prefaces to certain late editions of his works, the author has repudiated the convictions of his earlier writings, and spoken with a sort of intolerance of the conclusions therein expressed, but few will regret that he has, by implication, modified the extreme rigour of his views on the subject of church restoration. We hope Canon McTearney will speedily see the completion of the work he has so much at heart.

Cardiff Municipal Buildings.

WE learn from a report of a meeting of the Town Hall Committee of the Cardiff Corporation, printed in the South Wales Daily News, that the committee is much divided upon the subject of whether or not the township can afford the funds necessary for carrying out these buildings, and a proposal to postpone the operations indefinitely was only negated by a majority of three on a vote of fifteen councillors. It seems that the Corporation is under obligation to complete the Cardiff "Western Sewer," which has been under approval some eight years, and are reluctant to burden the rates with the additional expense involved by the erection of the municipal buildings. It is not easy to understand why this matter of funds, which is the one and only essential to building, was not settled before the expense and trouble of organising the late competition and appointing architects and procuring plans to be made, was entered upon. It is, however, we notice, quite commonly the rule of procedure with municipal authorities, particularly in the smaller provincial towns, to organise competitions for buildings which, as circumstances afterwards reveal, they could never reasonably hope to erect.

Commissions.

WE take off our hat to the members of the committee of The West Cliff Land Development Association, Herne Bay. The Association desires to build, and with a bland, childish simplicity advertises, inviting architects to tender terms for supplying plans and estimates and superintending the erection of buildings on their estate. The simplicity of the Association here yields to the claims of worldly prudence, for they do not bind themselves to accept the lowest or any tender. What does the Association think they are to gain by such an invitation? If thereby they suppose that they will get their Architecture more cheaply than by entering into private agreement with an architect, they are grievously mistaken. In the first place, they can hardly hope to get Architecture at all; and in the second, they will pay heavily for what they do get. No reputable architect would compete for the commission upon such terms, and the man who can afford to send in the lowest tender is the man who has the fewest scruples against being "squared" by the contractor, and availing himself of the commissions offered by the various trade agents. In the moral philosophy of our nurseries, greedy children always suffered afterwards. It is gratifying to observe that this sound principle holds good also for adults in other connections.

THE Guildhall Museum has just received a valuable addition to its antiquarian treasures, in the shape of some interesting relics of underground London, which have been presented by Sir Benjamin Baker, the well-known engineer, and the City Commissioners of Sewers. The articles in question were discovered during the excavations which have been made in connection with the Bank and Newgate stations of the Central London Railway. Among them are an engraved brass rowel spur of the seventeenth century, a portion of a horseshoe, several specimens of Samian ware, a Venetian wineglass, and a platter of painted Delft ware, also of the seventeenth century, with some green glazed ware, a white stone jug, and a few human bones. These, together with some Roman antiquities, also dug up at the corner of Queen Victoria Street, near Walbrook, and a curious cast-iron plaque representing the killing of the "goose with the golden egg," which was discovered in the cellar of an old house in Smithfield Market, have been placed near the famous collection of relics of underground London which were gathered together by the late Mr. Chas. Roach-Smith, F.S.A., of Strood.



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MESSRS. GRAYSON AND OULD,
LIVERPOOL.

THE conditions of architectural practice at the end of this 19th century are so remote in principle from all other conditions hitherto in vogue, and their influence upon modern Architecture is so persistent, that insufficient stress is ordinarily laid upon them. A brief *resumé* of any man's work now-a-days consists largely of a comparison between his actual productions and those of bygone days; generally much to the disadvantage of the former and to the undue glorification of the latter. Such comparisons, driven too far, obviously soon become meaningless. The architect of today is so hemmed-in by practical requirements and unavoidable limitations, such as were quite unknown to the master builders of old, and are still foreign to our brother artists the painter and the sculptor, that it is the exception rather than the rule for a design to be carried out in its entirety. Much in the transition from the brain of the designer to the concrete form loses its salient points, and thereby but surges into the great sea of the uninteresting and banal. We do well, therefore, to put aside materialistic thoughts, and to look at the ideals after which a man is striving, for, after all, a truer estimation of the work of a man may be gathered from the nature and extent of his ideals, than from his shortcomings in the earnest endeavour to realise them. The art of Architecture, however, is such an obtrusive one; we are brought face to face with it at every turn, and it acts and re-acts upon our daily life to such a degree that we are forced to lose sight of the individual, and, whether justly so or not, to challenge the work to tell its own story and to be its own judge. In the hands of a skilful worker these same limitations become often the very pegs upon which to hang the tangled skeins of the imagination, the key-notes to the proper accentuation and characteristic expression of the design. They are not to be masked and slurred over, but to be faced and overcome. To turn them to good advantage is in itself

an achievement—the goal of an architect's ambition—for the aspect of our towns and cities has depended, and still depends, more and more upon the artistic solution of intricate and difficult problems.

Forty years ago, when Mr. Grayson commenced practice in Liverpool, there was much in store for him in a city rapidly increasing in commercial and civic importance. Its history for the last half century has been one of amazing progress; the results with which we are mostly concerned here are the outward and visible ones of expansion of area and erection of buildings worthy of the spirit of its citizens. In common with most English cities, to contemplate the general setting out gives rise to melancholy at the thought of the magnificent opportunities heedlessly thrown away in the past. Here the rising ground, with endless vista from the broad and noble river, so suggestive of breadth and grandeur, and power, conjures up in the mind a city second to none for monumental splendour; but what could not be done in the Capital of the Empire at a time when Providence seemed to create the opportunity, while at the same moment providing the genius large enough to seize it, could hardly be hoped for elsewhere under less propitious circumstances.

Mr. Grayson was not called upon to lay out new streets, but to erect buildings in a city which already boasted the one truly great classic monument which the movement, then scarce dead, has bequeathed to us. He early showed himself to be thoroughly in sympathy with that movement, and although the weathercock of public opinion has shifted round in all manner of directions since those days, he has never swerved from it, but still finds unwearied pleasure in furthering classic Architecture as being first and foremost the most adaptable and expressive for buildings in a town where all is formal and man's handiwork stands alone. His work is not the dry bones of classic art. Like the best of modern work, it is eminently inspired by modern life, and is classic in spirit rather than in letter.

In 1887 he was joined by Mr. E. A. Ould, and almost the work of a lifetime seems to have been compressed into the short period since that union. The partnership has been productive of much good work, both in town and country, and examples are so numerous that we cannot attempt here more than a mere mention of by far the greater number. Confining our attention for the present to town and commercial buildings as distinguished from country and residential ones, we must

not pass over the railway stations erected at either end of the Mersey tunnel, which form such prominent features with their conspicuous towers, carried nearly as much below the ground as above it, and again the North Shore Mills stores and elevators, alongside the docks, where is stored a larger supply of grain than in any other single structure in the kingdom, and the very extensive annexe to the County Asylum at Rainhill. Of banks and insurance offices alone Messrs. Grayson and Ould have erected a round number in Liverpool. There is no mistaking them for anything else. They are strong looking, and each one at a glance distinctly proclaims its peculiar function in the life of the city; and this quality of expression is at the root of all architectural design.

The new building just finished for the Bank of Liverpool, in Water Street, is unquestionably one of the finest of its kind erected for many years past, and is a credit and an ornament to the city. An illustration of it is given in our supplement, but to realise the massiveness and weight, and yet airiness and grace, of the general mass, and the refinement of the detail, one needs to ponder long and often in the shadow of the thing itself. Grey granite, shipped already worked from Dalbeattie, has been used for the whole of the façades above the plinth line, and the great charm of the design is to be found in the reticent and workmanlike handling of this suggestive but stubborn material. It has been allowed to show its strength and natural beauty of texture in a manner which cannot be too highly applauded. The ornament is massed, for the most part, in the tympana, and is Grecian in *motif*. One has become so accustomed to associate granite with Runic carving, that it is most refreshing to see here how equally applicable are the broad, flowing lines, and severe simplicity of the best period of Greek art when properly brought out in the new material. In this case the success is largely due to the architects having worked in conjunction with a first rate sculptor, instead of handing the carving over *en masse* to a badly-trained craftsman to be carried out in the universally accepted stock patterns.

Castle Street, one of the most important thoroughfares in the business part of the city, has been largely rebuilt by Messrs. Grayson and Ould. They have risen to the occasion, and, whilst imparting a distinct individuality to each block, have not in any way sacrificed the harmony of the street as a



PROVISION WAREHOUSE, MATHEW STREET, LIVERPOOL. MESSRS. GRAYSON AND OULD, ARCHITECTS.

whole. Indeed, it has few equals as it is; and if the dome of the Customs' House had ranged on its axis as does that of the Town Hall, instead of being slightly off it, Liverpool would possess one of the most impressive streets in the country. The premises for Messrs. Jones and Sons form a good corner opposite the Town Hall, but they are rather overpowered by the Edinburgh Life Insurance, recently built next to them. The new bank for Messrs. Leyland and Bullins, the Scottish Equitable and Queen's Insurance Buildings (Nos. 28-32, Castle Street), the Victoria Buildings, and the British and Foreign Marine Insurance, are all worth more than a passing mention. The last named shows a fine use of colour, (minutely suitable for town Architecture. It is a massive structure in red brick and stone, well balanced, with just enough play of line produced by the slightly curved bays to arrest the eye and lead it to the frieze, which is the special feature of the façade. This frieze is illustrative of old and modern types of mercantile shipping, as shown by a ship of the time of Queen Elizabeth and by a modern Atlantic liner, and is executed in bright glass mosaic in various colours. It was carried out by Salviati, and attracted a good deal of attention at the time of its exhibition in London. The effect *in situ* is striking and most happy. Our streets might be made bright and resplendent with colour; the deadly monotony of grimy wall surfaces become a thing of the past, if the example here set could be followed more generally.

Another instance of the introduction of a coloured frieze by the same architects as an integral part of the design is to be seen on the provision warehouses and offices at the corner of Mathew Street. Again the subject depicted declares the *raison d'être* of the building, and interest is at once awakened in the passer-by.

As the provisions consist primarily of bacon and cheese, the *motif* of the design centres in the decorative treatment of agricultural operations, especially the raising of pigs, cattle, &c. The whole was executed by Mr. Goodall, of Liverpool, in modelled Portland cement sgraffito of two colours, slightly sunk within enclosing mouldings which protect it and frame it in. It is a question whether this mode of decoration is really applicable in the heart of a town where the edges left after cutting down the successive layers of coloured plaster form so many ledges for the accumulation of soot. The more colours introduced the more does this objection hold. With two colours only as in this example, namely, dull red and creamy white, the advantages undoubtedly outweigh the disadvantages, and, with occasional cleanings, there is no reason why it should not be much more frequently used, even in smoky atmospheres.

Few men have done more to place the designing and planning of country houses upon a sound basis. In most matters concerning monumental Architecture, English architects have yet much to learn. Our Continental contemporaries have succeeded far better, for the reason, no doubt, that scope to realise their ideas is more often allowed them; but the "home" feeling, so pronounced and so peculiar to this country has found expression in a type of domestic work which absolutely holds its own with anything that has ever been done. We hear much about the lack of originality and want of style in these days; but let the pessimists who continually lament in this strain look for awhile intelligently at our purely domestic work. The requirements in a house now are multifarious as compared with the simple unconventionality which satisfied our almost immediate predecessors. Our civilisation

requires it. No longer does a stately exterior, symmetrical at all costs, but with complete disregard of internal comfort and privacy, satisfy our needs. A house, as has so often been said, is to live in, and must, before all things, be a "home" in the full sense of that wide-meaning word. When we approach one of Messrs. Grayson and Ould's houses, the first impression is always one of complete homeliness. This applies equally to the little cottage residence and to the large country house bordering on the mansion, and they have built many of each description.

Mr. Ould, from the first, devoted himself particularly to the thorough mastery of the construction and design of the half-timber work for which Cheshire, Shropshire, and in a lesser degree other western counties are so justly famous. This is little to be wondered at, seeing how much he was thrown amongst them, and that his early practice was carried on in Chester itself, which yields to no other town for the picturesqueness and quaintness of its streets. Here then is the source of inspiration of much of Mr. Ould's country work, whilst his leaning towards the Jacobean often shows itself in internal details.

Few architectural deceits have been more persistently pursued than the so-called half-timber construction; so much so that one naturally assumes that the timbers are only skin deep in modern work in the absence of reliable evidence to the contrary. This, undoubtedly, has cast a slur over this kind of work in general, but, when truthfully constructed of good oak and designed with restraint, few materials will give more charming qualities of texture, subtler play of line and harmony of colour; it takes its place in Nature's setting, and what it borrows fully pays back.

The greater part of Messrs. Grayson and Ould's domestic work, although by no means all of it, will be found in Cheshire. In the houses erected at Bidston for Mr. Hudson, and at Thornton for the Messrs. Lever, the full capabilities of the type of design we have been discussing are admirably shown. Whilst strictly adapted to modern requirements in plan, the design in the main is on traditional lines, with such variations of detail as infuse the whole with spirit and true individuality. In the one case—that of Bidston Court—as is well known, the two bays in the quadrangle are as careful and as exact a reproduction of part of Old Moreton Hall, in Cheshire, as it was possible to make them, and the inscription carved on the beams records the fact. We owe a debt to the architects for thus preserving for our enjoyment and for that of future generations a perfectly unique and charming piece of 16th century design. This is not copyism; it is a thousand times better than restoration. The harm comes in only when a design is taken haphazard and transplanted, may be from one country to another, from one climate to another, with utter disregard and the intention of passing it off as an original design. When, as in the case of these bays, the new structure declares itself to be a reproduction of a weather-worn and decaying one not many miles away, the principle is good, and will bear of application to many a crumbling masterpiece, and be far more valuable than all manner of records in the form of measured drawings and photographs, which only too often fall into wrong hands. The remainder of this extensive house is entirely new in design, but it is so familiar, through constant illustration, that we leave it to look at others not so well known. As must inevitably be the case with the majority of country work, Messrs. Grayson and Ould's is hidden away, and difficult of access to the student.

At Port Sunlight and the village of Thornton Hough, about four miles distant, are to be found numerous blocks of artisans' dwellings, some of which are here illustrated. It is hoped before long to devote a whole article to the model village of Port Sunlight, one of the most interesting results of the present widespread movement, fortunately gaining ground every day, which aims at wresting the smaller class of property from the grasp of the jerry-builder, and showing that art and Architecture are as much at the service of the lowly as of the rich.

Both Thornton House and Hesketh Grange, situated within a short distance of one another, and built within the last few years, illustrate the matured type of country house of which we have been speaking. Each is complete in itself, and reaches as near perfection of its kind as anything we know of. To take Thornton House, of which a part of the exterior is given in our supplement, everything falls into its place quite naturally, and frankly expresses the internal arrangement; nowhere is there forced grandeur—nowhere artificial dignity; it is first and foremost, inside and out, an English home. The warm-tinted sandstone, quarried and worked in the neighbourhood, has been used with oak left absolutely untouched from the saw, which has already mellowed into soft silvery tints; the oak pins left standing well out explain the construction and become quite decorative at

of the ample headroom, one is too much occupied with stooping beneath it to be able to see anything.

Further afield Messrs. Grayson and Ould have carried out many large domestic works. Suffice it to mention Sir Alfred Hickman's mansion, Wightwick Manor, here illustrated, and The Mount, all at Wolverhampton; Irton Hall, Dunstall near Hull; Nidd Hall, Yorks; and St. Helen's, Dublin, for Mr. Nutting, just finished; whilst Mr. Ould, in his early practice, built many houses and cottages in and about Chester for the Duke of Westminster. With such a lengthy roll of important commercial and domestic buildings, the ecclesiastical has, as one would expect, found only a secondary place. These are becoming more and more days of specialism. Besides St. Faith's, Waterloo—now building—the churches at Woolton and Allerton merit attention as

ART OR MUTILATION?

OLD CUSTOMS IN GARDENS.

WHATEVER may have been the merits of the Tudor gardens they had their defects, and were certainly not superior to those of the Victorian era, as some writers would fain have us believe. Mr. George Gordon, writing in the *Gardeners' Magazine*, says the shaping of trees with shears and knife is frequently spoken of as mutilation, but with greater propriety it is called topiary work, from the Latin "*topiarius*," shaped by cutting, the word being used in this sense by Pliny, Vitruvius, Cicero, and other classical authors. It is undoubtedly true that the



COTTAGES AT PORT SUNLIGHT. MESSRS. GRAYSON AND OULD, ARCHITECTS.

the same time. Inside, mahogany has entered largely into the scheme of decoration, the idea of the half-timbered work outside being carried through by means of ribbed ceilings and panels on the walls. The boudoir illustrated, however, is in oak, with an open ceiling, divided into bays by curved ribs, supported on carved corbels, representing Shakespearean characters.

At Hesketh Grange, plaster modelled *in situ* is used above the first floor level with a richness of effect which is most pleasing in reality, but which is quite lost in the illustration here given. Many of the rooms are panelled in satin wood or mahogany, perfect in figure and finish. Only one unpleasant reminiscence remains of this sumptuous interior, and that curiously not an uncommon one—an arch is thrown across the hall at the start of the stairs, so that, in descending, the view of the hall is completely obscured till one reaches the bottom steps, when, in spite

of the ample headroom, one is too much occupied with stooping beneath it to be able to see anything.

The new buildings at Trinity Hall, Cambridge, also the Master's Lodge, Dining Hall, and Combination Room were recently won in limited competition, and, with the New Clergy School in the same town, are now in progress, whilst extensive rebuildings for the Liverpool Stock Exchange are occupying Messrs. Grayson and Ould just now. Enough has been said to show the important part that this firm—which was further strengthened in 1897 by the admission of Mr. Hastwell Grayson—is playing in the architecture more especially of the North of England, by setting a high standard, which they not only maintain themselves, but in so doing unconsciously influence others to emulate the masterpieces of a great art, which not only has a Past and a Future, but, beyond all, a Present.

natural form of a tree is the most beautiful form possible for that particular tree; but it sometimes happens that we do not want the most beautiful form, but one of our own designing, for the sake of the variety it affords. So far as authority bears on the subject, it is distinctly in favour of topiary, for the Romans recognised the shaping of trees into architectural forms as an essential part of the gardening art. Shakespeare is quoted as an authority on a great diversity of matters, and more particularly in defence of "the natural style of gardening." But there can be no question that the garden of Shakespeare's time was a garden of knots and topiary. It was enclosed with hedges of clipped hornbeam and yew, and embellished with arbours, obelisks, pyramids, and spires of verdant greenery. The "curious knotted garden" mentioned in the letter of Arnado, in the first scene of "*Love's Labour Lost*," was, beyond all doubt, furnished with examples of the topiary art.



THE STUDY, BIDSTON COURT. MESSRS. GRAYSON AND OULD, ARCHITECTS.

DUTCH AND FRENCH.

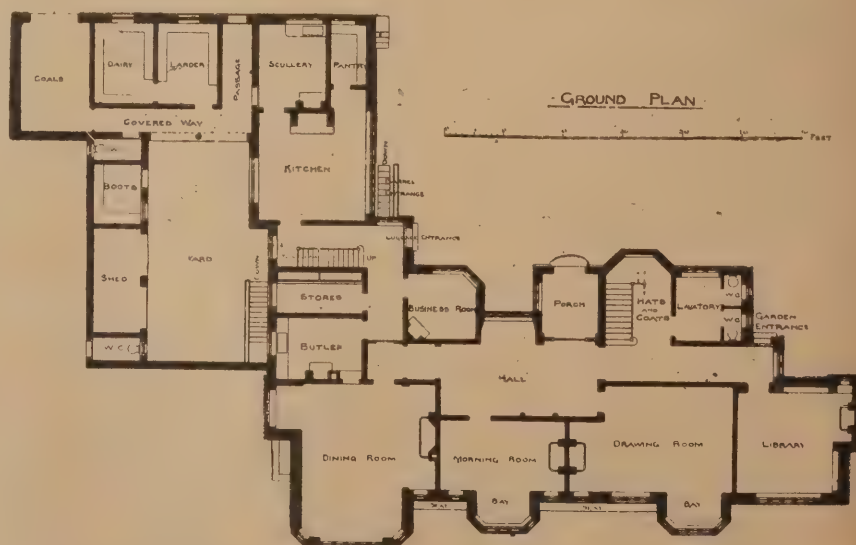
Shakespeare was familiar with such gardens as the one above described, and approved of the prevailing taste of the time. Bacon had no liking for clipped trees, and with reference to them he says in his essay: "I for my part do not like images cut in juniper or other garden stuff; they be for children." We can go back to a time long anterior to Shakespeare for authority for the shaping of trees into fanciful forms, for the topiary art was practised with much success in Roman gardens in the first century of the Christian era. It attained a high state of development in the gardens of Pliny's Tuscan villa. There can be no doubt that the garden of Pliny's villa, as it existed at the end of the first century, when, under the reign of Trajan, Rome was at the zenith of her glory, set the fashion of European gardening for many centuries. It was not until the sixteenth century that clipped trees came into vogue in this country, and this is not surprising, as it was not until the termination of the Wars of the Roses, towards the end of the fifteenth century, and Henry VII., the first of the Tudor line, had ascended the throne, that gardening in any form obtained attention. With a cessation of internecine wars a new style of Architecture was adopted, and the garden was no longer confined within the moat with which houses of importance were in those days surrounded. This extension of area gave greater scope for the exercise of taste in the arrangement of the garden, and also for the cultivation of ornamental plants. The first of the introductions consequent on this change were flower beds enclosed with low railings, which acquired a considerable degree of popularity, and remained in use for a long time.

GARDENS OF TO-DAY.

The most noteworthy example in England of the Dutch style of gardening, in which the topiary art attained its highest degree of development, is at Levens Hall, Westmoreland, the residence of Captain Bagot, where no material change has been made in the grounds for at least two centuries, and where, consequently, may be seen the form of garden that found favour with William III., who exercised so great an influence in developing a taste for the Dutch style, in which clipped trees were so prominent. With the flight of James II., in 1688, Colonel Grahame, who was one of the king's most devoted adherents, retired to his Westmoreland estate, and some time subse-

quently he engaged M. Beaumont, who had made considerable alterations in the Hampton Court Gardens, to lay out the grounds. There is now a tendency to restore some of the screens which formed so characteristic a feature of the Dutch style, with a view to obtaining a greater degree of privacy, and more shelter for both visitors and plants. With this restoration of sheltering hedges and verdant belts has evidently come a desire for examples of topiary art, and already there are several modern gardens where they are to be found firmly established.

MR. LEOPOLD DE ROTHSCHILD'S splendid residence, Gunnersbury House, Acton, is undergoing some alterations and improvements. In excavating the foundations of the new drive the solid foundations of the historical mansion inhabited by Princess Amelia have been unearthed, and the old wine cellars have been discovered, whilst at the south-east corner of Gunnersbury House has been found a fine piece of brass work fencing, in each panel of which is a shield having the motto of the Order of the Garter, enclosing the initials of George, Prince of Wales.



GROUND PLAN OF THORNTON HOUSE, CHESHIRE. MESSRS. GRAYSON AND OULD, ARCHITECTS.

THE FEUDAL PRINCIPLES OF REAL PROPERTY LAW

BY WILLIAM H. STACPOOLE, LL.D.,
Barrister-at-Law.

IV.

THE other species of socage tenure which I mentioned in the last article as having been feudalised after the Conquest is gavelkind, which word is derived from "gavel," or "gafol," an old name for rent.

The term gavelkind has been used in several different senses, of which Mr. Elton enumerates five in his "Tenures of Kent." The proper answer, however, to the question, What is Gavelkind? is this: Gavelkind is the common law of the County Kent, by which, on the death of the parent intestate, the land descends to all the sons in equal shares.

Let us consider this. There are two kinds of customs incident to gavelkind, viz., (1) special customs which are not essential to gavelkind; (2) general customs which are essential to gavelkind, which, in fact, constitute gavelkind, provided always that they exist in the County Kent.

Examples of the special customs which are only collateral, but not essential to gavelkind, are as follows:—

- (a) That the husband shall be tenant by the courtesy of a moiety, whether he has issue or not.
- (b) That the wife shall be endowed of a moiety.
- (c) That the infant shall have power to alienate his lands by feoffment (the most ancient method of conveyance, which will be described presently) at the age of fifteen.
- (d) That the estate does not escheat in case of attainer and execution for felony, the maxim being "The father to the bough, the son to the plough."*

The general custom which is "parcel of and comprehended under the name of gavelkind," "which, of itself, will constitute gavelkind, and without which it cannot exist," (b) "is partibility among the males," or the equal division of land, on the death intestate of the parent amongst all the sons.

Partibility, by which is meant this equal division of lands amongst the sons, or other male heirs if there be no sons, exists in some other places besides Kent. But in such other places it exists only as a special custom which requires to be specially proved. Elsewhere than in Kent, if a man dies intestate leaving an estate of inheritance, the presumption always is that the eldest son, or other nearest male heir in default of a son, is solely entitled

* Escheat for treason or felony was, however, abolished in all cases by 33 and 34 Vic. ch. 23, s. 1 (passed July 4, 1870).

(b) Robinson on Gavelkind, pp. 24, 25.

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THORNTON HOUSE, CHESHIRE: ENTRANCE COURT. MESSRS. GRAYSON AND OULD, ARCHITECTS.



THORNTON HOUSE, CHESHIRE: BOUDOIR. MESSRS. GRAYSON AND OULD, ARCHITECTS.



HESKETH GRANGE, CHESHIRE. MESSRS. GRAYSON AND OULD, ARCHITECTS.



THE BANK OF LIVERPOOL, WATER STREET. MESSRS. GRAYSON AND OULD, ARCHITECTS.

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PLAN OF HESKETH GRANGE. MESSRS. GRAYSON AND OULD, ARCHITECTS.

to the estate; and if it be asserted that, according to the custom of the locality where the estate is situated, it is partible (or divisible equally among the sons or other male heirs in the same degree of kindred), then the *onus* lies upon the person who makes this assertion of proving the existence of the alleged custom which, if it exists at all, exists in opposition to the common law of the country.

Now, in Kent, the presumption is exactly the reverse. Here, partibility is the common law of the county, so that if a man dies intestate, leaving heritable lands in Kent, the presumption is that the lands are partible, and this presumption can only be overcome by proving either that these particular lands have been expressly disgavelled by an Act of Parliament, or that they are subject to a special custom of primogeniture which runs in opposition to the common law of Kent.

Gavelkind is now the common law of the county Kent only, but before the Conquest it was the common law of England. (c) Partibility, which is gavelkind, was, except where controlled by burgage, a universal incident of the socage tenure until, elsewhere than in Kent, it was converted after the Conquest into primogeniture to suit the exigencies of the feudal system. It is natural, therefore, to ask why this ancient common law should have been preserved in Kent, and not in other counties? To this question several answers have been given. Blackstone suggests that the Kentish men won the privilege of retaining their ancient custom of gavelkind by the stoutness of their opposition to the Conqueror; (d) Mr. Elton, on the other hand, regards gavelkind as "a special privilege obtained by the early submission of the province." (e) Mr. Somner, however, whose account seems the most plausible, supposes that the Kentish men, being chiefly yeomen, did not care for the prestige attached to the military tenures, and "were more careful in those days to maintain their issue for the present, than their houses for the future," so that they "were more tenacious, tender and retentive of the present custom than generally those of most other shires were." (f)

Since all lands in Kent are presumably gavelkind, and held to be such until the contrary is proved, the question arises; How can it be proved with respect to any particular land that it is not of the nature of gavelkind? The answer is: By proving that it was held by

the tenure of Knight's service before the Conquest (g).

The land may have been used, owing to the ignorance or indifference of those concerned, to descend according to the custom of primogeniture, but nevertheless, it always remains partible among the sons or other male heirs, unless it can be shown to have been specially disgavelled by an Act of Parliament, or to have been held in Knight's service before the Conquest, and the burden of proving either of these propositions lies upon the person who maintains it. Thus Robinson says "Mr. Somner pp. 49-50, and Mr. Lambard, in his *Peramb.* 503, 538 (h), are both of opinion that gavelkind in this county is to be tried by the manner of the socage services, and not by the touch of some former partition, and that, though the land has never been parted in deed, yet if it remains partible in its nature" (that is to say, if it be gavelkind, which it is presumed to be, until the contrary is proved in one or the other of the above ways) "it may be parted whenever there shall be occasion." (h).

The custom of gavelkind, which, as I have said, is the common law of the County Kent, is not lost because it may have been neglected or disobeyed. No period of nonuser can affect it. "The law of gavelkind," says Lord Mansfield, "is unlike all other customs; it is not good if it begins only just before the reign of Richard I. This custom existed long before any such customs, and almost before any history. . . . The appropriation in subsequent times (after the Conquest) of any

(g) Robinson on Gavelkind, pp. 28, 30. As to Knight's service in England before the Conquest, see note to last article.

(h) Robinson on Gavelkind, p. 28, "Peramb."—Perambulation of Kent.

portion of land to a religious house will not alter its tenure." (i)

There are seven Disgavelling Acts, which were passed as follows:—11 Henry VII., 15 Henry VIII., 31 Henry VIII. chap. 3, 2 and 3 Edward VI., 1 Elizabeth, 8 Elizabeth, and 21 James I.

Of these, only one, viz., 31 Hen. VIII., is contained in the Statute Books, and this is consequently the only one that is judicially noticed, for, having been printed in the Statute Book by the king's printer, a copy may be read in evidence to a jury as being a true copy. When the others are used in court an attested copy examined with the record ought to be given in evidence. These Disgavelling Acts, it may be as well to notice, deal only with the custom of descent, which it is that constitutes gavelkind. The other customs, which I have enumerated above, are left untouched by the Acts, since they are only collateral to gavelkind, and rest, therefore, on their own proof. It may also be well to notice that the right of representation exists in gavelkind, so that a daughter will succeed in her father's place if he leaves no son.

A list of the persons whose lands have been disgavelled by the above Acts, and particulars about the lands will be found in Robinson pp. 39, 40, and chapter xvi. of Elton's *Tenures of Kent*.

Of the special customs which I have already enumerated, I need not say more than that, to the present day, the infant tenant in gavelkind can alienate his lands at the age of fifteen by what is called a feoffment with livery of seisin (to be described presently), and that as gavel-

(i) Doe d. Lushington v. the Bishop of Llandaff, 2 Bros. and P. New Rep. 491, s.c. 2 Eag. and You. 557.



BRITISH AND FOREIGN MARINE INSURANCE BUILDING CASTLE STREET, LIVERPOOL
MESSRS. GRAYSON AND OULD, ARCHITECTS.

(c) 2 Bl. Com. p. 84.

(d) 2 Bl. Com., p. 84.

(e) "Tenures of Kent," p. 29.

(f) "Inquiry into Gavelkind," pp. 89, 90.

kind was not originally a feudal tenure, tenants in gavelkind could alienate their lands as a matter of right, on securing the rent and services to the lord, at a time when other tenants could not alienate at all without the lord's permission.

Gavelkind is, as we have seen, the free socage tenure of land which is now the common law of the county Kent only, but which, before the Conquest, was the common law of England, and it is expressly preserved by 12 Car. II., ch., 24, with Frankalmoin and grand serjeanty, which I have already noticed, and copyhold, which I shall describe in the next article.

Copyhold, I may mention here, is essentially distinct from gavelkind, or the ordinary free socage with primogeniture grafted on it as a feudal incident, which elsewhere exists, in this, that it is of a servile nature, having been originally either pure villainage, or what was called villain socage. Copyholders, as we shall see, are, in theory, but tenants at the will of the lord. No doubt the will of the lord is now, and has for centuries past, been so governed by custom, that they have practically all the advantages of freeholders, but to understand the nature of this kind of tenure it is necessary to understand something of the social state from which it sprang. Thus, to quote the late Mr. Joshua Williams, "One of the great difficulties of the student of the English Law of Real Property is the number of systems of law he has to master. Having learnt all about estates in freeholds, he finds, when he comes to copyholds, he has to learn a number of *quasi estates*, not the same in every respect but generally similar. If it were possible to get rid of copyholds the law of real property would be greatly simplified." (k)

(To be continued.)

A YEAR'S BUILDING IN LONDON.

A MERE catalogue of the new work that has been done in London during 1898 would occupy many pages. The year has been one of considerable activity in the building world, for in addition to the normal, perhaps more than normal, enlargement of the metropolis—an enlargement equivalent to the addition of a fair-sized town every year—the number of new public buildings has been greater than usual.

Free Libraries have been built in Hoxton and St. George's-in-the-East, baths and wash-houses at Deptford and Walworth, polytechnics and technical institutes at Stratford and Southwark. The large Coborn Foundation School for Girls has been erected in the Bow Road, and a Training College for Lay Helpers in Stepney. Nearly a dozen large Board and Church Schools have been built during the year. From the numbers of new theatres and music-halls that have sprung up, it would seem that London is at least as anxious to be amused as to be educated. Foremost amongst these is Mr. Tree's handsome new theatre in the Haymarket, but in addition there are the Coronet Theatre at Notting Hill, the Princess of Wales' at Kennington, and the Crown Theatre at Peckham, besides variety theatres at Brixton, Shoreditch, and Hammersmith.

The South London Art Gallery at Camberwell, the new offices of the Health Department of the Corporation in Basinghall Street, the third block of the Record Office in Chancery Lane, the new premises of the Institute of Mechanical Engineers at Storey's Gate and of the Institute of Chartered Accountants in Great George Street, are among the more notable public buildings of the year. But perhaps the improvement which has most added to the beauty of the Metropolis has been the pulling down of the old houses in Parliament Street that obstructed the view of Westminster Abbey. On the whole, it may safely be said that the building operations of 1898, though for the most part commonplace enough, have given us a more beautiful—or should we say a less ugly?—city than we had a year ago.

(k) Seisin of the Freehold, p. 48.

A YEAR'S BUILDING IN NEWCASTLE.

LONDON is not the only city which exhibits a rapid and continuous growth in extent and population. There are provincial cities also where the process of growth is quite beyond the normal increase of population. While it may be open to doubt whether the growth of London is altogether a matter for congratulation, whether, in fact, the Metropolis is not far too big already, it is probably true that where a provincial city of moderate proportions draws to itself large numbers of people from the surrounding districts, it may be taken as a sign of the attractiveness of that city as a place of residence, and of its generally prosperous condition. At any rate, for architects, contractors, and all connected with the building trades, a rapidly growing city must be an infinitely more attractive locality than one which exhibits signs of stagnation and decay. We gave last week a report of the state of the building trades during 1898 in several important towns in the North of England. This showed that as a rule trade had been fairly brisk. But Newcastle-on-Tyne seems to be

AN EXCEPTIONALLY FORTUNATE CITY.

Its enlargement during recent years has been phenomenal. Its population has increased from about 175,000 in 1888 to nearly 225,000 at the present time. During last year alone, the increase amounted to about 6000. As a natural consequence, new rows of houses and shops are springing up in every direction. To the westward, nearly all the ground has been built upon, right up to the city's limits. Southward, further extension is barred by the river. At Jesmond, the work that was begun a couple of years ago is nearing completion. The West Jesmond estate is now a flourishing little township, isolated, in a measure, from all the rest of the city. It has fine wide streets and handsome shops. Already, the way across the old stone bridge has been made, and workmen are engaged in the construction of the road connecting the place with North Road and the Town Moor. Houses are still being built, and the workmen were there even upon Boxing Day, getting the roofs on while the weather was fair. West Jesmond will soon have a railway station, a church and a Board school, and the temporary letter boxes that have been placed against the lamp-posts will probably be replaced by an office. The same sort of thing has been going on at the other side of Osborne Road—upon what is known as the Manor House Estate. Where, but a year or two ago, there were green fields with the cattle browsing upon them, and magnificent belts of trees, there are now long streets of houses and shops, and the length of them is still extending. Lower down the valley, the Sandyford estate rivals the West Jesmond estate in prosperity. The houses run almost right down to the Ouseburn, and give warning of an "improvement" that must come sooner or later—the building of an arch over the burn, and the filling in of the valley. At Heaton, Benwell, and Gosforth, many new streets are springing up.

PUBLIC BUILDINGS.

Finally, Newcastle has gained considerably during the past year in the way of public buildings. The list of what has been done and what is being done, in this way, is considerable. In the beginning of the year, it includes the Beech Grove Congregational Church, the Sandyford Road Board School, a Roman Catholic Chapel at Byker, and a new Presbyterian Church at Rye Hill. On May 30, the foundation stone of the new Primitive Methodist Chapel in Northumberland Road was laid, and a handsome building is now well on the way to completion. The foundation stone of St. Gabriel's Church, Heaton, was laid on June 15, and there, also, work is well advanced. A magnificent temperance hotel was inaugurated in West Clayton Street, where formerly a church had stood; and, on Aug. 30, after extensive alterations, the Exchange on the Quay was re-opened for business. A new Presbyterian Church has

been opened at Benwell, and the foundation stone has been laid of the Bond Memorial Wesleyan Chapel, in the same neighbourhood. On Oct. 6, the Victoria Library was opened at Heaton, and only a week or so ago the foundation stone of a new High School for Girls was laid by Earl Grey at Jesmond. These, and others that might be added, make an excellent record of work for a twelvemonth. A good deal of it, still in progress, will be finished during the year that is now beginning, and much more will no doubt be commenced.

Under Discussion.

ELECTRIC LIGHTING.

"Electric Lighting" was the subject before the Edinburgh Architectural Society at their last meeting, when Mr. G. Balfour, of Lowdon Bros., delivered a lecture illustrated with limelight views.—Mr. A. R. Scott occupied the chair.—In his opening remarks Mr. Balfour explained with the aid of diagrams the useful qualities of electricity and how it was adapted for working purposes by the various types of dynamo. Various systems of wiring both for large and small schemes were then described, and in conclusion Mr. Balfour went into the question of precautions to prevent leakage. Some interesting samples and fittings were shown.

THE LONDON WATER QUESTION.

At the meeting of the Victoria Institute last Monday week, Professor E. Hull, LL.D., F.R.S., was in the chair. Many new members were elected, including Professor Virchow and others. Professor Logan Lobley, F.G.S., gave an address on "The Physiography of the Thames Basin," illustrated by diagrams. He pointed out that although the Thames Valley contained the largest population in the world, considering its extent, yet that its physiological characteristics caused it to be at the same time the best watered tract of land. Professor Logan explained a scheme for furnishing every Londoner, even when the population had grown to twenty millions, with a daily supply of thirty gallons. All this water was not to come from Wales, but was to be derived from a series of intercommunicable lakes extending alongside the Thames. In them the water now running to waste in winter time would be stored, and used as wanted. On the top of the necessary embankment the City man, shaded by innumerable trees, would disport himself, it was urged, afoot or on horseback, marvel at the sight of the pretty islands "set in the silver" lakes, and invoke blessings on the heads of the "water authority"—or companies—for the prospect of a supply of water, freed from pollution and microbes by the natural process of settlement. The professor also suggested getting additional water from the chalk under London, and, in conclusion, claimed that his scheme was preferable to that of bringing injuriously 'soft' water from Wales by means of pipes and aqueducts, which might at any moment be ruined by an earthquake or destroyed by invaders.

CARDIFF MUSEUM COMMITTEE.

At the last meeting of the Cardiff Museum Committee, Councillor Ward presiding, Dr. Charles Vachell brought forward a memorial from the Cardiff Naturalists' Society pointing to the advisability of erecting a lecture hall in connection with the new Museum in Cathays Park. Such a lecture hall, to seat 600 persons, could be built for £2500, and the Cardiff Naturalists' Society alone would be prepared to pay £50 a year for the privilege of using it once a fortnight during the winter session. The memorial was inserted in the minutes.—A hearty vote of thanks was accorded to Mr. Robert Drane for the presentation to the Museum of a rare specimen of Swansea china.

HOUSE-PLANNING FROM THE ÆSTHETIC POINT OF VIEW.*

By H. HEATHCOTE STATHAM.

WHEN Mr. Paul Waterhouse read his interesting paper on "Oriels and Bay Windows" before the Association a few weeks ago, he commenced it by praising the judgment and benevolence of the Council of the Association in themselves laying down or suggesting the subject to be treated, thereby setting the reader of the paper a definite task, and encouraging him to acquire some definite information on the subject he had been invited to treat of. And he implied that this was the course now usually pursued by the Association in asking for papers. If that is really the case, why have I been, so to speak, left out in the cold? No such benevolent process of

SELECTION OF A SUBJECT

was exercised on my behalf. I was asked simply to read—"a paper"; the universe being left open to me for choice. The universe is a fine field, but a little embarrassing to select from. Under such conditions, the only course is either to take a subject which you have for some reason or other been led to think about, or—to decline. I do not approve of what may be called "paper-making" for its own sake. If people tell you that they wish for your views on some particular subject, it is another matter. You may give them your views, even if the subject is one not specially interesting to yourself. Otherwise, on two or three occasions when other societies have been complimentary enough to ask me for a paper, I have felt

COMPELLED TO SAY FRANKLY

that there was no subject on which at the moment I had any particular opinions or thoughts which I was anxious to give expression to; therefore I must decline. I recommend my own moral example to others who receive general invitations to read papers on any subject they please. It is a dangerous temptation, and tends to put papers in the same category as after-dinner speeches, where you speak, not because you have got something to say, but because you have got to say something. In one of the finest verses in the Psalms we read:—"While I was musing, the fire burned; then spake I with my tongue": but not till then. If you have

NOTHING TO SAY,

do not be persuaded to say it. And therefore, if the Council of the Association have, as I have gathered, made it a general practice (though unhappily not applied in my own case) to specify the subject when inviting anyone to read a paper, I recommend them to keep up that practice; only I would suggest that, after specifying the subject, a rider should be added—"unless there is any other subject which you specially wish to treat." By tying a man absolutely to one subject you may possibly be preventing him from dealing with another which he would treat better; and if he is willing to dispense with the assistance given by having a definite suggestion made to him, it is probably because the other subject is one that he really cares about. So much for the general ethics of the paper-chase, which are worth a little consideration.

IN THE PRESENT INSTANCE

the request of the Council for a paper happened to reach me at a time when my mind was rather full of a subject on which I had wished, sooner or later, to say something; and, therefore, I could not do better than say it here, thereby complying with your request without falling into the sin of paper-manufacture. Although the architecture of the house cannot, except in the case of such mansions as may be called palaces (which are necessarily somewhat rare), rise to the architectural grandeur of the temple or cathedral, yet there is no branch of Architecture more

fascinating in its interest. It is the most intimately connected of all with the lives and characters of men. In an architectural sense, the designing of a house is not merely the arrangement of rooms so as to be comfortable in themselves and commodious in their relation to one another, though these are points of the greatest practical importance. That is a merely utilitarian view of the problem. The object of Architecture is to transfigure the house from a collection of rooms conveniently arranged, to raise it to the level of a distinct and individual architectural conception or idea which should govern the whole arrangement; to give it as much of interior effect as is compatible with its size and with the practical convenience of internal traffic; to make it something more than a mere dwelling-place; the expression of an artistic thought—whole, complete, and indivisible. Of course it will be said that we take a great deal of trouble to make houses architecturally expressive or picturesque. We have our pilasters, our window pediments, our balustrades, our broken cornices over the doors, and pots on the attics, and cut brick cherubs and garlands; or our gables and roofs cutting into each other in different directions and at different heights, our

SHAM HALF-TIMBERED WALLS,

and coloured rough-cast, and plaster devices, and what not; but all these will not save our souls; a house may have them or not have them, and be neither much the better nor much the worse in either case. The plan is that in which the artistic idea of the house is really embodied; that is the basis of the whole. If there is a good idea in the plan, even bad external detail cannot entirely spoil it; if there is no idea in the plan—nothing beyond a commonplace collocation of rooms in convenient positions—the best exterior detail will do little or nothing to conceal the poverty of the main conception. Of course, in any case, the treatment of the masses of the plan is half the problem; and, as we shall have occasion to notice, there have been splendid plans which have not been made nearly as much of as they might have been in regard to exterior architectural effect; but it is mainly

THE PLAN WHICH DISTINGUISHES

the house which embodies an idea, from that which does not. Now in this respect among others, the mediæval revival, so vaunted at the time, has left an ill influence behind it. To take the ordinary scale of dwelling-house first; it is since the mediæval revival that we have been taught to regard the ordinary-sized dwelling-house plan as consisting merely of the fitting together of so many parallelograms of room-spaces, something like a puzzle map, the end of one abutting on the side of another, the angle of one projecting beyond the wall of another, so as to show where the rooms fit on to each other; the result being a plan that is no shape at all, and which cannot be walled and roofed in under the guise of any formal and

DISTINCT ARCHITECTURAL CONCEPTION.

How can one call that an architectural conception? It is simply some rooms tacked together; it is devoid of internal effect, and externally it can only be treated as an irregular collocation of wall and roofs. This way of building is supposed to be "picturesque" and "truthful"; a house is a collection of rooms, and it is to be treated so; it accords with the irregularity of Nature; and so on. A house is not called upon to accord with the irregularities of Nature any more than a garden; it is an artificial creation, and should be treated as such. If it is a mere collocation of rooms, that is the architect's fault; it ought to something more; it ought to be a

PLAN CONCEIVED AS A WHOLE,

the rooms designed and placed so as to be subordinate to that governing idea while retaining convenience of internal position. That is just the *cruz* of artistic house-planning; the mere irregular fitting of rooms together is an evasion of it. And if we look back at the history of the habitation, we find that after men had emerged from that primi-

tive stage in which, as the soldier sings in "Philip van Artevelde"—

"Two sticks and a mat
Make a very good house."

at a comparatively early period they arrived at the perception that a house should be planned on a centre line, and should have so much of interior architectural effect as space permitted. We may take, for convenience sake, three types as given by Viollet-le-Duc in his "History of the Habitation"; they must not perhaps be taken as quite archaeologically accurate, for Viollet-le-Duc possessed imagination as well as industry, and (like other French archaeologists) what he thought probable he treated as historic fact; but they are probably near enough to fact in their main characteristics. In an Aryan house on the banks of the Upper Indus, a locality which has long been the accepted "cradle of the human race" (though Mr. Traill complains that "they are moving the bassinets about a good deal lately"), a plan is drawn out on a centre line, and with the large outer court and inner hall for family life, which is the precursor of the *atrium* of the Roman house probably through the *'alþjov* or open-air hall of the Greek house. In an Ionian house we have the same centralised system, but the inner rooms have

INCREASED IN IMPORTANCE,

and it is curious to notice on one side what would now be called the "stable wing," much as we see it placed in some of the English eighteenth century mansions. Then we have the Greek house, in which the inner colonnaded hall has become the principal feature, and provides a really fine piece of interior architectural effect in a house of moderate dimensions, and which we find reproduced more or less in the Pompeian house. We cannot in this climate have the open-air colonnaded apartment in the centre, though we can have something like it in the disposition of apartments; but at all events this is a far more artistic conception in house-planning than the first-named plan. I am not arguing necessarily in favour of

BI-LATERAL SYMMETRY

in the average-sized house, though I am inclined to say that in the majority of cases bi-lateral symmetry in the main masses at least (with diversity in some of the details) will produce the best architectural result, more especially in the case of a house which is combined with a garden. We have all learned to recognise of late years the beauty and suitability of the formal garden, differentiating the garden, as a work of art, from the informal lines of Nature; and the formal garden will only go well with the formal house. But apart from the bi-lateral question, at all events we ought to see the house modelled on a distinctly conceived and predominating design which moulds the whole of it; not merely put together as the rooms may fit conveniently. The attempt to do this, as it appears to me, is not often made among us. Occasionally we see such a thoroughly original conception as that house by Mr. Prior, of which the model was exhibited two or three years ago at the Academy. "Cliff Towers," a small house by Mr. Townsend, is noteworthy as an example of a plan and architectural treatment which form a

COMPLETE AND ORIGINAL CONCEPTION;

so is the plan of a house by Mr. Horsley,* with its entertaining rooms and gallery *en suite* on the garden front, forming a much more dignified architectural interior than is generally attained in a house on this scale; and other examples will probably occur to some of my hearers. But in the attempt to give special character and unity of conception and design to houses of average size, both the Americans and the Germans are a good deal in advance of us. I am thankful to say that I cordially hate modern German architectural style and detail for the most part; but in turning over a collection of plans of German houses one is surprised to find what an amount of

* A paper read before the Architectural Association on Friday, January 6th, 1899.

* The plan and elevations of this house will appear in our next issue.—Ed. B.J.

variety and ingenuity are shown in the arrangement of the plan, and how little of the ragged and accidental character which is so often found in English plans; they are almost always laid out in accordance with a leading idea which gives unity to the whole. We have a good deal to learn from the Germans in this matter of house planning on an architectural system; it is when they begin to raise and to decorate the elevations that they make such a terrible business of it. But let us turn now to what, in my own mind, was the main object of this paper, the treatment of plan in the largest class of houses—those which can be dignified by the name of "mansions." It is here especially that the taste fostered by the mediæval revival has injured us. The mediæval mansion was in the first instance the castle, and the castle and the habitable portions included in it were naturally built with what we now call a "picturesque irregularity"; which

WAS NOT PICTURESQUE

in the eyes of those who built the castles, but simply utilitarian. Castles were usually, or one might say always, built in as commanding and as isolated a position as could be selected, to secure them the better against attack by force or by surprise. The plateau on which they were built was often irregular in shape, and the most was made of it; after the castle had expanded to something beyond the mere "keep" or single tower, the outer wall followed the natural line of the high ground, and the habitable buildings were got in where it was most convenient and where they were safest. It was only when the times became a little quieter and more civilised that castles or châteaux began to assume regular forms uninfluenced by the nature of the site. The change in progress in the plan of the Château of Chambord, where the inner and outer blocks with their angle towers are quite symmetrical in disposition, but internally the circular towers are cut up by partitions in a quite irregular manner, is noticeable; they are still purely military and utilitarian towers, their circular shape having no reference to any object but their engineering suitability as angle defences. With the commencement of the Renaissance period, when architects had become familiarised with the symmetrical temple buildings of the Romans, came the age of the great

SYMMETRICALLY-PLANNED MANSION,

first in the Elizabethan form of the courtyard or quadrangle, next in the later Renaissance form of the main central block and the outlying "wings." Later in the Georgian period the wings disappeared, and the symmetrical block alone remained; the accessory buildings, such as stables, laundries, &c., no longer forming any portion of the main design, but being relegated to separate buildings at more or less distance from the house. Then after the Gothic revival came the idea that symmetry was not picturesque; there was a reaction against the formal plan, and then followed the taste for what I call the rambling plan, in which the object apparently was to make it appear as if the plan had grown up by accident, or had arisen from the gradual enlargement of the house by successive additions. This habit of deliberately planning a house to look accidental and picturesque is, like the twisting walks and

QUASI-NATURAL PLANTATIONS

of the landscape gardener, an entirely modern invention. For houses of the largest class, there is no precedent for it in any previous age. The irregular castellated dwellings of the mediæval period, as already observed, were irregular for merely utilitarian reasons—to suit the site and make the most of it. There are various old houses in the country which have arrived at picturesque irregularity by dint of successive additions and alterations, but I think there are few if any that were deliberately built so, without anything in the nature of the ground to suggest such a treatment. It is a modern fancy engendered by the Mediæval Revival, and in its adoption has robbed us of the most impressive architectural qualities which are possible in a great mansion.

(To be continued.)

Bricks and Mortar.

EFFINGHAM HOUSE, ARUNDEL STREET,

January 11th, 1899.

"I know what it is to live in a cottage with a deal floor and roof, and a hearth of mica slats; and I know it to be in many respects healthier and happier than living between a Turkey carpet and a gilded ceiling, beside a steel grate and a polished fender. I do not say that such things have not their place and propriety; but I say this, emphatically, that the tenth part of the expense which is sacrificed in domestic vanities, if not absolutely and meaninglessly lost in domestic discomforts and incumbrances, would, if collectively offered and wisely employed, build a marble church for every town in England; such a church as it should be a joy and a blessing ever to pass near in our daily ways and walks, as it would bring the light into the eyes to see from afar, lifting its fair height above the purple crowd of humble roofs."—JOHN RUSKIN.

GOOD progress is being made with the rebuilding of the Metropolitan Tabernacle. The lower hall was opened for public worship on New Year's day. The hall has a fireproof ceiling which will form the floor of the auditorium. The latter will be different in some respects from the old auditorium in which C. H. Spurgeon preached for so many years. It will be shorter by about 18ft., the adjoining offices will be larger, the seats will be less crowded and more space will be left in the aisles. These alterations will lessen the seating accommodation of the place by about 1000. As may be supposed, the greatest possible precautions will be taken against the recurrence of the disaster of last April. The building will have an iron roof, the galleries will be concrete and iron, and there will be an abundant supply of fire hydrants. The total cost will be about £32,550. The architects are Mr. Pocock, who planned the original building, and Messrs. Searle and Hayes, and the work will be carried out by Messrs. Higgs and Hill, Limited, under the personal supervision of Mr. William Higgs, the son of the builder of the old Tabernacle. It is anticipated that the whole structure will be completed in about eighteen months.

ON Monday, Jan. 2nd, the South London tramway system passed into the hands of the London County Council. The price paid by the Council, as fixed by the arbitrator, was £850,000. Until the new manager (Mr. Baker, of Nottingham) is able to take charge, the trams will be managed by a committee. At present there will not be any change in the fares. The energies of the Council will probably be directed towards increasing the efficiency of the service, doubling and lengthening lines, putting on all-night trams, and installing an electric system. Nearly 1900 persons are added to the staff of the Council. The stud of horses numbers 3850. The net profits for last year were £85,000. Half will be absorbed by interest on purchase money, and by the sinking fund for repayment, which extends over two periods of thirty and sixty years. The introduction of electric traction will, of course, involve a large expenditure, but it should greatly improve the system, which will, no doubt, in the future prove to be a valuable municipal asset.

THE question of the alleged shirking on the part of bricklayers, which results in a smaller output of work per man, and consequently increased cost of building, is again being discussed. From the opinions of a number of representative men, which have been

obtained by our contemporary, the Municipal Journal and London, it is quite clear that the number of bricks a man will lay in a day is considerably less than it was a few years ago. Even the workmen's representatives admit that. As to whether the quality of the work has improved different opinions are expressed. Mr. H. R. Taylor, the bricklayers' representative on the County Council, says that: "It is quite true that bricklayers do not lay so many bricks as they did, and they never will again, because the system of work is so entirely different from what it used to be, and men never scamp it." Mr. Rowland Plumble, F.R.I.B.A., the well-known architect, says: "I am distinctly of opinion that bricklayers' work in contract work is better done than it used to be. The men are more independent, and will not be driven." The secretary of the East End Dwellings Company thinks "there never was a time when, on the whole, better work was done than now." Mr. Henry Holloway, on the other hand, declares that not only is the number of bricks a man will lay reduced to about 400 a day, but the average quality of the work is inferior.

THE year which has just ended has been by no means lacking in events of artistic importance and its record is in many ways of more than ordinary interest, says the Globe. Against the continued slackening in the demand for easel pictures of importance, an encouraging increase in the appreciation of decorative work, and especially of sculpture, is to be recorded. Under the influence of this comparatively new encouragement, our sculptors are doing themselves justice. Such work as was contributed last spring to the Academy by Mr. Brock, Mr. Pomeroy, Mr. Frampton, Mr. Drury, Mr. Goscombe John, Mr. Fehr, Mr. Cowell, and Mr. Stirling Lee, is worthy of all praise; and in a review of what has been accomplished during the year no fact is more deserving of attention than the all-round excellence of the performances of this group of artists. For them the year has been a notable one, not only on account of the work they have completed, but also because it has brought them many important commissions. Mr. Brock, for instance, has on hand, besides the great equestrian statue for Leeds, the memorial to Lord Leighton for St. Paul's Cathedral, and the statue of Mr. Gladstone for Westminster Abbey; Mr. Pomeroy has to execute the statue of Mr. Gladstone for the Houses of Parliament; Mr. Fehr and Mr. Drury are both busy with works which are also to be erected at Leeds; Mr. Frampton has been chosen as the sculptor of the great statue of the Queen for Calcutta; and Mr. Stirling Lee has a further series of the bas-reliefs for the St. George's Hall at Liverpool to complete. The Glasgow Art Gallery, too, is occupying the attention of several of our younger sculptors, who are, under Mr. Frampton's supervision, to decorate the exterior of the building.

ANOTHER branch of decorative art has received practical recognition at Glasgow, for Messrs. Lavery, Roche, George Henry, and E. A. Walton have been chosen to execute the mural paintings in the dining hall of the Municipal Building. In London the more important additions to the list of painted decorations have been the panels by Mr. Seymour Lucas and Mr. Goetze, in the ambulatory of the Royal Exchange; a couple of large lunettes in coloured plaster relief, by Mr. Fehr, for the library of the West Ham Institute; and a series of panels in the same material, by Mr. Gerald Moira and Mr. F. Lynn Jenkins, for another library. The world has lost during the year two great artists, whose influence upon contemporary Art has been strongly felt—Burne-Jones and Puvis de Chavannes. The death-roll of the year also includes Henry Stacey Marks, P. H. Calderon, Charles Green, W. H. Overend, and that eccentric genius, Aubrey Beardsley.

THE Chiswick authorities may be entirely devoted to the public interest, but their method of showing their devotion is hardly precipitate. It is seven years since they obtained a pro-

visional order for electric lighting, but the electric light appears to be as far off as ever. Meantime the "option" has passed into different hands at least four times, its value on the third exchange standing at about £2000, and at £5000 on the last. One agent who acted as "introducer" between the first holders of the option and the second claimed a commission of £100, of which he had only received £25, and he brought the case a few days ago before the Westminster County Court, where it still awaits the attendance of further witnesses. The evidence so far reveals the usual shameful amount of possible intrigue in the allotment of contracts, and the usual dangerous opportunities for public representatives to abuse their position as long as the contract system lasts.

THE London County Council has just taken over from the contractor another block of dwelling-houses on the Boundary Street Estate, Shoreditch, the seventeenth of the 23 blocks it is proposed to erect. There were 500 applicants for the tenements in the new block, but only 120 can be accepted. The new dwellings, says the Standard, have an agreeable architectural appearance, having a touch of Tudor London about them, with tiers of bays and balconies running round. The latest developments of sanitary science have been applied, and the home comforts of the incoming tenants studied. All the drainage is carried outside the tenements by iron pipes to the sewers, and the tenants are provided with galvanised iron dust-bins in the yard, and galvanised iron pails. The County Council are supplying their own gas to the new dwellings at a moderate charge. All the rooms are provided with picture rails, and trees and shrubs are planted in ground round the building. The tenants have a club, which is managed entirely by themselves, in which concerts and dancing take place. There is also a central laundry, and hot and cold baths are provided at a nominal charge. The average rent per room of the Council's tenements is 2s. 6d. per week.

THE Colonial Office is undergoing a much-needed renovation. This has been in progress for some little time, but another month or so is expected to elapse before the building is out of the hands of the painters and other workmen. The principal offices and corridors have already been operated upon, and look fresh and bright in the various tints of green in which the walls have been painted. Electricians are also at work completing the connections for extending the system of electric lighting to the whole building. A special feature in the improvements is to be the decoration of the handsome and spacious entrance hall. No scheme of decoration has as yet been definitely decided upon, but in the first instance experiments are being made with a view to discovering the style of decoration best calculated to bring out the architectural beauties of the hall. Some of the panels on the ceiling are consequently receiving a trial painting, and the same process is being applied in the case of arched recesses along the wall facing the entrance from the quadrangle.

SPEAKING at Malmesbury the other day, the Bishop of Bristol stated that Malmesbury was one of the earliest stations of the Ancient British Church, and that the British Bishops and monks held sway there until the seventh century. Early in Anglo-Saxon times the Latin language was first taught to the English there, and, under the great scholar Aldhelm, Malmesbury Abbey became a great educational institution. Aldhelm subsequently became first Bishop of Sherborne, when the huge diocese of Wessex was divided. Of the nine bays of the nave in Malmesbury Abbey, six are in use as a parish church and three are in ruins; the central tower is also a ruin. It is proposed to raise £5000 to repair and improve the section in use, and a like sum to prevent the ruined-ports from falling into further decay. It would require at least £10,000 to rebuild the three ruined bays, and the Bishop did not advise that that should be undertaken.

AT Leeds the annual exhibition of works executed by students of the School of Art, comprising drawings and paintings from the antique, still life, and the living model, modelling in clay from life, architectural designs, and drawings from measurement, and designs for various work of a decorative and industrial nature, has just taken place. There were also specimens of work done in the wood-carving class, drawings of technical details by students in the building construction department, and a number of highly creditable designs by pupils in the Girls' Modern School. An interesting portion of the exhibition was a case containing a few specimens of work executed in the recently established class for bookbinders, which showed that the work of the pupils in various stages of the binding of books was thorough as regards craftsmanship, and aimed at producing work of an artistic nature. The exhibition was of a varied and interesting nature, and the work generally of good quality.

HOLY TRINITY, Minorities, is about to be amalgamated with the Church of St. Botolph, Aldgate. The church possesses not a little historic interest. It dates back, indeed, to the year 1293, when an abbey for the nuns of the order of St. Clare was founded by the Earl of Lancaster, the brother of Edward I. At the time of the dissolution of the monasteries by Henry VIII. the abbey became the church of the parish, and since then it has continued as such. The present building, however, only dates from the year 1706, as, although the church escaped the Great Fire, the edifice had become in such a dilapidated condition at the commencement of the eighteenth century that its absolute reconstruction was rendered a necessity.

THERE is no doubt that the electric lighting system of the City of London Electric Lighting Company is most inefficient, frequently needing to be supplemented by candle or lamp. In the case of gas companies, when the light falls below a certain illuminating standard they render themselves liable to a legal penalty, and this regulation should apply to electric lighting companies also. Replying to a recent letter, signed by many tenants of 162, Queen Victoria Street, complaining of the inconstant supply of energy at a standard pressure, and the exorbitant price charged for the light, Mr. J. C. Bull, the manager of the City of London Electric Light Company Limited, admits that the Company is bound to give a constant supply at a standard pressure, but asks for the indulgence of customers in the position in which the Company has been placed owing to the delay on the part of the manufacturers to complete the additional plant by the contract date. Referring to the question of price, Mr. Bull says the Company will be pleased to discuss the matter fully with customers.

COMPARED with most foreign and provincial towns, London is badly lighted, for the electric light and the incandescent gas which have been utilised of recent years in some parts of the town are only sufficient to give a hint of better things that might be. It is not so bad when all the shops are open and lighted, but if one really wishes to see how London is lighted, he has only to walk about the streets on a Sunday evening, when the gloominess of the capital must strike even the most careless observer. Electric lamps are rare, and the gas jets but give a dim, yellow radiance, which makes the gloom even more apparent.

It is stated that the destruction of one of the finest views on the Thames is now threatened by the erection of a wall over 10ft. high, running for fully half a mile on the Surrey side of Molesey Reach. The Daily Mail says this ugly structure will cut off one of the loveliest prospects near Hampton Court. More than an eighth of a mile of the wall has been already built above Molesey Lock, and the intention of the Lambeth Water Company, which is putting it up, is to continue the wall in a westerly direction close to the edge of the river. Not only is the Lambeth Water Com-

pany continuing the erection of this wall, but many hundreds of beautiful trees, including numerous old and handsome willows, are being cut down. The whole of the land on the Surrey side is being cleared, and the simple character of the landscape will be ruined. The celebrated view of the Thames at Molesey Reach, will, when this wall is completed, be no more.

WHAT the authorities at East Molesey now demand is that the Lambeth Water Company at least relieve the ugliness of the structure with some show of ornamentation. The appropriation of Thames sites for waterworks purposes began some years ago, when the Southwark, Grand Junction, and Vauxhall Water Companies erected their present structures. The Grand Junction pumping station on the Middlesex side of the river is a good example of what modern engineers can do when they desire. There you see many trees still standing. They have been wisely utilised to screen many of the less attractive buildings. The retaining walls and even the great smoke stacks are partially obscured by the natural wood. The same care would have at least modified the ugliness of the Lambeth Water Company's wall. Instead of a sheer brick structure, an ornamental embankment could have been thrown up. This could have been sloped off, covered with grass, and a little ingenuity on the part of an ordinary landscape gardener could have transformed it into a flower bed. It would not have required much care to have made it quite beautiful. The officials of the Molesey Board of Works have had many complaints about the hideous structure, and have adopted a resolution requesting the waterworks company to plant willows along the wall, or do something to relieve its present ugliness.

BELL-HANGING and tuning is an important business in this country, where most churches can boast of a peal. A large number of these instruments come from Whitechapel, where the "Jubilee" peal for a church in Devonshire was recently cast, on which can be seen a portrait of her Majesty, with the dates 1837-1897, and a suitable inscription clear enough in the swelling side of the bell. The tuning is performed by men chipping little pieces of metal off the sides. Big Ben is, of course, the largest bell in England, weighing over 13½ tons. This was cast at Whitechapel. Great Peter of York (10½ tons), Great Tom of Lincoln (nearly 5½ tons), Dunstan of Canterbury (3½ tons), and the peal in the tower of the Royal Exchange were all turned out at the same place.

CULLODEN HOUSE, with its historic associations, has just been let on lease to Mrs. Thomson Sinclair, at present lessee of Dunbeath Castle, Caithness. This old Highland mansion-house was, some eighteen months ago, entirely dismantled of its rare and unique Jacobite treasures, which were the pride of the Culloden family for generations. The house has recently been put into thorough repair.

ON the subject of "Old Dundee," Mr. A. H. Millar lectured recently to the members and friends of the Dundee Burns Society. In the course of his remarks, Mr. Millar explained how the streets had been formed from the old wynds, the lanes from the ancient closes, and how the city had emerged from the primary form it necessarily took from topographical and defensive peculiarities. The Nethorgait he traced back to the old Fleuchargait, and similarly the earlier origin of Murraygait, Seagait, and High Street was described, especially interesting being historical incidents relating to the civic life of a bygone time. The kirks in the form they appeared after the great fire of 1841 and the old steeple formed the subject of description, and Mr. Millar narrated the data which tended to show the probable date of erection. Passing on to speak of the modern city, with special reference to its architectural aspects, the lecturer instanced Albert Square as affording examples of widely divergent types. During the past fifty years an immense

development, as indicated by modern buildings, had taken place. The quasi-Gothic style as applied to Church Architecture about 1840, and the florid Gothic as shown by Sir G. Gilbert Scott in the Albert Institute, were prominent types, and examples were also displayed of Grecian, Flemish, French Renaissance, and Tudor styles, and also of that inexplicable abortion which might be called the nineteenth century atrocity. In Dundee ideas were so much enlarged—and debased—that within the compass of Albert Square specimens of nearly all these widely divergent styles might be seen, each proprietor erecting his dwelling or public building with a supreme contempt for his next-door neighbour, making thereby a curious jumble of incongruities. One of the best sites in the city was occupied by a nondescript Post Office, erected under contract for a highly cultured Government, but which a merciful Providence was now removing.

THE Russian monument which the Grand Duke Nicholas has just inaugurated near San Stefano, has been erected over the crypt in which the Russian soldiers who fell during the war of 1877-8 are entombed. It stands in a square enclosure of about six acres, surrounded by a crenulated wall with a tower in each corner. The monument is built of grey porphyritic granite (rough dressed) with embellishments of white French stone. Over the main entrance is a painting of Christ, with one of Vladimir on one side and Alexander Newsky on the other. The basement contains the ossuary, the church standing immediately over this. Above is the chapel, which is surmounted by the campanile, which is itself surmounted by the spire. The works were begun in 1883, under Colonel Peshkoff's supervision, and he is also the designer of the monument. The enclosure is being laid out as a garden.

THE REV. PROFESSOR COOPER, who presided at a recent meeting of the Aberdeen Ecclesiological Society, referred to the present position of the Greyfriars' Church question. The Gothic Architecture of England had quite come to an end by the time that Greyfriars was built, but the Gothic Architecture of the north of Scotland was still showing considerable vigour and originality, and he did not know that any fragment that had come down to us of the late northern Gothic Architecture was so fine and majestic as the west front of Greyfriars. It had been said that St. Mary's Chapel was hopelessly lost. But it had been beautifully restored, and now looked older than it did in its unrestored state. They could not but regret that their ancestors of 1836 took down the East Church, and it would be an equal calamity if Greyfriars were removed. He hoped that, on architectural grounds, on grounds of antiquity, and on grounds of association, these were the opinions that would be held by members of the Town Council. He was perfectly certain that, whatever might be the opinion of those who had studied the subject from an architectural point of view, violence would be done to the feelings of many of those who were well qualified to judge if the proposal to retain the church should unhappily miscarry.

It is proposed to very largely increase the accommodation at St. John's Training College, Battersea, which is in the hands of the National Society. The new buildings would enable the college to provide for 125 students and the necessary staff. The expenditure involved will amount to over £8000.

THE exhibition of drawings by students of the Bolt Court Technical School—one of the schools carried on under the auspices of the London County Council Technical Education Board—was closed on Saturday. The object of the school is to give instruction in the craft of producing surfaces for printing. The instruction comprises drawing, design, lettering, lithography, photographic copying, and the chief photo-mechanical processes. While essentially technical, the school does not overlook the more artistic side of the work, and both departments were copiously represented

in the show, which contained examples of the work of three months. With designs for posters, magazine covers, and so forth, there are exhibited various interesting sketches in black and white and in colour, life and costume drawings, and landscape effects. The work is done mainly from models in the school studio, but opportunities are also afforded for outdoor practice, and the results displayed on the walls were in many cases highly satisfactory. Messrs. John Swan and Co., photo-engravers, offered money prizes for drawings suitable for advertising photo-process work, and these evoked a keen contest, some of the productions being of considerable merit.

BARON DE FERRIÈRES is giving £1000 towards providing an Art gallery in connection with the public library at Cheltenham. The Town Council have decided in favour of acquiring some adjoining cottage property at about £850, and as the unexhausted borrowing powers of the library to the amount of £650 can be ill afforded, in any event to borrow a sum not exceeding £1500. Application is to be made to the Local Government Board for sanction to borrow such a loan, and appropriation of land adjoining the public library for the purposes of the museum as soon as the provisional contracts are executed.

THE boring into the coral reef or atoll of Funafuti has been discontinued on reaching a depth of 1114ft., the material traversed being described as "coral reef rock." Previous information showed that for nearly 600ft. the boring had passed through calcareous rock, varying from a sand composed of nullipores, foraminifera, broken shells, and corals, to beds of reef coral, but that it had then become much harder owing to predominance of the last-named, so that for more than 500ft. the tool seems to have been piercing a continuous reef. The scientific value of these results can hardly be over-estimated, and not a few persons will be surprised that some other kind of rock, such as volcanic, did not make its appearance at about 850ft., for at that depth the exterior face of the atoll changes from almost a precipice to a slope of about 30 degrees, which, after a time, becomes more gentle, till the ocean floor is reached at a depth of about 12,000ft.

THE Dürer Society, which was inaugurated in the early part of last year, has been obliged to make a change in its committee, owing to the lamented death of Mr. Gleeson White, who, since its formation, has been one of the most prominent of the society's members. To fill his place on the committee was no easy task, but the society has been fortunate in securing the director of the National Portrait Gallery—Mr. Lionel Cust—who has kindly offered his services. It is difficult to conceive a happier choice, for Mr. Cust is, of course, an expert in all matters artistic, and unites sincere feeling with thorough technical knowledge.

THE French Minister of Public Instruction has presented to the trustees of the British Museum a life-size cast of a bronze statue of a youthful charioteer, the original of which was recently unearthed in the course of the excavations carried on with so much enterprise and success by French archaeologists on the site of Delphi. To this site their enlightened labours have imparted a suggestion of the natural and acquired splendours of the place at the period, B.C. 480, when the treasures of the Temple attracted the cupidity of the Persian despot, Xerxes. The statue is, in accordance with the ruling conventions of the art of the place and the time of its production—say 482–472 B.C., dressed as a woman, so that the only parts of the actual form available for artistic treatment are the head and neck, the arms, and the feet and ankles, which are uncovered. But those parts are so remarkably lifelike that the statue may be regarded as a fine example of the early period of Greek Art.

MUCH dissatisfaction is felt among Birmingham architects with the arrangements made in connection with the proposed new

public buildings. A resolution has been forwarded to the Lord Mayor by the Birmingham Architectural Association expressing regret that the proposals made by the general Purposes Committee to the City Council seem to imply that the resolution of the City Council, directing that works to cost upwards of £10,000 shall be submitted to architectural competition, is to be departed from. Should, however, it be determined to dispense with competition, the Association expresses a hope that, as the proposed new buildings will occupy so prominent a position, and be used for public as well as artistic purposes, the greatest care will be exercised in the selection of an architect, who, from his experience and works, may be trusted to produce a building which will not only be thoroughly suitable and convenient in its plan and arrangement, but will also be of decided architectural merit and an artistic ornament to the city.

THE Peabody Trustees have been obliged to raise the rents of their tenants—or rather of about two-thirds of them—on account of the increase of rates and the large expenditure they have recently been put to in making repairs and carrying out sanitary arrangements. The amount of increase amounts to about 4d. per tenant, or 1½d. per room. The change has caused a good deal of discontent, but the rents will still be low, as London rents go, averaging only about 2s. 3d. per room. The total amount given by the late Mr. Peabody for erecting dwellings for the working classes was £500,000, to which has been added for rent and interest £720,466, making the total fund to the end of last year £1,220,446; the total expenditure on land and buildings was £1,250,390. During 1897 £12,232 was spent on drainage, structural alterations, and sanitary improvements, and the net gain of the year from rents and interest was £32,320. The sum of £85,000 was advanced to the trustees by the Bank of England, and of that amount £53,500 has been repaid. The number of people housed at the end of December last year was 19,741 in 5121 separate dwellings and 11,367 rooms, namely, 86 dwellings of four rooms, 1781 of three rooms, 2426 of two rooms, and 828 of one room.

A CO-OPERATIVE glass factory was founded at Albi during a strike at Carmaux. The founders started with a capital of £6000, £4000 of which was furnished by an old lady out of her savings. Subscriptions from divers sources made up the rest. The enterprise, which has not met with anything like the success that has often attended co-operative undertakings in England, was soon in distress. The Town Council of Albi gave its assistance by a gift of £1000, but the Méline Government cancelled the vote. The other day that sum was reduced by a half. M. Dupuy has not objected, "hoping to pacify, and for the sake of social humanity." But he is sorry the enterprise must be propped up, and that one way or another it does not give satisfaction. The operatives complain that the Committee of Management are the hardest taskmasters they ever had to deal with, and the unaided factories in the district cry out against the co-operative one as living at the expense of the ratepayers.

AN exhibition of work done by the students at the Birkbeck School of Art was held last week at the school in Chancery Lane. The exhibition includes the drawings and paintings submitted for the national competition in May last, and sketches and studies by the members of the sketching club, which is also connected with the Institution. The specimens of woodcarving afford evidence of much skill and taste, while the designing and staining on wood and the modelling in clay are highly commendable. Though the majority of the exhibits are of a technical character, the gallery contains many excellent life studies. The number of students at present attending the school is 304, and the record of their recent successes is highly satisfactory.

KEYSTONES.

A NEW vehicular traffic bridge over the railway is to be erected at Filey.

CAROLUS DURAN, the famous French painter, will shortly return to the United States.

EXTENSIVE and long needed alterations are shortly to be begun at Ludgate Hill Railway Station.

A SCHEME for an electric tramway has been approved by the Dewsbury Town Council, and is estimated to cost £19,750.

WE are informed that Messrs. T. W. Newton and Cheate, architects and surveyors, have removed to 39, Newhall Street, Birmingham.

DR. TILTON, of Dursley, has left £500 to the churchwardens for the repair or beautifying of the church.

AN effort is being made in Bristol to build a Church Missionary House, with a hall to accommodate 250 persons.

THE memorial stone of the Gordon College at Khartoum was laid by Lord Cromer in the name of the Queen on the 5th January.

IT is hoped this year to effect the restoration of the west front of Bath Abbey with its so-called Jacob's Ladder sculptured in stone.

DURING the eleven years of his pastorate the Vicar of Barmouth has raised £52,000 for Church building, and now he wants a parochial hall.

LORD LEIGH, Lord Lieutenant of Warwick, on the occasion of his Golden Wedding, has been presented with his portrait, painted by Mr. Oulless.

AN exhibition and sale of the pictures of Mr. Henry T. Wyse, art master in the High School at Arbroath, is being held in the Public Hall of that town.

THE large and handsome hall erected at a cost of £3000 by the Peckham Liberal Club at the rear of their commodious new premises in Elm Grove has just been opened.

A NEW Municipal Technical College, erected by the Corporation of Derby at a cost of £10,000, is to be opened by the Duke of Devonshire on January 19th.

THE beautiful new chancel stalls designed by Mr. Sedding, of Plymouth, for St. Mary's Church have just been dedicated. They are of oak, and are very elaborate in their design.

SIR CHAS. F. HAMOND, M.P., has presented a portrait of himself, painted by R. E. Rud-dock, to his brother justices at Newcastle Police Court for hanging in the magistrates' room.

THE County Council for Eastern Perthshire has decided to defer the question of a new bridge over the Isla at Bermondry, pending the preparation of a plan and statement as to the probable cost.

THE DUCHESS OF BEAUFORT is endeavouring to raise funds for a new reredos in Bristol Cathedral as a memorial of the thirty-four years tenure of the united Sees of Gloucester and Bristol by Dr. Ellicott.

IT is proposed to begin the erection of a new Congregational chapel at Seaforth this year. Last year over £1000 was raised towards this object, and it is intended to raise a similar amount during 1899.

MR. JOHN ALDWORTH has been appointed manager of the Nottingham tramways in succession to Mr. Baker, who comes to London to take charge of the South London system just taken over by the London County Council.

THE building presented by Sir Henry Harben to the Hampstead Vestry for the accommodation of the books in the Public Lending Library has been opened. The premises are in Arkwright Road, and have cost £5000 to erect.

A NEW drill hall, for the use of the F. and G. Companies of the 1st Durham Royal Engineer Volunteers, was opened at Gateshead on the 30th December. The contractor is Mr. J. Ross, Gateshead, and the cost of the work was about £2500.

A LICENSE for the performance of stage plays has been granted to the managers of the new theatre at Doncaster, a further application for a license to sell intoxicating liquors being refused. The new theatre, which will be opened in February, will accommodate about 1500 people. It is proposed to utilise the site of the old theatre for municipal improvements.

THE Princess Louise, accompanied by the Marquess of Lorne, has consented to distribute the prizes to the students of the Royal Female School of Art at Mercers' Hall on Tuesday, the 17th inst.

LORD PIRBRIGHT has decided to erect at Pirbright, adjoining the fountain which he presented to the village in commemoration of Her Majesty's Jubilee, a spacious hall for the use and recreation of the inhabitants.

A PROPOSAL has been started to place in the newly-restored church of St. Saviour's, South-wark, a stained-glass window to the memory of that sturdy Nonconformist, John Bunyan, author of the immortal allegory, "The Pilgrim's Progress."

BURNTISLAND has had its full share in the prosperity that seems to have pretty generally attended the building trade during 1898. The chief work of the year has been that done in connection with the new dock works, at which 350 men are now employed.

A PARLIAMENTARY BILL will be introduced during the ensuing session for the provision of a water-power electrical generating station or stations at Loch Leven. It is proposed to incorporate and confer the necessary powers on the Highland Water Company.

A CLOCK-TOWER has been erected at Wolverhampton as a memorial to the late Mr. John Lysaght, a well-known ironmaster, of Bristol and Wolverhampton. The funds were raised by the men in the employ of Mr. Lysaght at his ironworks in Wolverhampton.

THE Engineer to the Works Committee of Dundee Harbour Trust has, in consequence of the recent case of drowning at the docks, been instructed to make inquiries as to the advisableness of introducing the electric light, and report as to the probable cost of the installation.

NOT for twenty years has the building trade in Montrose been so busy as during the past year. The Highland Esk Distillery and the Inglis Memorial Hall, Edzell, are the most important new buildings, but in addition a great deal of villa and cottage building has been going on.

A MEETING of ratepayers and property owners held at the Wakefield Town Hall has unanimously approved the promotion by the Corporation of a parliamentary Bill with the objects of adding Alverthorpe to Wakefield, extending the waterworks, and making other improvements.

THE Marquis of Aylesbury has undertaken to defray the cost of removing the historic Brudenell Monument—one of the oldest in Buckinghamshire—from the old to the new church at Stoke Mandeville in that county. By this timely action the monument is saved from threatened destruction.

SIR FRANCIS S. POWELL, M.P., has presented a site for the new church which it is proposed to build in the Chapel Green district of West Bowling, Bradford. The new church will replace a mission church. It is to provide accommodation for 500 persons, and the estimated cost is £8000.

WIGGANTHORPE HALL, Malton, the residence of the Hon W. H. and Lady Mary Fitzwilliam, sustained serious damage by a fire that broke out on the 4th January. Three or four rooms in the old wing of the hall were gutted and their contents destroyed. The amount of damage is estimated at nearly £3000.

OWING to the bursting of a sewer the works at the new Orleans Railway Station in Paris were suddenly flooded, the workmen having to leave hurriedly. Operations will not be able to be resumed till next week, and it is feared that all the masonry work, which was nearly completed, will have to be begun afresh.

THE death of Mr. Thomas Letherbrow occurred last Tuesday week. He was widely known in Manchester as an accomplished draughtsman, and produced many etchings of merit. Mr. Letherbrow had the command, also, of a graceful pen, and his writings evinced a cultivated taste. For some years he held the office of treasurer to the Lancashire and Cheshire Antiquarian Society. His most important writings are the biographical monographs on his artist friends George Crozier, F. J. Shields, William Hull, and Warwick Brookes.

A NEW Club and Institute has been opened at Penshurst, Kent. The club, which is substantially built of local sandstone, consists of a hall for public meetings, a billiard room, coffee bar, club and reading rooms, bath room, &c. The entire cost is borne by Mr. Arnold F. Hills, of the Thames Iron Works, London.

A NEW church, to be called the Church of St. Paul, is to be erected in that portion of the Fairhaven Estate which falls within the parish of Lytham. Mr. Clifton, of Lytham Hall, has given a site, valued at £1400, for a church, school, and parsonage, and he proposed to add an endowment of £100 per annum for the new benefice.

ALNWICK CASTLE, where the Duke of Northumberland died, is a venerable and majestic pile, rearing its head proudly above the banks of the Alne, some thirty miles from the Scottish border. Its most prominent architectural feature is the Prudhoe Tower, erected by the fourth duke, "the good Duke Algonson."

THE Royal Sea-Bathing Infirmary at Margate is open, after having been closed for several months, consequent on the entire re-modelling of the sanitary arrangements. The total cost of the alteration is about £10,000. The Treasurer (Mr. M. Biddulph, M.P.) will gladly receive contributions at the offices, 30, Charing Cross.

A MONUMENT is about to be erected to the memory of Bossuet, in the Cathedral of Meaux, in which he preached some of his noblest sermons. It will be remembered that it was Bossuet who preached the famous funeral oration over the remains of Henrietta Anne, Duchess of Orleans, the unfortunate daughter of Charles the First.

A PROPOSAL is on foot to erect a hall for the use of members of trade unions in Liverpool and district, the cost being met by raising £5000 in £1 shares. The proposal is now being considered by the various trade societies, and their recommendations will be presented at the meeting of the Liverpool and Vicinity United Trades and Labour Council in March.

IT is proposed to raise a special fund, to be called the Baptist Union Twentieth Century Fund, of £250,000, from half a million Baptists, in view of the vast increase of population in the towns; and the fact that there has been no corresponding increase in the provision of places of worship by the Baptist Denomination. The fund will be opened on May 7th next, and closed on March 31st, 1901.

PLYMOUTH is to have a municipal museum and Art gallery. The contents will be divided into three sections:—(1.) Natural history, including geology, botany, and zoology. (2.) Anthropology and History. Dealing with the history of man from his first appearance on earth and the story of his civilisation. The history of the counties and the town. (3.) Art. Pictorial, ceramic, and other branches.

MR. HAMO THORNICROFT has just completed a statue of the Queen, which is to be erected at Durban, Natal, in commemoration of Her Majesty's Diamond Jubilee. The statue is of the finest Sicilian marble, and is about 10ft. in height. The pedestal, which has preceded the statue to Durban, is also of marble, and is of a height of from 10ft. to 11ft. The total cost of the statue and pedestal will be over £2000.

AN alarming explosion occurred recently at one of the transformers stations connected with the electric light in High Street, Ayr. The cover of the transformer, weighing over one hundredweight, was suddenly blown into the air, and a blast of flame issued from the opening. It was supposed that an accumulation of gas was ignited by an electric spark. The street was crowded, and several persons had a narrow escape.

SHERNBORNE CHURCH, Norfolk, situate on the Sandringham estate, was recently reopened by the Prince of Wales. The cost of restoration has been about £2000. When he purchased the property in 1861 all the churches were in a dilapidated and ruinous condition, excepting Sandringham within the Park, which has since been considerably improved, enlarged, and beautified, but one by one the Prince has at his own expense had them restored.

In the course of the recent excavations in High Holborn, Mr. S. Hazzledine Warren, F.G.S., found some interesting pre-historic remains, in the shape of hatchets and other implements rudely chipped in flint, in the heaps of gravel that were thrown out of the holes. The implements belong to the Older Stone Age, and came from gravel which was thrown down by the Thames after the close of the Ice Age.

THE annual distribution of prizes in connection with the Newport Technical and Art Schools took place on Tuesday week. Medals were awarded as follows:—In Art: Bronze, Janet T. Simpson; silver, Ernest Richards; gold, W. J. Bush. In Science: Bronze, Reginald Herbert; silver, A. Mortimore; gold, Thos. A. Parkes. A feature was the exhibition of students' drawings, which were much admired.

AMONG the proposals for celebrating the Cromwell tercentenary is one for erecting a monument to the Protector's memory. The house that Cromwell lived in at Highgate still stands, and it is suggested that this building should be purchased and opened as a museum. Many relics of the Commonwealth and mementoes of Cromwell are scattered about the country, and if these were collected an interesting museum would be formed.

SIR HENRY THOMPSON, besides being a recognised authority on surgery and surgical appliances, has attained no little eminence in other fields of endeavour. His spare moments are taken up with the study and practice of Art, chiefly painting, and he has exhibited no less than fifteen paintings at the Royal Academy, the Salon, and other artistic centres. At his own observatory in the country he devotes himself to the study of astronomy.

At a meeting of the Colne Town Council on Jan. 2, it was resolved, on the motion of Mr. Holmes, chairman of the Public Library and Technical Schools Committee, seconded by Mr. Riding, that the report of the architect on the cost of the new technical schools, public library, and central hall be adopted, such scheme not to exceed £9000, and that the architects be paid £200 for work done up to the present time in full settlement of claim.

THE recently-built Theatre of Varieties at Cork, the only music hall in the city, is now offered for sale. The Cork official liquidator to the company that owns the hall issued an announcement that he is prepared and authorised to invite and receive tenders for the purchase of the hall, which can accommodate 1500 persons, and is open to the public nightly. The building is held under leases for 100 years from 1896 at £420 per annum.

At Stonehaven the building trade during 1898 has been in an extremely prosperous condition. The supply of new houses has scarcely kept pace with the demand, and, in addition to new buildings, there has been an exceptionally large amount of improvements carried out on existing buildings. The value of the new buildings for which plans were passed during the year amounts to nearly £22,000, which is considered a splendid record for a place like Stonehaven.

FROM Pitlochry, N.B., it is reported that the building trades during 1898 were generally in a satisfactory condition, though the exceptional activity of the early part of the year slackened off somewhat afterwards. Among the largest contracts of the year were the erection of new buildings in connection with Aldour Distillery, and a large addition to Fisher's Hotel. A new Board School has been built, and the erection of a public hall is the most important work to be taken in hand in the near future.

A rich vein of iron ore of an intensely dark colour, together with other valuable minerals, has been discovered at Ardnarmurghan, in Argyllshire. It extends from the western shore across the peninsula to Carraig, on the northern shore. High expectations are entertained that the find will prove very valuable. Workmen have started operations, and a road is being made leading from the mines to the seashore at a place called Ormiskagbeg, near the lighthouse of Ardnarmurghan, where a pier is to be built for shipping purposes.

Professional Items.

ABERDEEN.—Plans of new buildings of the aggregate value of about £20,000 have recently been sanctioned by the Plans Committee of Aberdeen Town Council. The buildings include a new Free Church to be erected at Beechgrove Avenue, at an estimated cost of £8000, and a hotel to be built in Guild Street. Mr. G. Wilson is the architect for the new hotel. The plans for eleven blocks of dwelling-houses were also passed.

BLYTH.—A new church at Cambois, near Blyth, was dedicated on Dec. 31 by the Bishop of Newcastle. The church is a neat brick building, with stone ornamentation, and having accommodation for some 200 persons. Sir Matthew White Ridley, Bart., M.P., gave the site, which comprises about 800 square yards, and is valued at £140. The total cost of the building is £1000, and practically the whole of this money has already been provided. The church has been erected by Messrs. Carse and Sons, of Amble, from plans by Messrs. Hicks and Charleswood, of Newcastle.

CHELMSFORD.—A new Church Hall, which has been erected at Springfield Hill, Chelmsford, was dedicated by the Bishop of Colchester on December 28th. The Hall, which has been built in red brick, with Bath stone dressings, consists of a main hall, measuring 65ft. by 24ft., and capable of seating 365 persons; a class room or vestry, 15ft. by 12ft.; and a scullery. The floor is formed of boarding, laid upon solid concrete, in order to prevent vibration, and the inside walls are plastered throughout, and finished off in distemper tints. The windows are fitted with tinted glass in lead lights, and the roof is covered with rain and snow-proof tiles. The building is heated with hot water pipes laid in channels in the floor, and great care has been taken to provide efficient ventilation. The fresh air is admitted by flues in each alternate buttress, the air entering the Hall at the height of 7ft., whilst the vitiated air escapes through gratings in the roof. The lighting is done by incandescent gas burners. The Hall is faced by a dwarf brick wall, and this is to be surmounted by a wrought iron fence. The work has cost about £700, and in addition to this the ground cost £250. The general contract has been substantially carried out by Mr. F. Johnson; the heating apparatus has been supplied by Mr. W. Seabrook; and the glazing has been done by Messrs. Britten and Gilson, of Southwark. Mr. G. E. Clare has acted as the honorary architect, and the work has all been executed from his plans, and under his supervision.

DONCASTER.—A stained-glass window has been placed at the east end of the church at Arksey, Doncaster, by Lady Cook, of Wheatley, in memory of the late Sir William R. C. Cooke. At a special dedicatory service held on Dec. 29, the Bishop of Beverley preached, and the vicar (the Rev. T. Todd) also took part in the service. The window is in three lights, and the subjects are, in the centre, the Crucifixion, on one side St. Mary, and on the other side St. John. The work has been executed by Messrs. Heaton, Butler, and Bayne, Garrick Street, London.

EDINBURGH.—New halls are to be erected for the Wesleyan Methodist West End Mission at the corner of Earl Grey Street and Wellington Place, Tollcross, Edinburgh. A sum of nearly £20,000 has been paid for the site. The street and basement floors have been planned as business premises. Ten commodious shops with extensive cellarage occupy these floors. A wide staircase leads to the large hall on first floor, and this hall is planned to accommodate, along with a gallery, 1600 to 1700 persons. On the first floor there is also arranged a small hall seated to accommodate 280 persons, with platform at one end and classroom and lavatory accommodation at the other. The whole of the upper floors are arranged for classrooms, stores, and caretaker's house. Special atten-

tion has been paid to the entrances and exits of these, as well as of all other parts of the building. Externally the buildings have been designed in a free treatment of the French Renaissance, and when completed will add considerably to the architectural dignity of the district. The whole scheme has been designed by Messrs. Dunn and Findlay, architects, Edinburgh, and will be carried out under their direction. The total cost of the scheme will be over £40,000.

GLASGOW.—The memorial stone of the new Hutchesontown Parish Church, Glasgow, has been laid. The old parish church was built fifty-nine years ago. Last year, however, the Glasgow and South Western Railway Company acquired the site for extension purposes, with the result that a new edifice had to be erected. The building is estimated to cost £6300. The site has a frontage to Rutherglen Road of 125ft., and to Rose Street of 108ft. The site also provides accommodation for capacious halls to seat 600 people. The church has been designed by the architect, Mr. Alexander Adam, St. Vincent Street, Glasgow, in the semi-Romanesque style of Architecture. It is divided into side aisles and north and south areas, with side and back galleries, the seating accommodation being 950. The special feature of the interior is a chancel arch of chiselled stonework, divided into three sub-arches, the organ chamber being behind and the pulpit in front. The walls are of red sandstone. The church will have a tower with four pinnacles. The contractors are all Glasgow firms:—Slater work, Messrs. A. and D. Mackay; masons and brick work, Messrs. Webster, Walker, and Webster; wright work, Mr. Alexander Ferguson; plumber work, Messrs. James Ingleton and Co.; plaster work, Mr. James Macmillan; glaziers, Messrs. George Walton and Co.; tiles and grates, by Messrs. Keen and Ward; painter work, Mr. John L. Duncan; heating apparatus, by Messrs. Cormack and Sons; ventilators, by Mr. James Cousland.

LONDON.—A handsome building has just been erected at 5 and 6, Bishopsgate Street, Within, for Messrs. Bull and Sons, goldsmiths, silversmiths, and pawnbrokers. The present structure consists of over forty rooms, those above the ground floor being let as City offices. The staircase and hydraulic lift, which conveys the visitor to any part of the building, is approached from the main street by means of the corridor. The walls are ornamented with tessellated tiles, and the lavatory accommodation and lighting arrangements are admirable. Messrs. Patman and Fotheringham, of Theobald's Road, are the builders, and the architect is Mr. G. Vickery, of 50, Gresham Street. The shop fittings have been supplied by Messrs. Spreckley and Co., of Gray's Inn Road.

WREXHAM.—At a special meeting of the Wrexham School Board, held on December 30th, under the presidency of Sir R. E. Egerton, the award of the assessor on the plans sent in for the proposed new board schools for Wrexham was considered. The competition was confined to architects practising in the town, and nine sets of plans were sent in. The assessor appointed by the Board was Mr. W. E. Willink, F.R.I.B.A., Liverpool, and he awarded the first premium to Mr. W. Moss, Regent Street; the second to Mr. John Harris, Westminster Buildings; and the third to Mr. J. H. Swainson, Holt Street. The Board asked for plans for accommodation for 1000 children 400 boys, 300 girls, and 300 infants—and the entire cost, exclusive of building site, was not to exceed £8000.—Mr. Willink said they could not get what they wanted for the money, and he estimated that the first plan would cost £9610 to carry out, and the others £10,995 and £10,607.—The Chairman proposed that the assessor's award be accepted, and the £30 premium paid to Mr. Moss.—The Vice-Chairman (Mr. John Francis) seconded, and the motion was carried unanimously.—The plans showed some exceedingly clever work, and it was decided to exhibit them.

Enquiry Department.

CHIMNEY STACK.

To the Editor of THE BUILDERS' JOURNAL.

DEAR SIR,—I am about to build a brick chimney stack, octagonal on plan, the height of which is to be 75ft. What size should it be at base and what at top? And should flue be of one size throughout?—Yours, &c. E. S.

There is a chapter on Chimney Shafts in "Stresses and Thrusts" by G. A. T. Middleton, A.R.I.B.A. This would no doubt be useful to you. But to answer your query in sufficient detail to be of value would involve a long article and a specially prepared design of the chimney.

MEASUREMENT OF PARISH CHURCHES.

To the Editor of THE BUILDERS' JOURNAL.

DEAR SIR,—Would you kindly tell me if there is any book published giving the principal measurements of the more noteworthy parish churches, similar to those of the cathedrals given by Gwilt?—Yours truly, R. A. D.

Brandon's "Parish Churches" will give you the dimensions of a very large number of parish churches, with plans, sketches, elevations and sections of any peculiar or remarkable features in each, and other particulars as to style and date.

CONTRACTS.

To the Editor of THE BUILDERS' JOURNAL.

SIR,—Will you kindly answer the following questions?—(A) Contract form: Instead of having a separate form of contract for each trade, how can one form be used for the several contractors to sign, where the work is let to different tradesmen? (B) Contracts: Is it legal to make the materials delivered upon the ground form part of the contract, together with the plant, such as engines, cranes, workmen's sheds, scaffolding, barrows, and tools? I have an impression there is some difficulty in enforcing and retaining the foregoing; but if it can be accomplished, a clause or clauses embodying the same would greatly oblige, and no doubt would be of service to many of your readers. (C) Contracts and general conditions: Can you give a definition showing where the clauses of one and those of the other begin and end, so that they can be kept separate?—Yours respectfully, "DOUBTFUL."

(A) We should think it an unsatisfactory plan for several contractors to sign the same agreement, each for his own particular share of a large piece of work. If this course be imperative, however, we fancy a local solicitor should be employed to draw up the form, to whom the special circumstances could be described in detail; though separate agreement forms for each contractor would probably lead to less confusion, each containing reference to the same plans, specification, and conditions of contract "or so much thereof as refers to the trade of —"

(B) Clause 26 of the R.I.B.A. Conditions of Contract (obtainable from the Secretary, R.I.B.A., 9, Conduit Street, W., price one shilling) has been most carefully worded to meet this point. Under it the building owner has a lien upon the plant, &c., of the original contractor, and can use the same until the contract work is completed, even if a second contractor or other person has to be called in to complete the work.

(C) The contract is quite a short document. An agreement by one person to do certain works in accordance with certain plans, specifications, and conditions, in consideration of certain moneys to be paid in the manner set forth in the same conditions by some other person. It needs dating, signing by both parties in the presence of one witness each, and stamping with a sixpenny stamp within fourteen days of its date. Any post office will accept it and forward it to Somerset House for stamping. A simple and satisfactory form is issued by the R.I.B.A., with the set of conditions mentioned in answer to (B).

Views and Reviews.

CATHEDRALS, ABBEYS, AND CHURCHES.

The issue of a new and revised edition of Messrs. Cassell's "Cathedrals, Abbeys, and Churches of England and Wales" gives us an opportunity of calling the attention of our readers to a work that should be of considerable interest to all students of Ecclesiastical Architecture. Not that this is a book for students especially; it is got up in the popular style characteristic of the publications that issue from La Belle Sauvage, and is full of historical and legendary lore. But owing to the wide extent of the field covered, and the number and general excellence of the illustrations, it is likely to be of some practical value as a work of reference for students. All the cathedrals and a great many of the most beautiful and interesting abbeys and churches in England and Wales are described and illustrated, and reference is facilitated by a copious index.

One of the most valuable features of the work is the Introduction, which is contributed by the editor, Professor T. G. Bonney, who treats at some length on the architectural characteristics of English cathedrals as compared with those of Continental nations, and especially with those of North-Western France, which our English cathedrals most closely resemble in design and plan. Professor Bonney takes up his parable against what he calls "the epidemic of restoration" which has affected the custodians of cathedrals and old churches during recent years. While admitting that sometimes the progress of decay may have been arrested and the stability of the building secured by the new work that has been done, the Reverend Professor complains with some bitterness that "not seldom the architect has been turned loose on the building to work his will almost unchecked, to impress his own individuality on the cathedral, to run up a big bill, to advertise his name, and advance a stage towards knight-hood." We hope this philippic will give pause to the next of our readers who is "turned loose" on an old cathedral. But, seriously, we suggest that this and similar denunciations of the wicked architect who restores are a little overdone. His task is one of singular delicacy and difficulty; it is scarcely possible that the effect of new work in juxtaposition to some masterpiece of ancient Architecture can be wholly and unequivocally pleasing. Yet if the architect does his work with taste and discretion, as he often does, he is deserving of the thanks—not the execration—of the community.

Most of the articles in these volumes are written either by the editor or by one of the clergy of the cathedral or church described. They may, therefore, be regarded as authoritative, as far as they go. The illustrations, nearly 500 in number, are for the most part wood engravings, but they include also some charming pen-and-ink drawings by Herbert Railton and others.

"Cathedrals, Abbeys, and Churches of England and Wales." Edited by Professor T. G. Bonney, D.Sc., LL.D., F.R.S. Cassell and Co. Limited.

THE MADONNA IN ART.

This book is apparently a textual reprint of an earlier American edition of a larger size, for the last paragraph of the preface refers to and describes the design for a quite different and more imposing cover than that which now appears. Some revision of the text would have been an advantage to the English edition, as it is written, naturally, very much from the American standpoint, and stress is laid upon matters which are not of much interest to English readers. For instance, Mary L. Macomber may be a painter well known in America, but English people will think that her name occurs strangely in the list of artists between Luini and Mantegna. The authoress appears to have wished to give an aspect of quaintness to her pages, by the use of words employed in an unusual manner—"tip-

tilted" is a word which one has seen applied to a rose, but not to a whole face as on page 73, and such use of it seems unmeaning. On page 178, a veil which falls loosely over the Virgin's head, is described as a "wimple." One may explain that a wimple was a linen cloth worn by women closely wrapped around the face and throat and over the chest, and that in Vivarini's picture, which is illustrated, the neck is uncovered, and the veil on the head is of a different colour from the drapery beneath it loosely wrapped around the shoulders. Again, on page 182, the word "obverse" is used as designating both sides of a thing—one may point out that the two sides of a coin or medal from which the simile must be taken are the "obverse" and the "reverse." These and similar blemishes might have been removed by a little careful revision.

In a book of this kind the quality of the reproductions of the pictures referred to is really of more importance than the text, and in this instance they are most of them very well done, being generally made from photographs taken from the originals. Why Filippo Lippi's Madonna from the Pitti should be classed among the "pastoral" Madonnas, while a composition almost identical, so far as the principal figures are concerned, in pose and expression, by Lorenzo di Credi, in the Uffizi, is included among the Madonnas "in adoration," is the secret of the authoress.

On page 47 a picture by Raphael, the "Madonna of St. Anthony . . . (loaned (sic) by the King of Naples)," is mentioned as being in the National Gallery, where no such picture is to be found. It would have been better to add a footnote stating that this is generally known as the Ripalda Raphael, and that it was only for a short time in the downstairs rooms of the institution mentioned, though it was on view at South Kensington for a considerable time, while the question of its purchase was under consideration, which was eventually decided in the negative. The present statement is misleading. On page 94, the landscape background of three of Raphael's pictures is referred to as "typical Tuscan landscape." Surely the difference between these and those of which the inspiration is universally acknowledged to be Umbrian, is not so great as to justify such an assertion. Throughout his life, the serene skies and beautiful distances of his native land, seen more or less through his master's eyes, enchain his imagination, and even if details here and there can be proved to be taken from Tuscany, the quiet harmonies of brown and grey tones, with the little cities perched upon the hills overlooking the still waters of lake or tranquil river, recall Umbria rather than that district. The fine figure of Francesco Gonzaga in Mantegna's Madonna of Victory, in the Louvre, with its interesting and beautifully drawn and painted details of costume, is referred to as an example of the introduction of the "prosaic figure of the donor," on p. 41! One may write reams about the spiritual meaning of ancient pictures of the Madonna; it is a most attractive subject for mild philosophizing. But the fact remains that many of the most admired creations in this direction are portraits of the women loved at the time by the artists who painted them, and it may be assumed with considerable probability that in most cases the principal object aimed at was the conquest of artistic difficulties, and the satisfaction of the patron. The church is no longer the principal patron of Art, and it is not likely that such pictures will ever again be produced in any quantity, the spirit of modern times neither demanding nor inspiring them. For those who wish to recall the feelings impressed upon their minds by the sight of such beautiful ancient works of Art amid unfamiliar surroundings, the illustrations in this book will be useful, and others who have never seen the pictures may realise by the aid of the text something of the emotions which were produced in the mind of another by the contemplation of them.

A.W.

"The Madonna in Art." By Estelle M. Hurll. Illustrated. London: David Nutt, 270-71, Strand, 1898

TENDERS.

Information from accredited sources should be sent to "The Editor." No results of tenders can be accepted unless they contain the name of the Architect or Surveyor for the Work.

BLACKMORE.—For the erection of four cottages at Fingreth Hall. R. Mawhood, architect, Chelmsford:— Knight £680
* Accepted.

BOWMORE, N.B.—For the erection of water supply works, for the Islay District Committee of Argyll County Council. The work will be carried out under the direction of Mr. J. T. D. Drummond, plumber, Thornhill, Dumfriesshire:—

Thomas Mochau £3,067 1 1 Wm. Simpson ... £1,781 0 0
David Allan 2,215 10 1 Wallace and Con. ... 1,622 15 0
R.C. Brebnerand 1,994 0 0 Peter Smith, ... 1,588 15 3
Co. ... 1,858 7 9 Bowmore* ...
Peter Bow ... 1,858 7 9 Bowmore* ...
* Accepted.

BRIXHAM.—For the erection of a villa residence at Heath Common, for C. Hellyer, Esq. Messrs. Norman G. Bridgman, A.R.I.B.A., and Walter H. Bridgman, M.S.A., of Torquay and Paignton, architects. Quantities by Mr. Vincent Cattermole Brown, of Paignton:—

W.A. Goss, Torquay £2,000 0 Hazlewood Bros., ... £1,498 10
R. Yeo, Torquay ... 1,850 0 Brixham ...
J. C. & W. Watson, ... 1,787 0 Hayman and Wills, ... 1,390 0
Torquay ... 1,741 0 Brixham* ...
T. Silley, Brixham ... 1,741 0
* Accepted.

BRIXHAM.—For the erection of four cottages for Mr. John Martin. Messrs. Norman G. Bridgman, A.R.I.B.A., Walter H. and Bridgman, M.S.A., of Torquay and Paignton, architects:—
W. Wyatt, Brixham. £750 0 R. Yeo, Torquay £690 0
G. Wotton, Brixham* 695 10 G. Cookley, Brixham 688 0
* Accepted.

BUCKFASTLEIGH.—For the erection of business premises at Buckfastleigh, for the Buckfastleigh Co-operative Society Limited. Messrs. Norman G. Bridgman and

Walter H. Bridgman, architects, of Torquay and Paignton. Quantities by Mr. Vincent Cattermole Brown, of Paignton:—

H. J. Almond ... £2,083 0 0 Hosking Bros. ... £1,621 12 6
W. A. Gale ... 1,850 0 0 J. C. & W. Wat- ... 1,616 0 0
J. Weedon ... 1,717 0 0 son ... 1,562 10 0
G. Arscott ... 1,650 0 0 Jackson and Son ... 1,540 0 0
S. Furneaux & Son, ... J. Selwood ... 1,525 18 0
Buckfastleigh* 1,634 7 0 J. Millman ...
* Accepted.

BURGHILL (Hereford).—For additions and alterations to the County and City Lunatic Asylum, Burghill, near Hereford. Messrs. Giles, Gough, and Trollope, architects, 28, Craven-street, Charing Cross, W.C.:—

Treasure ... £35,986 Willcock ... £24,203
James ... 35,851 Williams ... 23,490
Stephens and Bastow 30,147 Lewis ... 22,967
Smith ... 25,587 Bowers, Hereford* ... 22,525
Rowbotham ... 25,309
* Accepted.

CHIGWELL.—For erecting a police-station at Chigwell, for the Receiver for the Metropolitan Police District. Mr. J. Dixon Butler, architect. Quantities by Mr. W. H. Thurgood:—

Higgs and Hill ... £4,744 C. Ansell ... £4,208
Grover and Sons ... 4,560 Lawrance and Sons ... 4,198
Chessum and Sons ... 4,299 Lathley Bros. ... 4,089
F. J. Coxhead ... 4,297 Willmott and Sons ... 4,026
Almond and Son ... 4,255 H. Wells and Sons ... 3,970

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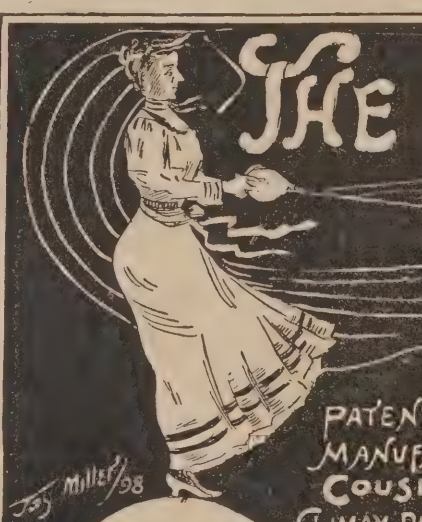
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LONDON OFFICE HAMBRO' WHARF, UPPER THAMES ST. E.C. 7 BURNLEY, LANCASHIRE.

DRIFFIELD (Yorks).—Accepted for the erection of St. John's Church (exclusive of seats and heating), for the Building Committee. Messrs. Hicks and Charlewood, architects, 42, Grainger-street, Newcastle-on-Tyne. Quantities by Mr. J. P. Allen, Newcastle-on-Tyne:—
Leason and Son, Driffield £3,329 7 9

KINGSWEAR.—For alterations and additions to Bryndart, for Mrs. Walker. Messrs. Norman G. Bridgman, A.R.I.B.A., and Walter H. Bridgman, M.S.A., of Torquay and Paignton, architects:—
W. A. Goss, Torquay ... £410 J. C. & W. Watson, Torquay (accepted) ... £400

LLANDAFF (Wales).—For the erection of an assembly hall, &c., for the County School Governors. Mr. G. E. Halliday, architect, 14, High-street, Cardiff. Quantities by Mr. J. W. Rodger, Cardiff:—
Symonds & Co. ... £2,205 10 0 H. Smith £5,224 12 3
T. S. Chubb & Co. 5,875 1 0 Jones Bros. 5,130 0 0
E. R. Evans Bros. 5,653 16 3 Owens & Evans 5,108 18 8
Shepton and Son 5,651 14 4 E. Turner & Sons 4,846 0 0
W. Thomas & Co. 5,567 0 0 C. C. Dunn, Cardiff (accepted) 4,573 4 0
Newman & James 5,485 0 0

LONDON.—For erecting artisans' dwellings, Shadwell. Mr. W. G. Drew, architect:—
Holloway Bros. ... £5,745 H. L. Holloway ... £4,600
Clarke and Bracey ... 5,286 W. Shurmer ... 4,595
B. E. Nightingale ... 4,693 S. J. Scott ... 4,597

LONDON.—For rebuilding the "Old Axe" public-house. Mr. T. W. Aldwinckle, architect:—
Shillitoe and Sons ... £10,400 Todd and Co. ... £8,747
H. Wall and Co. 9,453 Edwards and Medway 8,581
Johnson and Co. Ltd. 9,285 Hopkins ... 8,569
W. Shurmer ... 8,973 Sheffield Bros. ... 8,437

LONDON.—For alterations, additions, and fittings at the "Earl Derby" public-house, London-road, Plaistow, E., for Messrs. Holt and Co. Mr. Fred. A. Ashton, architect, 177, Romford-road, Stratford, E.:—

	Alterations, &c.	Fittings.	Total.
W. Shurmer	£2,023	288	£2,311
W. J. Maddison	2,084	821	2,905
A. E. Symes	2,050	850	2,900
J. and H. Cocks	1,954	844	2,798

LONDON.—For the enlargement of Homerton-row School. Mr. T. J. Bailey, architect:—
J. Grover and Son ... £9,070 C. Cox ... £8,582
Perry and Co. ... 9,064 J. and C. Bowyer ... 8,551
W. M. Dabbs ... 8,989 W. Shurmer ... 8,235
E. Lawrence and Sons 8,814

LONDON.—For the erection of a three-floor factory and offices, Old Ford, for the Britannia Folding Box Company Limited, under the superintendence of Messrs. W. Eve and Sons, 10, Union-court, E.C.:—
Parker ... £13,500 Perry and Co. ... £12,145
Kirk and Randall ... 13,142 Patman and Potheringham ... 12,049
Perry Bros. ... 12,777
Harris and Wadrop ... 12,574 J. Godfrey and Son, Lower Clapton* ... 11,990
Holliday & Greenwood 12,221
J. H. Johnson ... 12,180
* Accepted subject to modifications.

LONDON.—Accepted for the erection of six villa residences on the site of No. 2, Lyndhurst-road, Peckham, for Mr. W. Laud. Mr. A. E. Mullins, architect, 97, Barry-road, East Dulwich, S.E.:—
Balaam Bros. (accepted) ... £2,718.
[The supply of stoves, ranges, baths, and other hardware is not included in the contract.]

LONDON.—For the erection of two chapels at the workhouse at St. Pancras, for the Guardians of St. Pancras. Messrs. A. & C. Harston, architects, 15, Loadenhall-street:—
Leslie and Co. Ltd. ... £5,137 T. Bendon ... £5,093
Miskin and Sons ... 5,678 W. Johnson & Co. Ltd. 4,988
E. Lawrence and Sons 5,446 Spencer, Santo and Co. 4,816
H. Wall and Co. ... 5,135 Ltd., Westminster* 4,816
[Architect's estimate, £4,500.]
* Accepted.

LOUGHBOROUGH (Leicestershire).—For the erection of club premises, Baxter Gate. Mr. W. T. Hampton, architect, Swan-street, Loughborough:—
Jas. Gorvett ... £3,169 Kirk and Fletcher ... £2,860
E. Orton ... 3,073 W. Corah ... 2,850
W. F. Harding ... 2,975 Watson and Lovett ... 2,825
W. Tailby ... 2,960 Main, Kendal & Main 2,795
Moss and Son ... 2,940 Thomas Barker & Son
C. Dobson ... 2,870 Loughborough* ... 2,775
* Accepted.

[Architect's approximate estimate, £2,606 16s.]
NUNEATON.—For the erection of "Royal Oak," Nuneaton. Mr. J. F. Tickner, architect:—
A. A. Wincott ... £1,300 0 Stanyan ... £1,171 0
Norton ... 1,239 0 C. H. Barber* ... 1,171 0
Wincott ... 1,175 10
* Accepted.
PUTNEY.—For the erection of a new public library in Disraeli-road, Putney. Mr. Francis J. Smith, architect:—
Stimpson and Co. ... £8,960 Shepherd ... £8,748
Adamson ... 8,896 Roffey* ... 8,290
Nightingale ... 8,775
* Accepted.
PUTNEY.—For the construction of three new roads and sewers, Putney Park Estate, S.W., for the trustees of the late H. M. Rowe. Messrs. Geo. Elkington and Son, architects and surveyors, 95, Cannon-street, E.C.:—
J. Mears ... £3,952 Hy. Woodham* ... £3,394
G. Wimpey and Co. ... 3,517
* Accepted.

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MANCHESTER.—For new offices at the works of Messrs. Waites, Sons, and Atkinson, Limited. Mr. W. Cecil Hardisty, architect, Manchester. Quantities by Mr. Charles Jackson:—
P. Hodgkinson ... £1,225 Young, Tinker, and ... 1,220
Megarity and Co. ... 1,219 F. and E. Haynes * ... 1,130
J. Riley ... * Accepted.

[The lowest tender subsequently reduced to £1,060 10s., in consequence of sundry deductions.]

SPRINGFIELD.—For the erection of a villa at Mount Hill Avenue. R. Mawhood, architect, Chelmsford:—
Smith and Son ... £878 W. Saunns ... £270
W. Fincham ... 825 J. Gowers ... 735
Choat and Son ... 799 F. Johnson, Chelmsford * 687
* Accepted.

WATFORD.—For the erection of two houses for Mr. R. Oxenham, under the superintendence of Messrs. W. Eve and Sons, 10, Union-court, E.C.:—
Wood Bros. ... £5,936 G. and J. Waterman ... £5,267
Chas. Brightman ... 5,420 Geo. Higgs, Watford * 4,930
* Accepted.

WIMBLEDON.—For a proposed house for Mrs. A. Campbell on the Beloeuden Estate, Wimbledon. Mr. J. H. Eastwood, architect, 42, Cheniston-gardens, W.:—
Simmonds Bros. ... £3,950 J. Burges ... £3,050
Price and Price ... 3,517 Lathey Bros. ... 2,916
Whitehead Bros. ... 3,160 Bulled and Co. ... 2,856
WELLINGTON (Salop).—For alterations and additions to Mrs. Slaney's house, Sunnycroft, Wellington. Mr. C. R. Dalziel, architect, Wellington and Shrewsbury. Quantities by the architect:—
R. and J. Millington ... £2,080 A. Roper, Wellington * £1,800
* Accepted.

WRITTLE (Essex).—For the erection of four cottages at Skigg's Farm. R. Mawhood, architect, Chelmsford:—
W. Fincham ... £750 Smith and Son ... £718
Gowers ... 733 E. Wood, Writtle ... 623
* Accepted.

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The Works Committee of this Vestry are prepared to receive TENDERS for PULLING DOWN BUILDINGS, SETTING BACK FORECOURT WALLS, RAILINGS AND GATES, and MAKING ALTERATIONS to STEPS and RAILINGS on the south-west side of Newington Green-road, between Nos. 9 and 17, and other Builder's Work required to be done in connection with the widening of Newington Green-road.

The plans, conditions, and specification may be seen, and forms of Tender, with quantities, obtained on application to the Chief Surveyor, Mr. J. PATEN BARBER, at the Vestry Hall, any morning between the hours of TEN and TWELVE o'clock.

Tenders, endorsed, "Newington Green-road Improvement," must be received here not later than FOUR p.m. on WEDNESDAY, JANUARY 25th.

The Committee do not bind themselves to accept the lowest or any Tender.

Vestry Hall,
Upper-street, N.
December 30th, 1898.

WM. F. DEWEY,
Vestry Clerk.

LEYTON URBAN DISTRICT COUNCIL. TO STEAM MOTOR MANUFACTURERS AND OTHERS.

The Leyton Urban District Council invite TENDERS for STEAM MOTOR DUST CARTS, delivered free to

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Sketch and specification should be enclosed with Tender, which should state the daily consumption of fuel, the number of miles that can be run without water, and the ordinary rate at which they can be run. Any further particulars can be obtained of Mr. WILLIAM DAWSON, the Council's Surveyor, Town Hall, Leyton.

Sealed Tenders, endorsed "Tender for Motor Dust Carts," addressed to the undersigned, to be delivered not later than MONDAY, JANUARY 16th, 1899.

E. VINCENT,
Clerk to the Council.

Town Hall,
Leyton,

January 2nd, 1899.

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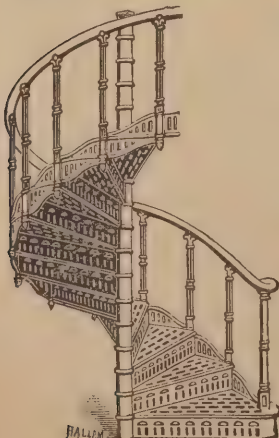
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See Large Advertisement, Back Page, Monthly.

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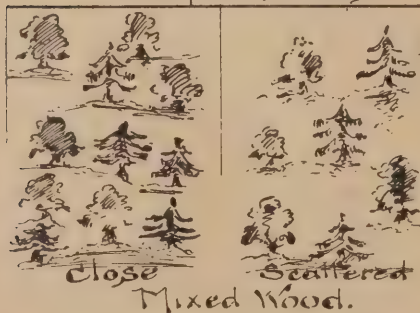
2, Army and Navy Mansions, Victoria Street, London, S.W.

CONVENTIONAL SIGNS USED IN LAND SURVEYING.

By G. A. T. MIDDLETON, A.R.I.B.A.

THOUGH individual practice varies to a certain small extent, there are a considerable number of conventional signs used by land surveyors which it is convenient should be universally adopted, and which in fact are so very largely. Those which occur upon the Government plans are particularly well-known, and frequently, in field books, similar signs are used, only more roughly drawn.

The accompanying illustrations put these in a form which may possibly be found convenient for reference, though, when using them, every surveyor will be sure to adopt modifications of his own to suit his particular practice. Very frequently some objects which, for the particular survey undertaken it is expedient to frequently locate, such as trees, street gullies, or lamp-posts, are designated by what may be called "home-made signs," such as a cross, a star or a circle, a note being made at the commencement of the field book on each particular survey as to what these signs represent. It is also the practice with many to enter these signs both in field book and on finished plan, in the form of a rough elevation of the object to be identified; this is very frequently the case with gates, stiles, and railway signal posts, these last having usually the correct number and position of the semaphores shown. It will be seen in the accompanying diagrams that a good many other objects are commonly shown in this way. The idea is as old as the oldest maps in existence, is reasonable, and can be extended to meet almost any circumstances.



SIGNS USED IN SURVEYING.

CONDITIONS WHICH RENDER HOUSES UNHEALTHY.*

By JAS. I. LITTLE,
Late County Sanitary Inspector, Renfrewshire.

(Continued from page clxxiii.)

SPEAKING of dwelling-houses, Sir B. W. Richardson maintained that no part ought to be excluded from the possession of architectural art, because it is the tendency of the human mind to let that which is disagreeable, plain, and ugly go without regard, and accumulate dirt and disorder. Hence all the offices of a house should have as much care bestowed on them as living-rooms, to render them bright and cheerful, and to make cleanliness as obvious a necessity in the one as in the other. In this lecture Sir Benjamin made a great point of the treatment of floors, referring particularly to the ancient Roman mosaic floors, which were not only beautiful works of art, but easily cleaned, and which, by the well-known Hypocaust system of warming, diffused an equable and agreeable warmth through the room without draughts.

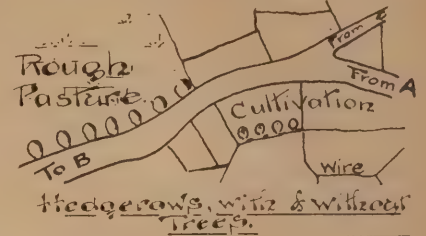
The architect of to-day has no easy task assigned to him when called upon to erect a tenement of workmen's houses. He must keep in view the commercial aspect, so as to make the undertaking pay; he ought to have sanitary science at his finger's ends, so as to adopt and apply all that is now known to be essential to the physical as well as the moral welfare of the occupants; and he must have artistic skill, so that the erection may not be an everlasting eyesore.

CONSTRUCTION.

The method of construction has also much to do with the healthiness of a house, several of the arrangements of present day construction being at variance with the natural laws of ventilation, and tending to encourage the accumulation of dust, which is never a sign of the healthy condition of a house. In considering this, however, we must bear in mind that houses built in open situations in the country are surrounded by a pure and open atmosphere, while houses in large towns are permeated by an atmosphere laden with impurities and dust, which is continually being deposited on every surface that will retain or absorb them. Town houses are more subject also to the incursion of various types of vermin, from the cockroach down to the even more noxious and happily rarer examples. It is, therefore, desirable that town houses, especially, should be constructed of materials least likely to absorb and retain impurities, and that the method of construction should be such as to leave no unlighted and inaccessible spaces where dust will find a lodgment.

These requirements are not habitually carried out in the construction of houses. The method of forming upper floors of houses by means of joists laid from wall to wall, on which boards are nailed to form the floor, and the underside is lathed and plastered to form the ceiling, is the means of providing an unventilated store room, for the accumulation of such dirt and decaying matter as can gain access into the space between the ceiling and floorboards. Tenants of even the best kept houses would be disagreeably surprised at the amount of dirt they could find under their flooring boards. Why should the space not be filled up solid? I am sure it would both be healthier for the inmates and more pleasant and quieter for the families living on the lower floors in tenements. The old-fashioned method of leaving the joists exposed was even more sanitary. The same may be said of the attic space, which forms the dark cavern between the roof and the upper ceiling. The base projections, chair-rails, and many of the styles of cornices "stuck" up, are just shelves for the reception of

* A paper read before the Glasgow and West of Scotland Technical College Architectural Craftsmen's Society.



Symbols used in the Surveying



SIGNS USED IN SURVEYING.

dust, and the larger and more dignified the room is, the greater the projection of base it is considered necessary to have. Moreover the space behind merely forms a safe refuge and free run for the vermin and mice who enjoy their gambols in the private corridors we have obligingly provided for them, and in many cases the space gets filled with dust owing to the shrinkage of the material. The wood casing of baths and waterclosets is one of the most objectionable forms of furnishing a storage space for filth and dirt. They are mere "whited sepulchres;" to all appearance everything is neat and clean, but look inside and what is found?

BUILDING MATERIALS.

In every dwelling dryness is an essential of health, therefore the material used in the construction should be of an impermeable nature. In this damp climate of ours, it is quite natural that the materials used for buildings should cause, in many instances, houses to be unhealthy. Many classes of stones used, in present-day buildings, are of a very porous nature, and damp soon finds its way through the walls. The builders naturally choose a class of stone which can readily be converted into the various shapes in which it is required. To use a hard close-grained stone, which will resist the moisture of the air, would swallow up too much of their capital in wages. The same may be said of bricks—hard well burned bricks are more expensive than those of an inferior quality. Not only do porous walls absorb moisture externally, but internally they tend to absorb the moisture given out in breathing and in the combustion of lights, and with it the organic and other impurities contained therein, which after a time decay and become a source of impurity to the air of the room. The interior surface of a wall should be such that it can be

SIGNS USED IN SURVEYING.

It is only necessary to glance through those statistics which show the death-rate in the manufacturing and closely inhabited towns, as compared to the death-rate in the country or the suburbs, to learn the generally well-known lesson that the health of the nation suffers in proportion to the degree that the individuals are crowded.

The law, however, has stepped in to prevent the gross overcrowding of dwellings which has been so common in the past, but these only relate to new buildings, and it will be long before our crowded districts are thoroughly opened up and the excess of buildings is removed. Much more stringent regulations are, however, yet required, as the free space provided for around new buildings is still inadequate. I will here give the amount of free space required by the Local Acts and Building Regulations of various large centres, which I think all will agree is far from sufficient.

The London Building Act 1855 requires that every building used as a dwelling-house shall have all the rooms lighted and ventilated from a street or alley, and shall have in the rear an open space of at least 100 square feet, and the 1882 Act further provides that if the frontage does not exceed 15ft. the open space shall be 150 sq. ft.; that if the frontage does not exceed 20ft. the open space shall be 200 sq. ft.; that if the frontage does not exceed 30ft. the open space shall be 300 sq. ft.; and if the frontage exceeds 30ft. it shall be 450 sq. ft.

Section 38 of the Liverpool Building By-laws provides for an open space adjoining the building of at least 150 sq. ft. and that said open space shall be at least 10ft. wide between the building and the opposite property, but if the building be two stories in height the width shall be 15ft., if three stories 20ft., and if more than three stories 25ft.

The Edinburgh Local Act 1867, Sect. 43, provides that no house shall be of greater height than one and one-half times the width of the adjoining street or court, and that no building shall be more than 60ft. high.

The Glasgow Police Act 1866, Sect. 370, provides for a free space equal to at least three-fourths of the height of the wall of the building.

The Aberdeen Corporation Act, Sect. 56, provides for an open space in rear of dwelling houses one story in height of 150 sq. ft.; two stories in height 225 sq. ft.; three or more stories in height 300 sq. ft.; and that the area of the open space shall not be less than one half of the area of the ground built upon.

The Dundee Local Act demands one-third of the site of free space in the rear of new buildings, or 10ft. wide for each story in height.

The Greenock Local Police Act, Sect. 299, provides for an area of open space, in the rear of every dwelling house, equal to one-fourth of the area built upon.

The Burgh Police (Scotland) Act, 1892, provides for open space attached to the building of an area three-fourths of the space built on.

The Lanarkshire Bye-laws under the Public Health (Scotland) Act, 1897, provide for an area of open space equal to at least two-thirds of the height of the building.

The Renfrewshire Bye-laws, also under the Public Health (Scotland) Act, 1897, provide for an open space in the rear of the building equal to three-fifths of the area built upon.

To show the above more clearly, and for the purpose of comparison, I have computed the above in figures approximately, taking 1'000 as unity, that is free space equal to built on space.

Unity	...	...	...	1'000
London	...	...	...	250
Liverpool	...	...	...	625
Edinburgh	...	...	...	666
Glasgow	...	...	...	750
Aberdeen	...	...	...	500
Dundee	...	...	...	400
Greenock	...	...	...	300
Burgh Police (Sect.) Act	...	...	...	750
Lanarkshire By-laws	...	...	...	750
Renfrewshire By-laws	...	...	...	720

CLEANLINESS.

Cleanliness is absolutely necessary, if a house is to be healthy. The site, the drainage, the ventilation and the structure may be perfect, but without cleanliness no dwelling-house will be healthy, and cleanliness is not only necessary inside, but the outside and surroundings must be kept equally clean, if the health of the occupiers is to be preserved. It is well known that an individual, who realises the

satisfaction of cleanliness, becomes sensitive to the discomfort and unwholesomeness of dirt. Many of our sanitary improvements arise out of the deep-rooted dislike to dirt.

DRAINAGE.

In considering the conditions which render a house unhealthy, drainage cannot be passed over. A dwelling cannot be said to be fit for human habitation if it has not the advantage of a good system of drainage, or if the drains are not properly trapped off from the building and ventilated. The chief objects of a perfect system of drainage are:—

1. The removal from the house of all waste and foul matter produced from baths, sinks, washhand basins, waterclosets, &c., and that in the most speedy manner.

2. The prevention of any back current of foul air entering the house through the drains.

Drains being buried in the ground and out of sight should be very carefully constructed, as a badly laid drain may do irremediable evil. The waste discharged into drains putrefies and decomposes the moment it enters the pipes, and putrid gases and the noxious effluvia capable of being given off from the mixed ingredients of which such waste is composed, fill the pipes. No drain should therefore be allowed to enter the house; all should be disconnected in the outer air, except, of course, that from the w.c., which is ventilated full bore to above the roof. An imperfectly ventilated system of drains is also always a lurking evil, as, if the least flaw occurs in the structure of the drain, the warm atmosphere of the house will act as a suction from that point, and introduce impure air into the dwelling.

PLUMBING WORK.

Defective and untradesmanlike plumbing fittings are always associated with unhealthy dwellings, but as the plumber is now given his proper place by the public as being an important factor in the production of a healthy dwelling, it would be superfluous on my part to go into the merits and demerits of the various and multitudinous plumbing arrangements in connection with the modern house.

WATER.

Next in importance to pure air is pure water. Good water should be clear, colourless, tasteless, and odourless, and no deposit or floating particles should be observable in it. Water is liable to be polluted in various ways, both at its source and in course of transit or delivery. The principal impurity to be guarded against is organic matter, which is commonly caused by the well, or other source of supply, receiving the drainage from impure soil; and that organic impurity is common is shown by the fact that few suspicious waters are tested without the analyst adding that it contains impurities equal to a certain percentage of town's sewage.

"Nothing is more clearly proved," says Mr. Wynter Blyth, "than the fact that a large population may drink a sewage polluted water with the utmost impunity under certain conditions. Water polluted by healthy human or animal sewage, nasty and abominable liquid as it may be, will produce no disease; water infected with the excretions from diseased natures will cause disease.

"Since, however, at the present time we cannot differentiate between those excrementitious matters which cause disease and those which do not cause disease, it is clearly safest to condemn as a supply a liquid which has been proved to be contaminated by a something, which, for ought we know, contains the seed of typhoid fever or of cholera."

It is therefore most important that every house should be provided with a supply of water which is above suspicion, and that the supply be constant and sufficient for the wants of the occupiers. It may be well to note that water which contains air acts on lead, and may lead to lead poisoning, so that where it is necessary to use lead pipes they should be tin lined. Another source of danger is lead-lined cisterns. No necessity for storage on the premises, however, should exist; but if cisterns are really necessary let them be placed where they are easily accessible, and by all means let them be covered.

Surveying and Sanitary Notes.

CONTRACTS for extensive irrigation works on the Nile are being placed in the hands of British firms. Machinery, plant, and materials have been obtained from Ipswich, Lincoln, Leeds, Sheffield, Thornaby-on-Tees, Colne, Preston, Workington, Manchester, Birmingham, Wolverhampton, Stafford, Bristol, Cardiff, Portsmouth, Glasgow, Belfast, and London. All the cement has been obtained from England.

THE opposition to the London County Council's water scheme, to which reference was made in this column a fortnight ago, shows no signs of abating. The farmers and land aristocracy in the Welsh countries from which the water is proposed to be drawn are protesting against the depletion of their water resources, and against the construction of the works necessary to give effect to the Council's proposal. Meetings of protest are being held, foreshadowing strong opposition to the deposited Bill, and the London water companies have sent to the Hirwain and Wye valleys, a staff of gentlemen experienced in the work of references, to check the plans and books of references with a view to opposition being offered before the examiners of private Bills.

AN alternative scheme for obtaining an adequate water supply for the Metropolis has been submitted to the London County Council by Mr. Walter Moseley. The proposal is that by sinking a number of artesian wells, the Council should tap a huge natural reservoir of pure water that exists in a chalk basin hundreds of feet below the surface of the City. The quantity of water always in reserve in this basin is enormous; according to Mr. Moseley, it is fifty million million gallons. The artesian wells which supply the fountains in Trafalgar Square and various Government Offices are mentioned as examples of the pure water obtainable from the London basin, and it is maintained that this scheme has a further advantage over the Welsh aqueduct scheme in that it would effect a saving of at least £20,000,000.

COPIES of the Leeds Corporation Sewerage Committee's recent report on the biological experiments at Knostrop are being supplied, not only to members of the City Council, but, under the chairman's directions, to members of the West Riding Rivers Board and of the Royal Commission on Sewage. It will thus be made clear to all interested in this important question that Leeds is doing its utmost to improve the existing condition of affairs. The committee have also resolved to obtain from Mr. Cameron, of Exeter, a plan and estimate of the cost of providing a septic tank for an experiment at Knostrop for testing the action of Mr. Cameron's system upon Leeds sewage.

UNDER the supervision of Mr. Dibdin, some very interesting experiments have been going on at Leeds during the last year with a "biological" sewage tank. A report has now been presented which shows that, notwithstanding the large quantities of chemical waste coming down the sewers, the bacterial beds purified the sewage to such an extent that it was perfectly fit to be passed into a stream very much purer than the River Aire; that, the sludging-up of the tank could be largely prevented by allowing the grit to subside, and that an occasional rest of a week or a fortnight enabled the bacteria in the tank to dispose of the organic portion of the sludge. It is probable as a result of this experiment that, under ordinary circumstances, allowing certain intervals of rest, some 400,000 gallons of Leeds sewage could be dealt with on an acre of filtering bed. This would mean for a town the size of Leeds a minimum of forty acres of filtering beds for an ordinary dry weather flow. The Corporation has resolved

to put down three other tanks to carry on the experiments further. Two of one-eighth of an acre each will duplicate the existing tank, and the third of a quarter of an acre will be used for further experiments with the effluent from the present lime precipitation works, which are themselves meanwhile being increased to something more like the size required for the town.

THE annual meeting of the New Panama Canal Company was held in Paris on December 28th. The directors reported that the Technical Committee (which includes General Abbot, of the United States Engineer Corps, and Mr. Hunter, engineer of the Manchester Ship Canal) had considered various alternative plans for the completion of the canal. In the scheme they recommended, there are four locks on the Atlantic and three on the Pacific side; the supply of water to the canal is arranged by a dam in the upper valley of the Chagres. There are now 3400 navvies at work on the canal, and the directors anticipate that the renewal of the concession for six years will be granted by the Colombian Government. The report proceeds to refer to the prevalent feeling in America that after the disaster of the old Panama Company, the Panama route was no longer to be taken into account. This impression the directors have been endeavouring to counteract, by representations to the American government and otherwise, pointing out that the Panama route is indisputably that which can be opened to navigation in the shortest time and with the least expense.

MR. F. REDMAN, the vice-president of the London Butchers' Society, in a letter to the Press on the subject of the proposed erection of public abattoirs, says the proposal "is the maddest and most expensive which could be devised, will greatly disturb trade, must increase the price of meat to the consumer, and is not the sober method of business men, but the crazy dream of vegetarians, municipalisers of labour, and public medical men, who can afford to ignore the relations between cost and result." He suggests that, in preference to this scheme, the London County Council should discuss the proposals made by the butchers to the effect that the present local and London County Council inspectors, or a special staff appointed for that purpose alone, should inspect all meat killed in private slaughter-houses under regulations (which could be easily devised) that would prevent any passing into the shops for sale without such inspection? A special staff could be appointed, with an average of only ten slaughter-houses under each inspector's care, at a cost of from £7000 to £8000 a year, and this would only be about a tithe of the cost it was proposed to inflict on London.

THE construction of a suitable harbour and quay at Mallaig formed a vital part of the scheme for the extension of the West Highland Railway, and the cost of this auxiliary undertaking was estimated at close upon £30,000. It now appears that there are certain formidable and unforeseen engineering difficulties in the way of executing the project. Past surveys of a more or less cursory character seemed to have proved that the layer of sand forming the bed of Mallaig Bay was underlain by a muddy or clayey formation. It was therefore concluded that the process of deepening the area to be embraced in the proposed harbour—a process indispensably necessary in order that the harbour may be navigable by vessels of large draught—would not only be feasible but comparatively inexpensive. A more careful and precise survey has recently been made, and the result is likely to upset all former calculations. It now appears to be thoroughly established that the superior 3ft. layer of sand rests not upon a substratum of clay but upon the solid rock. This fact will render any deepening operation by the 3ft. of sand absolutely impracticable. The possible effect of this unfortunate discovery on the almost completed Mallaig extension of the West Highland Railway is regarded with some grave apprehension.

Builders' Notes.

FROM the beginning of the New Year the rate of wages for painters at Greenock is 9d. per hour, an advance of $\frac{1}{2}$ d.

THE bricklayers of Birmingham have asked for an advance of $\frac{1}{2}$ d. per hour, which will probably be conceded to them in April next. Some difficulty is anticipated, however, with regard to the questions of the employment of apprentices and payment for night work, the employers being desirous of making fresh regulations on these points.

At Cardiff Police Court the Cardiff Corporation summoned Mr. Henry Gibbon, builder, for wrongfully using water that was the property of the Cardiff Corporation. Mr. Gibbon was making some alterations in the buildings around the Drill Hall. The Drill Hall authorities gave him power to use water which was supplied to them for domestic purposes only. Water used for the purpose defendant wanted it should be paid for at a higher rate than that used for domestic purposes.—The Stipendiary held that there was evidently no desire on the part of Mr. Gibbon to evade or defy the law, and imposed a nominal fine of 1s. without costs.

At a largely-attended meeting of the Master Masons' Association of Glasgow and neighbourhood the question of the increase in the price of stone was recently considered, and regret was expressed that none of the quarrymasters who had been approached could see their way to finish existing contracts at the old rates, or defer the date when the increase in rates should take place. In view of this limited notice, which in nearly every instance did not exceed one week, the meeting was unanimously of opinion that the position of contractors should be made known to proprietors, architects, and public bodies, and in order to secure this it was resolved that a circular be framed and sent to them, stating fully the views held by the meeting.

A DEPUTATION of those interested in the promotion of the Parliamentary Bill for the Registration of Plumbers waited on the Secretary for Scotland, Lord Balfour of Burleigh, last week, for the purpose of representing to him the desirableness of making the Bill a Government measure. The deputation was representative of the whole of the six district councils in Scotland of the National Registration of Plumbers.—Ex-Bailie Crawford briefly explained the objects of the movement, and the necessity felt for legislative sanction for it. The movement had now been in existence for fifteen years, and a bill had been read a second time by three successive Parliaments, and had twice passed through committees of the House of Commons. The bill did not seek in any way to create a monopoly. Its aim was solely to establish a thoroughly representative general council, which would have certain discretionary powers, and the bill would also prohibit under a penalty the use by any one of the term "registered" who was not registered under the Act.—Lord Burleigh, in reply, expressed his sense of the importance of the deputation, and his complete sympathy with the movement for introducing a higher standard of qualification, and a higher code of honour among those to whom the responsible work of the plumbing and the drainage of dwelling-houses was entrusted. He was satisfied that the movement did not aim at any monopoly. While he was not in a position to commit the Government at that stage, he would undertake to report immediately on his return to London in the beginning of the year the representations which had been submitted to him, and to confer with the representatives of the Local Government Board for England as to possible assistance towards securing the passage of the bill into law.

Trade and Craft.

THE IMPROVED ELECTRIC GLOW LAMP CO. LTD.

The electric light, without a doubt, is now an established feature of our modern civilisation. Equally, without a doubt, it will be always with us, but that we may appreciate its white glare the more, there needs must arise someone who will popularise electric lighting. Now that the form of illuminant is well-established, man's ingenuity must wrestle with the problems of how to obtain novelty of effect and to economise the current. The Improved Electric Glow Lamp Company Ltd., have been pioneers in this matter, but what has yet been accomplished can only be regarded as a beginning; think of the possibilities of novel and decorative lighting! What scope for an inventive brain! First of all, this form of illuminant must be cheapened and made more easily accessible for isolated application. There is opened a fair field for ingenious and decorative schemes to shed light and lustre all around, to brighten the dark corners of our drawing rooms, and relieve the dullness in many of our public halls and theatres. The Glow Lamp of the Improved Electric Glow Lamp Company achieves much in its way, but, of course, on the decorative side, it only touches the fringe of this wide subject.

FALKIRK IRON CO.

We have received from the Falkirk Iron Co. an illustrated catalogue of their cast-iron mantelpieces. A large number of designs exemplifying many styles are shown in the catalogue by excellent perspective sketches and photographs, which convey a true and vivid impression of many fine examples of cast-iron grates and mantels. A large number of these designs have been made by well-known and eminent architects, and among them we notice several that attracted wide attention at the Art Metal Exhibition at Westminster, where they were exhibited in the early part of last year. We particularly commend the Mantel Grates, cast in one piece, which form a leading feature at the Company's works. These have for the most part been excellently designed, with a true appreciation of the limits and possibilities of cast-iron; they admit of an enormous variety and freedom in design, they are cheap, and we know of no more beautiful or appropriate setting for a fireplace in a bedroom or small sitting room than one of these Mantel Grates. The Falkirk Iron Co. show also some cast-iron fireplaces and mantels of much more elaborate design, suited for the reception rooms of a mansion. In the use and adaptation of cast-iron to this purpose, the Company has taken a leading position among manufacturers. The jambs and overmantels in these examples are ornamented with bevelled or convex mirrors, and are enriched by the use of copper and brass, while many of the fireplaces are designed with brick or tile jambs and backs, and brass or copper hoods. Most of the designs show a skilful and proper use of the material employed, and a full recognition of its limits and possibilities, and we think the Company illustrates in its catalogue some of the best work of this kind that has yet been done. If fireplaces on these patterns are as widely adopted as their aesthetic and practical qualities entitle their makers to expect, it will be a popular recognition of the labour and devotion of the late Mr. William Morris and other enthusiastic workers in the cause of the revival of the art of craftsmanship. The Falkirk Iron Company also exhibit examples of the more usual patterns of cast-iron mantels and fireplaces, designed on the models we associate with mantels of wood and stone, which no doubt they are meant to imitate. These are good of their kind, but in view of the work of the Company already described, they may be considered as a concession to a popular taste, which has yet to be educated in a just appreciation of what is truly admissible, and what inadmissible, in art.

COMPLETE LIST OF CONTRACTS OPEN.

DATE OF DELIVERY.	WORK TO BE EXECUTED.	FOR WHOM.	FROM WHOM FORMS OF TENDER MAY BE OBTAINED.
BUILDINGS—			
Jan. 13	Hull—Tramway Sheds, &c.	Corporation	A. E. White, City Engineer, Town Hall, Hull.
" 13	Preston—Shedding, &c.	Corporation	Borough Surveyor, Town Hall, Preston.
" 13	Hanwell, Middlesex—School Buildings	Central London School District	J. T. Newman and Jacques, 2, Fen-court, E.C.
" 14	Forres, Scotland—Semi-detached Villas	Building Company Limited	J. Forrest, Architect, High-street, Forres.
" 14	Limerick—National School Teachers' College	Trustees	W. H. Byrne, 20, Suffolk-street, Dublin.
" 14	Normanton-by-Derby—Burial-ground Works	Parish Council	T. A. Fuller, The College, All Saints, Derby.
" 16	Burnley—Rebuilding Hotel	James Grimshaw Ltd.	R. Neill, 9, Grimshaw-street, Burnley.
" 16	Rishton, Lancs.—Conservative Club ... ..	...	J. C. H. Sandback & J. Parker, 15, Richmond-ter. Blackburn.
" 16	London, S.E.—Supply of 60,000 Bricks	Vestry, St. Mary Magdalen, Bermondsey	F. Ryall, Vestry Clerk, Bermondsey Town Hall, Spa-rd., S.E.
" 16	Knowle, near Fareham, Hants—Infirmary Wards, &c.	Committee of Visitors	W. J. Taylor, County Surveyor, the Castle, Winchester.
" 17	Preston—Police Station, Dwelling-houses, &c.	Lancaster County Council	H. Littler, Architect, County Offices, Preston.
" 17	Rochdale—Electricity Works	Gas Committee	T. B. Ball, Manager, Gas Works, Rochdale.
" 17	Handsworth—Laying-out Cemetery, &c.	Burial Board	E. Winder, jun., Corn Exchange-chas., Wharf-st., Sheffield.
" 17	Southminster, Essex—Railway Hotel	Gray and Son	P. M. Beaumont, Maldon, Essex.
" 17	Huyton, Liverpool—Police Station, &c.	County of Lancaster	H. Littler, Architect, County Offices, Preston.
" 17	Leeds—Alterations, &c., to Poor-law Offices	Guardians	T. B. Wilson, 12, East Parade, Leeds.
" 17	Wombourne, Bilson—Erection of House	Urban District Council	J. D. Wassell, Clerk, District Council Offices, Bilson.
" 18	Salford—Supply of Stone for Headstones, &c.	Cemetery	Borough Engineer, Town Hall, Salford.
" 19	Warwick—Erection of Lavatories, &c. at Workhouse	Guardians	F. P. Trepass, 8, Jury-street, Warwick.
" 21	Dunoon, Scotland—Erection of Police Station ... ..	...	W. Fraser, Architect, Burgh Buildings, Dunoon.
" 23	Kingstown, Ireland—Laying-out Open Space	Commissioners	J. Donnelly, Town Clerk, Town Hall, Kingstown.
" 23	Bury, Lancs.—Supply of Retorts, Firebricks, &c.	Corporation	H. Simmonds, Gas Engineer, Gasworks, Bury.
" 23	Cheltenham—Reservoir Retaining Wall	Corporation	Borough Surveyor, Municipal Offices, Cheltenham.
" 25	London, N.—Pulling-down Buildings, &c.	Islington Vestry	J. P. Barber, Vestry Hall, Upper-st., N.
" 25	Isle-of-Thames—Cottage Home Buildings	Union	L. Grant, High-street, Sittingbourne.
" 25	Little Ilford—School Buildings, &c.	School Board	S. Jackson, 65, Fenchurch-street, E.C.
" 26	Tonbridge—Chimney Shaft at Workhouse	Union Guardians	The Clerk, 23, Church-road, Tunbridge Wells.
" 28	Bakewell—Infirmary, Tramp Wards, &c.	Union Guardians	E. M. Longsdon, Town Hall, Bakewell.
" 28	Wingate—Erection of Shop	Co-operative Society	Secretary, Station Town Co-operative Society, Wingate.
" 31	Berwick-upon-Tweed—Lock-up and Police Station	Town Council	R. B. Dick, 55, Northumberland-st., Newcastle-upon-Tyne.
" 31	Lewes—Making Bricks	East Sussex County Council	F. J. Wood, County Surveyor, County Hall, Lewes.
Feb. 1	Burton-upon-Trent—Widening Bridge	Corporation	G. T. Lynam, Borough Engineer, Burton-upon-Trent.
ENGINEERING—			
Jan. 14	St. Andrews, Scotland—Storage Reservoir, &c.	Commissioners	Belfrage and Carfrae, 1, Erskine-place, Edinburgh.
" 16	Glasgow—Main Line of Railway	Caledonian Railway Company	Formans and McCall, 160, Hope-street, Glasgow.
" 17	Weston-super-Mare—Heating Apparatus	School Board	S. J. Wilde & H. F. Price, Architects, Weston-super-Mare.
" 17	Billericay, Essex—Steel Boiler	Union Guardians	C. E. Lewis, Clerk, New-road, Brentwood.
" 17	Leeds—Supply of Two Boilers	Union Guardians	Guardians' Offices, East Parade, Leeds.
" 19	Catherham, Surrey—Covered Way	Metropolitan Asylums Board	T. D. Mann, Norfolk House, Norfolk-street, Strand, W.C.
" 19	London, N.—Supply of Two Boilers	Vestry of St. Mary, Islington	A. H. Tiltman, 6, John-street, Bedford-row, W.C.
" 19	Woolwich—Iron Staircases	Union Guardians	C. W. Brooks, 23, Finsbury-pavement, E.C.
" 19	London, N.—General Engineering Installation at Baths	St. Mary's Vestry, Islington	A. H. Tiltman, 6, John-street, Bedford-row, W.C.
" 20	Barrow-in-Furness—Wiring Free Library	Corporation	Borough Electrical Engineer, Town Hall, Barrow-in-Furness.
" 20	Newmilns, Scotland—Reservoir	United Breweries Ltd.	P. C. Hart, 32, John Finnie-street, Kilmarnock.
" 20	Farnham—Sewage Cooling Tanks, &c.	Corporation	T. W. Tovey, Secretary to United Breweries Ltd., Farnham.
" 21	Glasgow—Electricity Generating Plant	Harbour Commissioners	W. A. Chamen, 75, Waterloo-street, Glasgow.
" 23	Belfast—Supply of Cranes, &c.	London County Council	G. F. L. Giles, Engineer, Harbour Office, Belfast.
" 24	London—Tunnel	County Council	Engineer's Department, County Hall, Spring-gardens, S.W.
" 24	London—Overhead Traveller	County Council	Engineer's Department, County Hall, Spring-gardens, S.W.
" 24	London, N.—Alterations to Engines	County Council	Engineer's Department, County Hall, Spring-gardens, S.W.
" 24	London, E.C.—Ferry Paddle Steamers	Bengal-Nagpur Railway Co. Ltd.	Company's Office, 132, Gresham House, Old Broad-st., E.C.
" 25	Fulwood, near Preston—Tramway	Urban District Council	Council's Surveyor, Fulwood.
" 26	Christiana—Porcelain Telegraph, &c., Insulators	Norwegian State Telegraph Administration	Commercial Department, Foreign Office, S.W.
" 27	Newhaven and Seaford, Sussex—Sea Wall, &c.	Defence Scheme Commissioners	Engineer, L.B. and S.C. Railway, London Bridge, S.E.
" 28	Southampton—Superstructure, &c., of Bridge	County Council	W. J. Taylor, County Surveyor, The Castle, Winchester.
" 30	Belfast—Tipping Crane, &c.	Harbour Commissioners	G. F. L. Giles, Engineer, Harbour Office, Belfast.
" 30	Midhurst, Sussex—Reservoir, Mains, &c.	Rural District Council	J. Taylor, Sons, & Santo Crimp, 27, Gt. George-st. Westminster
" 31	London—Dynamos, Switchboards, &c.	London County Council	Engineer's Department, County Hall, Spring-gardens, S.W.
" 31	London—Four Gas Engines	County Council	Engineer's Department, County Hall, Spring-gardens, S.W.
Feb. 1	Townsville, North Queensland—Supply of Crane	Harbour Board	Chairman, Townsville Harbour Board, Townsville.
" 16	Alexandria, Egypt—Two Swing Bridges	Inspector of Irrigation	Inspector of Irrigation, Third Circle, Alexandria.
IRON AND STEEL—			
Jan. 13	Manchester—Supply of Stores	Ship Canal Co.	Stores Department, Salford Docks.
" 18	London, S.W.—Supply of Bogie Wagons	Uganda Railway Committee	Crown Agents for the Colonies, Downing-street, S.W.
" 28	St. Anne's-on-Sea, Lancs.—Supply of Pipes	Urban District Council	H. Bancroft, 88, Mosley-street, Manchester.
No date.	Preston—Light Tramway Metals, &c. ... ..	...	G. E. Gregson, 11, Chapel-street, Preston.
PAINTING AND PLUMBING—			
Jan. 14	Birmingham—Painting Workhouse Infirmary	Guardians	—Hardie, Workhouse Infirmary, Dudley-road, Birmingham.
Feb. 6	Manchester—Painting—(12 Contracts)	Lancashire and Yorkshire Railway Co.	Engineer, Hunt's Bank, Manchester.
ROADS—			
Jan. 13	Preston—Paving Works, &c. ... ..	...	Borough Surveyor, Town Hall, Preston.
" 14	Bratton Fleming, Barnstaple—Widening Road ... ..	...	J. Baker, The Grange, Bratton Fleming.
" 14	Saddleworth—Supply of Materials	Rural District Council	J. Bradbury, Clerk, Union Offices, Uppermill, Saddleworth.
" 14	Newport, I.W.—Widening Road	Rural District Council	E. Humphries, Surveyor, Newchurch.
" 16	Salford—Street Works	Highways Committee	Borough Engineer, Town Hall, Salford.
" 17	Rugby—Supply of Broken Stone	Urban District Council	D. G. Macdonald, Surveyor, Rugby.
" 17	Southgate—Street Works	Urban District Council	C. G. Lawson, Offices, Palmer's Green, N.
" 18	London, W.—Horse-brooms, Water Vans, &c.	Urban District Council	A. Ramsden, Surveyor, Vestry Hall, Chiswick.
" 19	Eccles, Lancs.—Street Works	Highways Committee	Borough Surveyor, Town Hall, Eccles.
" 21	Banbury—Supply of Hartshill Stone	Town Council	N. H. Dawson, Borough Surveyor, Town Hall, Banbury.
" 23	Woodford—Road Works, &c.	Urban District Council	Surveyor's Offices, Woodford Green.
SANITARY—			
Jan. 13	Durham—Pipe Sewer, &c.	Rural District Council	G. Gregson, Surveyor, Eastwood, Western Hill, Durham.
" 14	Denbigh—Pipe Sewers	N. Wales Counties Lunatic Asylum	J. T. Wood, 3, Cook-street, Liverpool.
" 15	Portrane, co. Dublin—Drainage Works	Lunatic Asylum	G. C. Ashlin, 7, Dawson-street, Dublin.
" 16	Little Hulton, near Bolton—Sewerage Works	Urban District Council	C. C. Hooley, Council Offices, Little Hulton.
" 16	Leyton—Steam Motor Dust Carts	Urban District Council	W. Dawson, Surveyor, Town Hall, Leyton.
" 16	Hendon—Sewerage Works	Urban District Council	S. S. Grimley, Offices, The Burroughs, Hendon, N.W.
" 21	Withnell—Sewage Works	Urban District Council	T. Beaver, Surveyor, Brinscall, near Withnell.
" 27	Hartley Wintney, Hants.—Pipe Sewers	Rural District Council	F. L. Wetherall, Clerk to Parish Council, Hartley Wintney.
" 28	Glasgow—Outfall Sewer	Corporation	City Engineer, 64, Cochrane-street, Glasgow.
" 30	Amptill—Sewerage Works	Urban District Council	T. Hennell, 6, Delahay-street, Westminster.
" 31	Chipping Norton—Drainage Works	Town Council	N. Lailey, 16, Great George-street, Westminster.

COMPETITIONS.

DATE DESIGNS TO BE SENT IN.	DESIGNS REQUIRED.	AMOUNT OF PREMIUM.	BY WHOM ADVERTISED.
Jan. 14	Burnley—Higher Grade School, &c. ... ..	...	Burnley School Board, Ormerod-road, Burnley.
Feb. 1	Bradford—Central Fire Brigade Station	£100, £50, £30	City Surveyor.
" 10	Dartford—Three New Schools	£31 10s., £10 10s.	Dartford School Board, Kent.
" 28	Knutsford—Laying-out Cemetery, &c.	£20, £10	W. J. Downes, Surveyor, Urban District Council, Knutsford.
" 28	London, S.W.—Covered Sanitary Dust-cart	£25	Clark, London County Council, Spring Gardens, S.W.
March 31	Forfar—Isolation Hospital	£31 10s., £21, £15 15s.	Dundee and Forfar District Committees.
April 14	Bradford—Cattwright Memorial Hall and Art Gallery	£150, £100, £50	City Surveyor, Bradford.

Property and Land Sales.

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December 15th.

The following are the appointments fixed for 1899 :—

January 19th	May 18th	September 21st
February 2nd	June 1st	October 5th
February 16th	June 15th	October 19th
March 2nd	July 6th	November 2nd
March 16th	July 20th	November 16th
April 6th	August 3rd	December 7th
April 20th	August 17th	December 21st
May 4th	September 7th	

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FOR SALE, a compact and valuable FREEHOLD PROPERTY of 53 acres, with a frontage to the main Brighton road of 2000ft., and perfectly ripe for development, with residences of a good class. Prettily timbered. Gas and water mains along the frontage. Would be divided.

Plans and full particulars of the owner's agents, Messrs. GREEN and SIMES, Auctioneers and Estate Agents, Blenheim Mansions, Queen Anne's-gate, London, S.W.; or Mr. W. M. LEACH, Auctioneer and Estate Agent, Crawley, Sussex.

FAIRMILE PARK, near Cobham, Surrey.—A FREEHOLD BUILDING ESTATE of about 40 acres, with possession.

MESSRS. DRIVER and CO. have received instructions to offer to AUCTION at the MART, Tokenhouse-yard, Lothbury, NEXT SPRING (unless previously sold by private contract), the above property, situate in a favourite residential district, about a quarter of an hour's walk from the Oxshott and Fairmile Station, and about a mile and a half from Cobham Station. The estate comprises Building Land, ripe for development, the higher portion (sloping to the south) possessing charming views over the intervening country to Epsom Downs; and a Residence known as "South Lodge," with stabling and garden; Eight small Villas, some Cottages, and the "Griffin" Beerhouse. On a portion of the estate brickearth is being worked, and will be included in the sale as a "going concern."

Particulars and plans, when ready, can be obtained of CHARLES JUPP, Esq., Solicitor, 43, Lime-street, E.C.; and of Messrs. DRIVER and Co., 23, Pall Mall, S.W.

By order of Trustees.—Preliminary Advertisement.—Freehold Building Estate, Streatham, near West Norwood Railway Station.

MESSRS. FIELD and SONS, and Messrs. WALFORD and WILSHIN, who are jointly concerned, will SELL by AUCTION, at the MART, at an early date, a valuable FREEHOLD BUILDING ESTATE, known as High View Park, comprising 16a. 1r. 10p., lying immediately at the rear of and with approach from Leigham Court-road; also a contiguous Freehold Building Site of 2a. and 5p. in a new road intended to connect Canterbury-grove with Thurlby-road.

Particulars and plan, in due course, of Messrs. KINGSFORD, DORMAN, and Co., Solicitors, 23, Essex-street, Strand; of Messrs. WALFORD and WILSHIN, Auctioneers, Anerley, S.E.; and of Messrs. FIELD and SONS, as above.

By order of the Executors of Miss Susanna Roycroft.—Camberwell.—Leasehold Ground Rents.

MESSRS. FIELD and SONS will SELL by AUCTION, at the MART, on WEDNESDAY, JANUARY 18th, at TWO o'clock, in two lots, improved LEASEHOLD GROUND RENTS, amounting to £45 per annum, arising from and amply secured upon three shops and six dwelling-houses, being Nos. 202, 204, and 206, Camberwell-road, and Nos. 34, 36, 38, 40, 42, and 44, Mansion-street, adjacent, of the rack rental value of about £200 per annum.

Particulars of G. ASTELL HALL, Esq., Solicitor, 8, Gray's Inn-square, and of the AUCTIONEERS, 54, Borough High-street, S.E., and 52, Chancery-lane, W.C.

Old Kent-road.—Leasehold Investment.

MESSRS. FIELD and SONS will SELL by AUCTION, at the MART, on WEDNESDAY, JAN. 18, at TWO, three modern LEASEHOLD RESIDENCES, Nos. 93, 95, and 96, Avondale-square, in good residential locality, close to Old Kent-road Station, let and estimated to produce from quarterly tenants about £112 per annum, and held for about 60 years unexpired at ground rents.

Particulars of FREDK. W. FIELD, Esq., Solicitor, 52, Chancery-lane, W.C., and of the AUCTIONEERS, as above.

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R. I.B.A. EXAMS.

MR. W. CHURCH HOWGATE hereby announces that he has taken MR. ALEXANDER G. BOND, B.A. Oxon., A.R.I.B.A., into PARTNERSHIP, and that in future all applications should be made to MESSRS. HOWGATE and BOND.

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SANITARY INSPECTORS' EXAMINATIONS.—An Associate of the Sanitary Institute thoroughly PREPARES CANDIDATES for the above Exams. by correspondence; no books are required.—For particulars and testimonials apply, "Certified Coach," 31, Herbert-road, Plumstead, S.E.

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PREPARATION for R.I.B.A. by correspondence.—Papers personally corrected; special terms for June and November Exams.—"Architect," 7, London-road, St. Albans.

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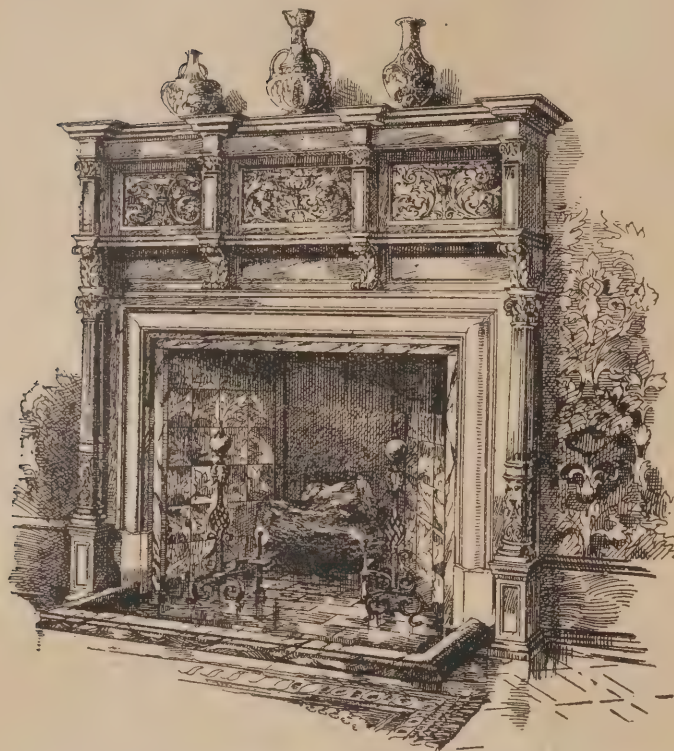
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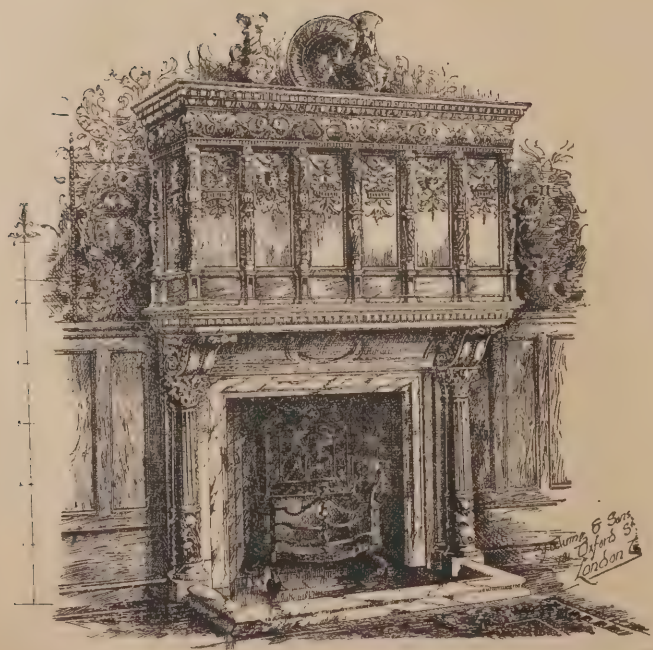
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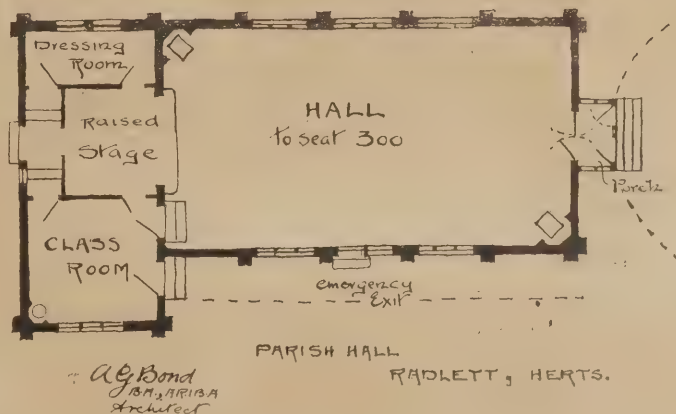


An Architectural Causerie.

It is curious to find, in the common names of the rooms we live in, traces of that great Norman inheritance which culminates in the cathedral, the castle, and the keep. Encumbered with a whole vocabulary of French and corrupted English words, domestic Architecture still awaits a Saxon revival which shall rid us of the chamber, the lobby, and the salon, and restore to us the frank dignity of the hall and the bower. The years that changed "my lady's bower" into "my lady's chamber," and ultimately into her "boudoir" (literally "sulking room!"), transformed at the same time the face of social and domestic life. The homely "kitchen" alone remained unaltered by the Norman tongue. The ancient hall gave place at last to the drawing room, and, like an architectural Cinderella, was humbled from its earlier glory, and set to mind coats and sticks at the door. In many other cases the survival of a Saxon, or even a fine mediæval word, has been at the price of its perversion to a narrow and purely arbitrary meaning. Why, for example, should the Danish "loft" and the Greek word "attic" (so unaccountably "lifted" to a top floor) have a pleasant and even romantic sound, while the old French "garret" is associated with all that is squalid and miserable in town life? The picture of the poor lovers in Heine's well-known song, the death of our own Chatterton—"the sleepless soul that perished in his pride"—all modern history and poetry, indeed, have linked the garret with the tenement "three pair back." And why, again, "a pair of stairs," when two succeeding flights in a house are never a pair, but consist of one long and one short one? The cellar, too (of Latin origin), once had a name to conjure with, and from its vaults were brought all manner of good cheer. This also has lost its dignity of repute, and begun to share the ignominy of its diminutive "cell." Not only have these arbitrary meanings gathered round colloquial words, but so definitely has etiquette classified them for use in speech that we can tell a well-bred man as readily by his room-names as by his avoidance of certain kinds of slang. How fatally, for instance, does he betray his social status who alludes to a ground-floor apartment as "the coffee-room," or calls his leisure place "the parlour!" Yet surely "parlour"—French though it be—is a more simple and natural term than what is left of "with-drawing-room," with its affectation of feminine privacy which, in fact, only covers a mixed assembly of acquaintances for half-an-hour after dinner. Even the "best room" of a labourer's cottage explains itself in a more honest way. These modern compounds—drawing room, dining room, breakfast room, sitting room, and so on—into which the builder so glibly divides his "superior residence" are far more clumsy and recalcitrant than the misapplications of archaic words. Moreover, the conventional arrangement of a house, and more especially the sharp dividing-line between sitting rooms and bedrooms, is clearly breaking down. The

life of a middle class family to-day often demands quite another house-plan than that which satisfied the generations in which the men of the house went regularly to town from nine till seven, and the ladies sat in the dining room till lunch time, and in the drawing room till it was time to dress for dinner. The increase of home work among students and the professional classes, and the pursuit of more serious occupations by women of leisure, demand a more hospitable and seemly privacy than that of the mere bedroom. To meet this development the suburban landlady evolved the "bed-sitting-room"—a comfortless compromise savouring always of the lodging-house, and suggesting only too painfully a "doubling of

tive name—will save us from the "combination-bed," which folds up by day into an intolerable semblance of a bookcase, with the bindings of Shakespeare and the Bible stamped upon the head. Happily, a sincerer treatment of living rooms, whether at home or in chambers, is now discouraging the diabolical fecundity of the amateur, and banishing the creations of the "Girls' Universal Adviser," under whose régime that which was a cabinet from noon to midnight became washstand from midnight to noon. One, perchance, of the needs of modern woman may yet be met by an advertisement on this wise: Bowers to let, furnished or unfurnished, near Chancery Lane. Apply, &c. E. W.



parts" between the toilet table and the board spread for a meal. But modern civilisation has worse in store, at least in the christening of its offspring. We are now threatened with the "combination-room," under which bewildering disguise the plebeian bed-sitting-room is to reappear. In certain London settlements of students and social enthusiasts, living under one roof and using common rooms for recreations and meals, the private apartments are built with a large recess for the bed, curtained off and ventilated by a light wooden screen over the curtain. In some cases this recess has a window of its own. The growing demand for some arrangement of this kind is undoubted. To contrive it in old houses is costly and difficult, but in new buildings, especially in detached or semi-detached plans, it may be carried out with very little trouble. At all events, it is better than the "bedroom and dressing room" of old days, in which the latter was often *minus* a fireplace, and therefore useless as a study or workroom. And it may be hoped that the combination-room—under some more attrac-

Radlett Parish Hall. THE picturesque little hall, of which we give a perspective view and plan, was erected by subscription as a Diamond Jubilee memorial at the village of Radlett, in Hertfordshire, and comprises a large hall, 50ft. by 26ft., for entertainments, a raised stage and retiring room, and also a class-room 14ft. square. The architect was Mr. A. G. Bond, B.A., A.R.I.B.A., and the contractors were Messrs. Whitehouse and Verdon, of Battersea. The contract price, inclusive of fencing and completing, was £760. The building was completed in August of last year. The hall is built of Luton wire-cut bricks, plastered internally and rough-cast externally, on a low plinth of Shenley red facing bricks; the porch and dormers are of fir with cathedral glazing; the roof of brown Broseley-pattern tiles externally, and an open plain roof inside with diagonal matchboarding. Kite's system of ventilating, and Musgrave's ventilating stoves are used.

Library Construction.* THIS book, being Vol. II. of the library series edited by Dr. Richard Garnett, deals exhaustively with the requirements and arrangements of public library buildings from the librarian's point of view. The first five chapters are devoted to such matters as the site, the general arrangement of the rooms, the construction, lighting, heating, and ventilation, the furniture and fittings; while the others consist of a description and criticism of most of the public libraries in England, with examples from the Continent and from America. The book is profusely illustrated by plans of nearly all the buildings discussed, and most valuable figured sections showing arrangements of stackrooms with book-racks, as well as details of all kinds of fittings, such as magazine tables, book-trucks, indicators, newspaper holders, and even a dusting machine. It is needless to say that such information as this is of great value and assistance to all architects engaged in designing libraries; and where the author passes on to discuss and criticise existing buildings, his remarks have a distinct value, as showing what arrangements are considered the most convenient by the librarians. It is refreshing to find that he is alive to the importance of a good site. The general indifference of those entrusted with their selection for public buildings has been a great cause of complaint on the part of the architects, who find themselves heavily handicapped from the start. In dealing with the construction of library buildings, the author has many sensible observations on protection from fire, and advocates cutting up book stores into small rooms with brick walls and with fireproof doors. He prefers a low pressure system for heating; for lighting, a plentiful supply of electric 8-candle lamps to the reading tables; and he considers ventilation a problem not yet solved. In the introduction the Editor of the series compares the development of public libraries, at the present day, to that of abbeys and cathedrals in Norman times, or of colleges and grammar schools under the Tudors, and thinks they may be considered as the characteristic buildings of the age. There is much in this point of view, though board schools, or, from another point of view, baths and washhouses, might put in a claim. While expressing a hope that our present day libraries may be as creditable architecturally as the buildings of the past, he points out various circumstances which make this ideal difficult of realisation, but he omits the main reason, that the people and those acting for them—such as library committees—have no intense desire that the buildings shall be masterpieces of Architecture; they want them convenient, and they do not care very much for anything else but the cost. Although there may be present, to some extent, the conflict he deplors between architect and librarian—the one striving for effect, the other for convenience, yet it is often the case that while two different arrangements may be equally convenient, one lends itself to a good effect and the other does not. It must not be forgotten, also, that librarians differ among themselves on minor points of arrangement and convenience. There is no doubt that a better understanding between those who design, and those who administer public libraries, is to be wished for; and there is equally no doubt that this book is calculated to promote this end. Mr. Burgoyne is to be congratulated on a book which is evidently the outcome of much labour and research.

A. R. J.

* "Library Construction," by F. J. Burgoyne, M.A. George Allen.

On Reflection.

Specification. MANY of our readers will turn with interest to the report given on another page of the discussion at last Friday's meeting of the Architectural Association (Discussion Section), when the subject of "Specification" was discussed, and several recent works on the subject were reviewed. As might be supposed, many different views were expressed, but there seemed to be a consensus of opinion, though not absolute unanimity, on these three points:—

(1) That the work of specification does not generally receive from architects the attention its importance deserves.

(2) That publications on the subject are welcomed by architects as aids in their work.

(3) That the form of publication which best meets their needs is that adopted in "Specification."

Our report shows that amidst the chorus of appreciation of the latest publication from the BUILDERS' JOURNAL Offices there were mingled criticisms on several points of detail. It will be found that in the next issue of "Specification" some of the grounds for criticism, to which reference was made, are removed, and some of the suggested improvements have been adopted.

A Board School Competition.

A CORRESPONDENT to a contemporary deserves the thanks of the Profession for having hastened to call attention to the manner in which the competition for the proposed new Board Schools at Dartford is being conducted; and we hope that this paragraph may further serve as a warning to other would-be competitors who should contemplate sending the guinea, which is demanded by the Board in their advertisement, before the "conditions" can be forwarded. In a certain sense, though not in a sense that will recommend it to architects, these "Conditions" may be considered to be worth a guinea, for we do not remember in the annals of public competitions to have ever met a more impudent imposition than that which the Dartford School Board would here foist upon the Profession. The "Conditions" reveal themselves to be so flagrantly inadequate, make such unreasonable demands, and offer such inconsiderable benefits to competitors, both by way of premiums or promise of commissions, that we are induced to think the promoters have come very nearly within reach of an indictment for obtaining their guineas upon false pretences. Under these "Conditions" the usual complete set of drawings is required for schools to accommodate boys, girls, and infants to the total of 1550, but it is only intended to build the boys' school, which amounts only to about one-third part of the bulk of the whole design. The Board does not undertake to appoint the author of the first or any award to carry out the work, and makes no promise to employ the architect who may be commissioned to build the boys' school, upon the erection of the remaining portions of his design, should they ever be executed. The premiums are to include attendance before the Board to enable its members to satisfy themselves as to which is the most suitable design, and are to include all incidental expenses. And the premiums are precisely stated to be of the value of *Thirty* and *Ten* guineas respectively. Now the cost of building a Board school for 1550 children may be stated at a reasonable computation to be about £14,000. The average value of premiums offered in competitions for a design estimated to cost this sum is £170. Thus the Dartford School Board, while it has availed itself of all the monstrous precedents deforming our system of competitions which make the obligations of the promoters always

vague and ambiguous, and has also fallen to the expedient of protecting its liabilities by assuming the incentive to competition among architects to be not the chance of a Commission, but the premium offered, has yet, besides including exceptional and extraordinary services in the amount, reduced that premium to one quarter what has hitherto been usually proffered.

A Comment.

AT the same time that we repudiate such methods as those of the Dartford School Board, we must point out, as we have so frequently had cause to do in this journal, that the promotion of an Architectural Competition is wholly and solely a matter of business, and that any Board of Guardians or Corporation may hold its offer completely justified by the fact of its acceptance by those to whom it is made. Moreover, this is hardly a case of tyrannic capitalism, such as has provoked outcry and special commissions in other connections. Architects may be considered to be in a perfectly unembarrassed and independent position, the embroglio in which they have involved themselves can provoke no commiseration from the public, but derision only; and, apart from the lack of candour in the terms by which competitors are tempted to send in their guineas, it cannot be held that the action of the Dartford School Board reflects morally upon that body in any way. The correspondent to our contemporary, to whom we have already referred, says:—"The Board has decided to take the high-handed course of retaining the deposits unless a *bona-fide* design is sent in," apparently unconscious that this, almost without exception, is the condition upon which the fee is tendered whenever it is required; and that such a fee, ranging from five shillings to five pounds, is a quite general feature of public competitions. The writer seems also unconscious of the fact that it is not unusual, but quite usual, for the promoters to state in the "Conditions" that they do not bind themselves to commission the author of the first award. It has been found of public competitions in England, that in 54 per cent. of cases the promoters are not bound to accept the "first award," and, in 35 per cent., they are not bound to accept "the first or any award." Thanks to the timely warning that has been given, there is no reason why anyone should be tempted by the overtures of the Dartford School Board, and we heartily hope that the Board will be forced to amend the terms of its "Conditions."

Some six weeks ago we referred to a verdict for £300 damages which was granted by a jury to a plaintiff who claimed compensation for loss of part of a foot through the fall of an electric light standard, which was being erected in the Chalk Farm Road; and we now learn from the Bolton County Court that an award of £120 has been made to a joiner's labourer, by way of damages for the loss of the little finger of his right hand. He was engaged by a local contractor in the erection of a new fire station for the Bolton Corporation when an iron girder fell and his finger was cut off. In commenting upon this latter case the *Globe* remarks that, though in the past it was considered a distinction to be worth one's weight in gold, the value of a British workman seems nowadays to be about his weight in five-pound notes, and suggests that, for the benefit of contractors, an anatomical diagram of a workman should be published, with the average value at law of each part figured thereon. The time seems to be approaching when a maimed workman will be sought after by contractors in favour of a sound one. A man with only one leg or nine fingers may be considered to be economical in event of accidents. There would be less of him to pay for.

MODERN OPERA HOUSES AND THEATRES.*

BY EDWIN O. SACHS.

WE have received the third and concluding volume of Mr. Sachs exhaustive and valuable work on Modern Opera Houses and Theatres. In this great and important work, which has occupied three years in publication, the first volume appear-

has accomplished his ambitious task. The book stands, and will stand for many years, as the most complete and comprehensive survey of modern theatres, their design, management, and construction, in existence. This, the third volume, differs from those which have preceded it in consisting mainly of letterpress, illustrated indeed with 850 illustrations in the text, but containing only twenty full-page plates, as compared with the one hundred each which appeared in Volumes I and II. The two first chapters deal with General Arrangement and Auditorium Arrangement; and the remaining five concern such particular and technical

feature of the volume, and which is, indeed, characteristic of the thorough methods with which Mr. Sachs has dealt with all aspects of his subject, is a series of tables giving full and complete dimensions, with cost of construction, period of erection, and seating capacity of fifty-five English and Continental theatres, supplemented with a plate giving comparative block plans of all these theatres drawn to a uniform scale, so that the relative significance of his figures may be grasped at once.

Mr. Sachs hopes of his book that it "may in some slight measure tend to raise the standard of the housing of the drama in our Metropolis,



GRAND STAIRCASE, PARIS OPERA HOUSE. FROM "MODERN OPERA HOUSES AND THEATRES."

ing in May, 1896, and the second in July, 1897, the author has not confined himself to the interests of the Architectural expert merely, but has also, as he says, considered those of "the actor, theatre manager, lessee, public official, critic, and playgoer," and he is to be congratulated upon the success with which he

* Modern Opera Houses and Theatres. Examples selected from playhouses recently erected in Europe, with a short descriptive text, and a treatise on theatre planning and construction, with supplements on stage machinery, theatre fires, and protective legislation. By Edwin O. Sachs, architect. Three vols., £15 15s. nett. Published by B. T. Batsford, 94, High Holborn, London.

aspects of the subject as Communication, Service, Construction, Equipment, and Safety of Life. In the first volume, Mr. Sachs stated the main groups or classes into which theatres might be divided as being, court, national, government, municipal, subscription, and private theatres; and in this volume he enters into details of the general conditions and particular requirements of a modern playhouse with special reference to the financial aspect of the subject, and with regard to matters which should regulate the staff employed in working such a theatre. A particularly interesting

and that the examples presented in this work may assist all those who are interested in theatres—whether resident on this side of the Channel or abroad—in determining the character of the future playhouses of Europe." His modest ambition certainly deserves to be justified.

But here in England there are causes tending to prejudice the development of theatre Architecture which do not exist on the Continent. In the first place, of the five different orders or classes into which, as above described, Mr. Sachs divides modern theatres

and opera houses, practically only one, the last on his list, viz., the Private Theatre, has any existence. Our theatres being thus merely speculations on the part of private individuals, lose the national or municipal importance which distinguishes many Continental theatres, and which has set a model and raised the popular idea of what a theatre should rightly be among other European peoples. In point of planning, upon which Mr. Sachs lays so much stress, English architects rarely have any opportunity of doing justice to themselves or their subject, for the theatres they are commissioned to build are allotted to such sites as may be most readily and cheaply acquired, and necessity rather than expediency dictates the possibilities and limits of their plan. For this same reason the æsthetic qualities of designs for theatres in England are greatly prejudiced, and the architect has to consider himself fortunate if he can get any distinctive character into his theatre which shall distinguish it from other buildings in the long rank of shops and business premises in which it is usually set. An example of the insuperable difficulties which beset those who are ambitious to build a useful and imposing theatre, may be instanced in the "Royal English Opera House" now known as the "Palace Theatre." The plan was seriously hampered, and, for all the cleverness of the architect who designed the wall-veil, it is obvious that he had no opportunity to design such a building as would satisfy his idea of what a theatre should be. And here again lies another difficulty in the way of theatrical Archi-

itecture. Our theatres are not built by architects, but by theatre specialists, who are expected to combine the responsibilities of a financial agent with the multifarious duties of engineer, architect, and often company promoter and theatrical speculator. Mr. Sachs tells us that he has known several cases where the architect has even become a part-lessee, a part-owner, and a part-mortgagee; and he recalls that the late Mr. C. J. Phipps spoke to him with regret of the fact that in the course of an important theatrical enterprise, with which he had been recently connected, he had little time to give to the rendering or decoration of the structure in question.

We believe that Covent Garden Opera House was the last building of this kind which was placed in the sole and entire charge of an architect. The present usage commonly employs an architect to design the wall-veil of the principal elevations, and hands the internal design over in bulk to a firm of decorators. To this we may add that the promoters, in their anxiety to secure an early profit on the money paid for the site, have no care so that the building is raised quickly, has the requisite seating accommodation, and is cheap and showy. Mr. Sachs reverts to a topic which he referred to in one of the earlier volumes, and speculates on the possibility of endowed or subsidised state or municipal theatres. "There is," he says, "a growing feeling, in London and many of our large provincial centres, that the representation of plays should meet the recognition and encouragement of the public authority, whether the latter represents the central government or an individual com-

munity," and he expresses himself as inclined to think that the London County Council may soon seriously consider the advisability of officially supporting both opera and drama. We are not so sanguine as is Mr. Sachs in this matter, but the enormously increased popularity of operas and stage plays in England during the last fifteen years, and the distinction a few years back bestowed for the first time upon an actor, do certainly point to the possibility of such a course at some future date. We should welcome the innovation warmly, both as tending to improve the popular taste in architectural, histrionic, and operatic art, and as opening a new and legitimate field of design to our architects.

The illustrations of staircases appearing in these pages are from Mr. Sachs' book, and show the staircases at the Opera House, Stockholm; the grand staircases at the Court Theatre, Vienna, at Odessa, and at the Paris Opera House.

THE FEUDAL PRINCIPLES OF REAL PROPERTY LAW.

BY WILLIAM H. STACPOOLE, LL.D.,
Barrister-at-Law.

V.

THE word *seisin* (*a*) is used so frequently in real property law that I had better explain it before we go any further. Absolute ownership of land is unknown to English law. As we have already seen, all land in England is supposed to be held, either mediately or immediately, from the Sovereign. The feudal reasons of this were explained in the first article, and it is important to remember that, though knight's service, which was the most genuine species of feudal tenure, was abolished by 12 Car. II., c. 24, the feudal system of land tenure was not abolished by that or any other Act, and, consequently, remains still in force, in so far that to the present day this feudal holding of land from someone else is the highest kind of ownership the law recognises in land. It will also be remembered that leaseholders for a term of years were in early times not looked upon as having any ownership in the land, but merely as bailiffs, who had to account to the lord for the profits at a fixed sum. Now the word *seisin*, which originally meant nothing more than possession, has from a very early period been used to mean something more than bare possession, namely, feudal possession, or possession as a feudal tenant. A freehold means such a holding of land as is worthy of a free man. To say, then, that a man is *seised* of land must mean not merely that he has the bare possession of the land, but that he is the owner of the freehold thereof, for only a free man would have been considered worthy to be accepted as a feudal tenant.

Seisin, then, coupling as it does the conception of possession with that of feudal tenure, is a useful term to distinguish the feudal ownership of land, which, though not absolute, is the highest our law permits, from other kinds of pseudo or temporary ownerships belonging to other tenures.

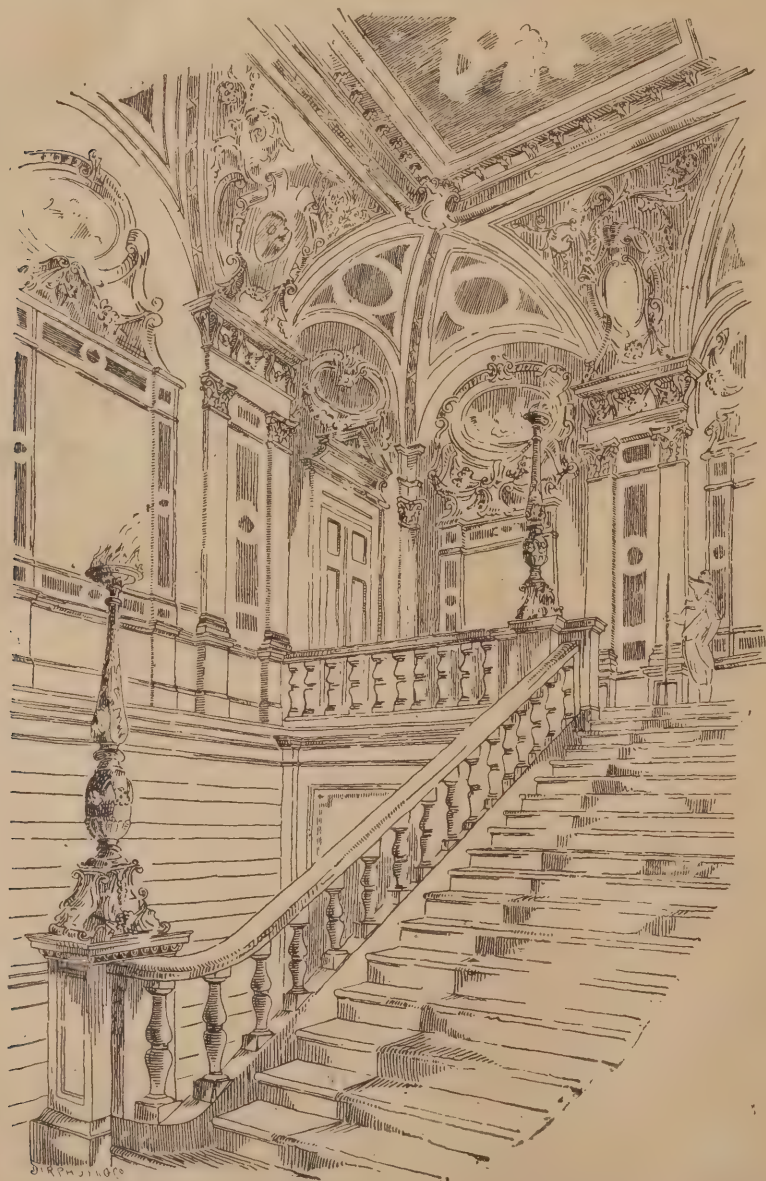
We have now to consider copyholds which, with frankalmoin and grand serjeanty, were, it will be remembered, preserved by 12 Car. II., c. 24.

There were, as we have seen, four ancient species of tenure in England, viz.:-

1. The tenure in chivalry, or knight's service, where the service was free or honourable, but necessarily, from its military nature, *uncertain*, and, therefore, incapable of being determined beforehand.
2. Free socage, where the services were both honourable and *certain*, so that they were capable of being pre-arranged.
3. Pure villainage, where the services were both base and *uncertain*.
4. Villain socage, or privileged villainage, where they were base but *certain*.

The first two are the parents of our freehold,

(a) Derived from the old High German word "sazjan."



STAIRCASE, COURT OPERA HOUSE, STOCKHOLM. FROM "MODERN OPERA HOUSES AND THEATRES."

the latter two of our copyhold estates. To understand how copyholds sprang from these base or villainous tenures we must consider the origin and nature of manors which date back to Saxon times, and of which Blackstone's account is, perhaps, at once the most succinct and clear.

"A manor, *manerium*, a *manendo*," he says (b), "because the usual residence of the owner seems to have been a district of ground held by lords or great personages, who kept in their own hands so much land as was necessary for the use of their families, which were called *terre dominicales*, or *demesne* lands; being occupied by the lord, or *dominus manerii*, and his servants. The other, or tenemental, lands they distributed among their tenants; from which the different modes of tenure were distinguished by two different names. First, book-land, or charterland, which

is, two tenants at the least, the manor itself is lost."

All manors now existing must, I may here observe, be at least as old as the eighteenth year of the reign of Edward I. The reason of which was as follows: Prior to this date the greater barons used to grant smaller manors to be held from themselves by inferior persons, and these inferior persons again granted smaller manors to be held of themselves, and so on downwards, the process being called subinfeudation, or the creation of sub-feuds. At last the lords paramount found that their feudal profits of wardships, marriages, escheats, &c., were falling into the hands of these inferior lords, and to prevent this they procured the passing of a celebrated statute which is called the statute of *quia emptores* (c) from its opening words, and which directs that upon all sales or feoffments (d) of land, the feoffee shall hold the

To return now to folkland, which is the origin of copyholds. "Under the Saxon government there were, as Sir William Temple speaks, a sort of people in a condition of downright servitude, used and employed in the most servile works, and belonging, both they, their children and effects, to the lord of the soil, like the rest of the cattle or stock upon it. These seem to have been those who held what was called the folkland, from which they were removable at the lord's pleasure.

In what respect, it may be asked, if any, was the state of these villains, which continued long after the Norman Conquest, different from that of pure slavery? The answer seems to be, that the only quality in which it was distinguished from pure slavery was, that having been admitted to the feudal oath of fealty, the villain tenants had conferred upon them a right of protection, which raised them to a state



GRAND STAIRCASE, ODESSA. FROM "MODERN OPERA HOUSES AND THEATRES."

was held by deed under certain rents and free services, and in effect differed nothing from free socage lands; and from hence have arisen most of the freehold tenants who hold particular manors, and owe suit and service to the same. The other species was called *folk-land*, which was held by no assurance in writing, but distributed among the common folk or people at the pleasure of the lord, and resumed at his discretion, being indeed held in villinage. The residue of the manor, being uncultivated, was termed the lord's waste, and served for public roads, and for common pasture to the lord and his tenants. Manors were formerly called baronies, as they still are lordships; and each lord or baron was empowered to hold a domestic court, called the court baron, for redressing misdemeanours and nuisances within the manor, and for settling disputes of property among the tenants. This court is an inseparable ingredient of every manor, and if the number of suitors should so fall as not to leave sufficient to make a jury or homage, that

same, not of his immediate feoffor, but of the chief lord of the fee, of whom such feoffor himself held it. This statute, while putting a stop to the process of subinfeudation, gave at the same time a free power of alienating lands. I shall have to refer to it again, but I may mention here that to the present day its effect is this: That the holder of an estate in fee simple (which is the largest estate the law recognises, being an estate to a man and his heirs simply and without restriction), while he can at will substitute another person for himself the holder thereof, so that the estate will last so long as the other person has heirs, cannot create a tenure by which this person holds under him in fee simple. This is shortly expressed by saying that the statute of *quia emptores* allows alienation, but forbids subinfeudation.

(c) 18 Edward I. c. 1. Ancient statutes are frequently called by the words with which they begin.

(d) A feoffment is a deed evidencing the transfer to another person of the feudal tenure. The person who transfers is called the feoffor, the person to whom the tenure is transferred the feoffee.

superior to that of downright slavery, though inferior to every other condition (e).

Such, then, was the original condition of these villain tenants, and it continued far into the fourteenth century (f). They were practically the slaves of the lord, and they held their little plots of land merely at the will of the lord, and by services that were base and uncertain.

Gradually, however, the common law, of which custom is the life, came to regulate this originally quite arbitrary tenure. The tenant, said the law, holds, no doubt, by the will of the lord, but that will is not to be regarded as a merely capricious one, but such a will as is agreeable to the customs of the manor, which customs were preserved and evidenced by the rolls of the several courts baron in which they were entered. "And, as such tenants had nothing to show for their estates but these customs, and admissions in pursuance of them,

(e) 2 Bl. Com. C. 6, Vinogradoff, Villainage in England, Essay 1, c. 1.

(f) Vinogradoff, *Ib.*

(b) 2 Bl. Com. c. 6.

entered on those rolls, or the copies of such entries witnessed by the steward, they now began to be called *tenants by copy of court roll*, and their tenure itself a *copyhold*" (g).

Copyholders, in fact, are, as Blackstone says in the same place, no other than villains who, by a long series of immemorial encroachments on the land, have at last established a customary right to those estates, which before were held absolutely at the lord's will. Nevertheless, though the tenure of the copyholder has been so strengthened and protected by custom that, as Blackstone says (h), "he has in many places an interest full as good, in others better than his lord," still we must remember that in legal intendment his estate is, to the present day, nothing more than an estate at will. It is true that it can now be enfranchised (converted into a freehold) compulsorily at the instance of either the lord or tenant (i), but until it is enfranchised it remains simply an estate at will, that is, one that can be determined at the will of either party (albeit the will is to be determined by the customs of the manor), which is the lowest kind of estate known to the law.

So firm is now the copyholder's tenure, that the fact of his estate being in law a mere estate at will may seem of little practical moment, yet it is productive of consequences that are of great substantial importance. Thus, the copyholder being a tenant at will (never mind how the will is to be interpreted), the seisin of the land lies not in him, but in the lord. The result of this is rather peculiar as regards both lord and tenant. On the one hand, the lord having the seisin, or feudal ownership of the land, has the right to all timber growing on the surface, even though planted by the tenant, and to all mines and minerals below it. Hence the proverb, "The oak scorns to grow except on free land," for timber is rarely found on land that is subject to copyhold tenure. On the other hand, owing to the rights which custom has given to the tenant, the lord cannot without his leave come upon the land to open his mines or fell his timber.

Again, the seisin being in the lord, the tenant cannot, in the absence of a special custom, without forfeiting his land, grant a lease of it for more than one year; for to grant a lease for a longer period, without the authority of a special custom, would be to impose on the lord a tenant of his own lands without the authority of custom, and custom is the life of all copyhold assurances (j). Neither can the tenant commit either what is called voluntary waste by opening mines, cutting down timber, or pulling down buildings, nor permissive waste by neglecting to repair. For the land, with all that is under it or on it, belongs to the lord, the tenant having only a customary right to enjoy the occupation (j).

Another consequence of both of the seisin being in the lord and of a copyhold being an estate at will according to the custom of the manor, is that when copyholds are conveyed from one person to another, their transfer must be conducted in conformity with the old method which was adopted when transfer of them was first allowed, by which the outgoing copyholder first surrenders the land into the hands of the lord or his steward, who then admits the transferee or incomer. The surrender of the transferor and admission of the transferee were made at what was called the Customary Court, which was a sitting of the Court Baron, attended by copyholders. Formerly it was necessary that two copyholders should be present to form a court, but now the Customary Court may be held without the presence of any copyholder. (k)

Ancient demesne and customary freeholds are two forms of copyholds which require a few words of explanation, though they are not of any very great practical importance at the present time.

The former, which is described by Blackstone

as "no other than an exalted species of copyholds," (l) seems to have descended from privileged villinage, as common copyhold did from pure villinage. (m) "Ancient demesne," says Blackstone, "consists of those lands or manors, which, though now perhaps granted out to private subjects, were actually in the hands of the Crown in the time of Edward the Confessor or William the Conqueror, and so appear to have been by the great survey in the Exchequer called Domesday Book." Of the tenants in these lands, he says, "they had many immunities and privileges granted to them; as, to try the right of their property in a peculiar court of their own (n), called a court of ancient demesne, by a peculiar process, denominated a writ of *right close*: not to pay toll or taxes, not to contribute to the expenses of knights of the shire, not to be put on juries and the like." (o). Tenants in ancient demesne held by services that were base but certain, and they could not alienate their tenements by grant or feoffment, any more than pure villains could, but had to surrender them to the lord, or his steward, to be again granted out and held in villinage. (o). There is, however, this difference between the surrender of common copyholds and ancient demesne, that in the latter case it is not used to say "to hold at the will of the lord," but only "to hold according to the custom of the manor."

Customary freeholds are copyholds in which the tenant holds by copy of court roll, but not expressed to be at the will of the lord. These, like tenures in ancient demesne, "differ from freeholds by one especial mark and tincture of villinage, noted by Bracton and remaining to this day—viz., that they cannot be conveyed from one man to another by the general common law conveyance of feoffment, and the rest, but must pass by surrender to the lord, or his steward, in the manner of common copyholds (o)." Whether what are called customary freeholds are really freeholds or not, that is to say, whether the seisin of the land is in the lord or the tenant, was for long a matter of dispute amongst the learned, but the courts of law have now settled that the seisin, and therefore the freehold, is in the lord and not in the tenant. Still, it may be well to remember that in the opinion of so great an authority as Mr. Williams, "a recurrence to first principles seems to show that the question, whether the freehold is in the lord or in the tenant, is to be answered, not by an appeal to learned dicta, or conflicting decisions, but by ascertaining in each case whether the well-known rights of freeholders, such as to cut timber and dig mines, are vested in the lord or in the tenant." (p).

Copyholds came into existence at a time when only freehold estates in land were recognised by law, and hence they were moulded, according to the customs of different manors, into forms analogous to those of freehold estates; so that there are copyhold estates in fee simple, in fee tail, and for life; and in this way they came to be classified as real estate, from their formal resemblance to freeholds to which alone the expression real estate primarily applied. Leaseholds, on the other hand, not being recognised by law till a later period, were left to belong to the class of chattel or personal property, though they are often spoken of as chattels real, as having been derived from real estate.

Copyholds thus occupy an anomalous position. They are not freeholds, being in strict law merely estates at will, and such as were held originally by base services, nevertheless, while an estate for any term of years, however long, is merely a man's chattel or personal property, a copyhold is his real property.

So far we have briefly considered the nature and origin of the tenures by which real property is held in England.

CASKIEBEN HOUSE, near Aberdeen, the residence of Mr. Pirie, M.P., has been burned down.

HOUSE-PLANNING FROM THE ÆSTHETIC POINT OF VIEW.*

By H. HEATHCOTE STATHAM.

(Continued from page 362.)

THOSE who were present at Mr. Aston Webb's charming little lecture to the Class of Design at the beginning of the session will not have forgotten his remarks on the advisability of having a little mystery or surprise in the planning of a house; inasmuch as the host generally rather enjoyed showing his guests over the house, there was not the same occasion for plain and direct planning as there was in a public building where strangers had to find their own way about. I quite agree with that as far as it refers to the average-sized dwelling-house. But where you come to the largest class of mansion, mystery-planning may become an inconvenience rather than an enjoyment to the guest. Your host may give himself the pleasure of escorting you from the smoking room through a labyrinth of passages to your bedroom door at night, but in the morning you may find yourself under the necessity of ringing for a

SERVANT TO SHOW YOU THE WAY

to the breakfast room. This is a mere point of convenience, not of Art, but it is worth consideration. It is a nuisance to be losing yourself in a great house, and getting into the wrong rooms. But this is a minor consideration in comparison with the æsthetic one. It is often urged, I know, that the rambling and irregular house is the more homelike. But it is forgotten that a mansion on the largest scale may (or rather should) aim at something more than homeliness. It is to some extent a house of state; it should aim at the qualities of stateliness and dignity. And it is here that the great charm of house architecture comes in. Here there is the opportunity of combining architectural dignity with novelty and originality of grouping; the interest of arranging and shaping rooms so as to combine architectural effect with convenience. There are no by-laws or requirements of public bodies to hamper the architect; if his client is wealthy and really wants a fine and impressive house, the architect has the opportunity of evolving and shaping a new and original architectural creation which may be of the highest order, and imparting to it the dignity and symmetry which should belong to an architectural design thoroughly thought out and modelled. To adopt the rambling plan is to throw away a great deal of this opportunity. The rambling plan is not shaped at all, it is merely thrown together; it is supposed to afford a basis of picturesque effect, which really means a crowding together of different blocks of building, with a tower at some corner where you do not expect it, without any real design at all.

THE PICTURESQUE,

in that sense, is not a difficult business; but what has become of the dignity which should belong to the great house of the neighbourhood? "The stately homes of England," as they are called in some popular ballad, are stately no longer. Compare, for example, the block plan of Castle Howard with that of one of the rambling plans; the one is obviously the foundation for a dignified and grandiose mansion; the other may have character but it can have no grandeur; it is a shapeless plan destitute of any leading idea. It is worth while to endeavour to realise what was the ideal mansion of the great philosopher of the Elizabethan era, when he published, towards the latter end of Elizabeth's reign, his famous Essays, including the one "On Building."

IN BACON'S TIME

the courtyard or quadrangle system of planning was still in favour, and he requires no less than three courtyards before you get to the

(g) 2 Bl. Com., c. 6.

(h) Ib.

(i) Copyhold Acts, 15 and 16 Vict., c. 51, amended by 21 and 22 Vict., c. 94, 50 and 51 Vict., c. 73, and 57 and 58 Vict., c. 46.

(j) Williams, Principles of Real Property, c. 1, p. 3.

(k) 4 and 5 Vict. c. 35, s. 86, now replaced by 57 and 58 Vict., c. 46, s. 82.

(l) 2 Bl. Com., c. 6.

(m) Ib. Vinogradoff, Villinage in England, C. 3.

(n) Abolished by 15 and 16 Vict., c. 76, ss. 168, sq.

(o) 2 Bl. Com., c. 6.

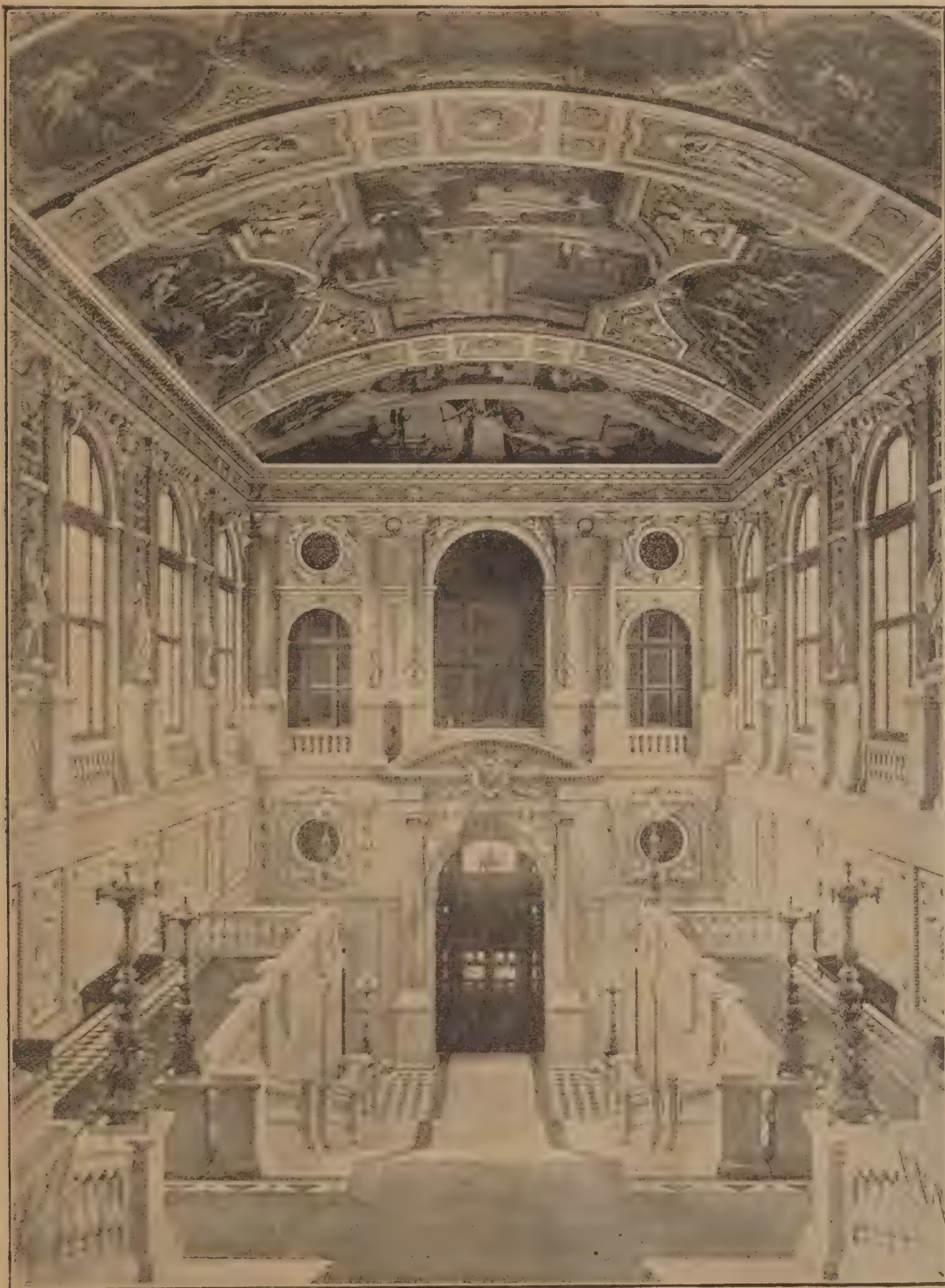
(p) Principles of Real Property, c. 1, P. 3.

* A paper read before the Architectural Association on Friday, January 6th, 1899.

house, an arrangement which I should think has never been carried out in actual building, unless it were a Babylonian palace or an Egyptian temple. The three courts are to form a kind of *crescendo* for the state approach to the house; first "a green court with a wall about it; next a court of the same, but more garnished with little turrets, or rather embellishments on the wall; and a third court to make a square with the front" (the front of

England. This is the only indication of style in architectural detail that can be extracted from the description. When we come to the house itself, the front is to have on one side a great banqueting hall 40ft. high "for feasts and triumphs;" this is to be "above stairs" (i.e. it is to be raised on a lofty basement story), with a room for preparation under it. The other side of the house is to be in two stories, the main one divided into a hall

centuries. Beyond this front is then to be a fair court ("quadrangle") but three sides of it a lower building than the front; the return on the banquet side to be all stately galleries, with three or five cupolas in the length of it; the other side to be ordinary presence chambers and some bedrooms; but all three sides to be "a double house without through lights on the sides, that you may have rooms from the sun both for forenoon and afternoon." This is



GRAND STAIRCASE, COURT THEATRE, VIENNA. FROM "MODERN OPERA HOUSES AND THEATRES."

the mansion to form one side of it), "but not to be built nor yet enclosed with a naked wall, but enclosed with terraces leaded aloft . . . and cloistered on the inside with pillars, and not with arches below." The last words are rather obscure. I think there ought to be a comma after "arches," and that he merely means that

HE WISHES THE CLOISTER

to be a colonnade and not an arcade; an indication of the Renaissance taste for columns which was just then beginning to reach

and a chapel, and "at the farther end a winter and summer parlour;" this looks as if one parlour was to face to the front and the other to the inner quadrangle, that on the sunny side being of course the winter parlour; in that case, "the farther end" means the end farthest from the centre axis of the building.

THE TWO SIDES OF THE FRONT

are to be "uniform without, though severally partitioned within," a principle which was destined to be only too well carried out in many an English house of the following two

rather lightly said, and could surely have hardly applied to the side with the "stately galleries." As to communication, probably Bacon counted on all these rooms opening out of each other, as they do all round in such mansions as

BURLEIGH HOUSE

and others, and even with the greater part of Hampton Court, which is, of course, a good deal later. Four staircases were to be placed in turrets projecting into the court at the re-entering angles. Embowed windows have

their advantages, "they be pretty retiring places for conference; and, besides, they keep both the wind and the sun off, for that which would strike almost through the room doth scarce pass the window. But let them be few; four in the court and on the sides only." He probably means two on each of the return wings; the front wing could not have one, as the centre entry to the quadrangle would be in the way. The quadrangle is not to be paved, "for that striketh up a great heat in summer and cold in winter;" only with paved side and cross walks, and the four spaces laid out in grass. Beyond this court is to be another of the same size and height, which (outside) is to be environed with

THE GARDEN ON ALL SIDES,

and (on the inside) "cloistered on all sides upon decent and beautiful arches, as high as the first story." This cloister, apparently, is to be an arcaded one. "On the under side, towards the garden, it is to be turned into a place of shade, and only have windows towards the garden"—i.e., on the outer side of the buildings. Then, after a reference to the arrangement of the rooms on the fourth or farther side, he adds that here there is to be "on the ground story a fair gallery open, upon pillars." This description forms a curious coincidence with the actual arrangement of the Second Court of Trinity College, Cambridge, where there is an arcaded cloister on three sides, and an entirely open space on the fourth side, with piers to carry the library above. Bacon adds that the third story, on this farther side, is also to be "an open gallery on pillars, to take the air and freshness of the garden." In this upper gallery there were to be fountains running from the walls. One further detail: "At both corners of the further side, by way of return, let there be two delicate or rich cabinets, daintily paved, richly hanged, glazed with crystalline glass, and a rich cupola in the midst." I confess I cannot make out exactly where these "delicate cabinets" were to be placed. Such is Bacon's idea of a great mansion on the

QUADRANGLE PRINCIPLE OF PLAN.

It would not be a bad study for the Academy or the Institute to set as the subject of one of their prizes—the Travelling Studentship or the Soane Medallion—to restore Bacon's mansion in plan, section, and elevation, and make a bird's-eye view of it. Bacon, it may be observed, deals only with the superior portions of the mansion. "As for offices," he says, "let them stand at a distance, with some low galleries to pass from them to the palace itself." This is really much the way they were placed by Vanbrugh at Seaton Delavel, only that Vanbrugh had them flanking the front or entrance courtyard of the house; masked by the colonnades, it is true, but still pretty well in evidence, whereas I think Bacon wanted them

OUT OF THE WAY OF NOTICE

altogether. "Offices" probably did not with him include the kitchens, as he rather implies, in the course of his essay, that these would be in the basement of the main building. The quadrangle system of plan is no doubt one of the best for combining a considerable degree of architectural effect with a certain degree of retirement and domestic feeling. It was not the most effective for an exterior view, as in most cases one only gets the architectural impression of the front; nor is it the most wholesome form of plan in a sanitary sense. The E plan, with or without the centre shank to the E, gets over two of these objections, and, especially with a low screen or colonnade across the fourth side, is highly effective architecturally; but it introduces the new objection, for internal convenience, that each end of the returns is a cul-de-sac.

(To be concluded.)

R.I.B.A.

AWARD OF PRIZES AND DISCUSSION ON BUILDING BYE-LAWS.

At the meeting of the Royal Institute of British Architects last Monday evening, the chair was taken by Mr. W. J. Locke. The first business was the announcement by the chairman of the awards of prizes and studentships for 1898-99. These were as follows:—

The Institute Silver Medal and twenty-five guineas, for essays on the use and value of colour in Architecture:—H. C. Corlette. The Chairman remarked that the essays this year had been of exceptional excellence.

The Institute Silver Medal and ten guineas for measured drawings of ancient buildings in the United Kingdom or abroad.—Henry Ernest Kirby (subject, St. Paul's Cathedral), Medals and £5 5s., Heaton Comyn (subject, St. Catherine's College, Cambridge), and Edward F. Knight (subject, Southwold Church).

The Soane Medallion and £100 (to be devoted to Continental travel), for a design for a concert hall.—William Arthur Mellon. Eleven designs were sent in this competition.

The Pugin Studentship: Silver medal and £40 (to be devoted to travel in the United Kingdom) for sets of drawings.—J. Hervey Rutherford. This, said the chairman, was the largest and finest competition on record, and the following additional prizes had been awarded: Medal and ten guineas, E. H. Bennett; medal and five guineas, Ramsay Traquair; certificate of honourable mention, Albert Herbert.

The Owen Jones Studentship: Certificate and £100 (for travel and study of colour).—John Stewart.

The Goodwin Bursary: Silver medal and £40 (for travel outside the United Kingdom).—E. W. N. Wonnacott.

The Tite Prize: Certificate and £30 (for travel in Italy), for designs for a royal mausoleum.—James B. Fulton. Eight designs were sent in, and extra prizes were awarded as follows: Medal and five guineas, Alexander M. Gardner; certificate of honourable mention, Ernest Jago.

The Grissell Gold Medal and ten guineas, for designs for a fruit, flower, and vegetable market.—G. Gardner Wallace. Certificate of honourable mention, Charles A. Daubney.

The meeting then proceeded to the consideration of the following resolutions moved by Mr. Lacy W. Ridge:—

1. That the administration of local building bye-laws in rural districts is a matter calling for the action of the Royal Institute.

2. That the Council be requested to communicate with the Local Government Board on the subject, and to appoint a special committee to consider and take action thereon.

3. That matters of sanitation, including the preparation of the site for building, should in all cases be carried out under the supervision of the local authorities. That where separate tenements adjoin they should be divided by party walls of incombustible material. That the interests of the public in buildings in rural districts are not such as to justify any further interference on the part of the public authorities with the construction of buildings.

In support of these propositions Mr. Ridge pointed out how the restrictions imposed by local bye-laws in rural districts added to the difficulties and duties of architects and to the expenses of their clients. He recommended that the Local Government Board should be approached on the matter because the consent of that body was necessary to any local bye-laws. He considered that the local authorities in rural districts were not to be compared for business qualities with those in the large towns; nor were they able to pay such competent men to act as surveyors. These rural councils were not in a position to frame their own bye-laws, but obtained them from the Local Government Board; therefore it was desirable to approach that Board to get them to reconsider the model bye-laws they put forward for the guidance of local authorities. Since those bye-laws were framed, a new

Metropolitan Building Act had been passed, under which there was much greater liberty of building and design than under the old Act. The model bye-laws, however applicable to large towns, were perversely inapplicable in rural districts. He failed to see that there was any necessity at all for the vast majority of the bye-laws that were enforced in country places. If they could persuade the Local Government Board to draw up a series of bye-laws that would apply to large towns, another for towns of smaller dimensions, and a third series for rural districts, architects would be saved much unpleasant supervision and unpleasant intercourse with men who knew very little about building, though much about the particular bye-laws they considered themselves bound to enforce. He objected to these matters being under the jurisdiction of country magistrates, and to the system of accumulative penalties for infringements of the bye-laws.

The resolutions were seconded by Mr. Woodward, who remarked that architects were subject to "a policy of pin pricks," the restrictions imposed being often on matters absolutely trivial in their character and of no use whatever to the client or the public.

Mr. Matthews complained of the use often made of the model bye-laws issued by the Local Government Board; they were adopted too much in their entirety by the local bodies, instead of being taken as models and adapted to the requirements of the particular neighbourhood.

Mr. Fleming, while heartily agreeing with the first two resolutions, suggested that it would be unwise to tie the hands of the committee to be appointed by expressing opinion on the matters of detail referred to in the third resolution. Succeeding speakers took a similar view.

Mr. Gordon Smith assured the meeting that any representations from the R.I.B.A. would be received by the Local Government Board with the greatest respect and attention. At the same time, he could not agree with all that had been said. He thought there was a great absence of knowledge on the part of architects as to the laws relating to building. Mr. Smith proceeded to explain the various Acts which governed the action of the Local Government Board in respect to their attitude to local bye-laws. He was not prepared to admit that Rural District Councils were less competent to make bye-laws than Urban District Councils, and he pointed out that those who were dissatisfied with the decisions of country magistrates could appeal to a higher court.

Mr. Ridge briefly replied, and, accepting the suggestions of previous speakers, withdrew his third resolution. The first two resolutions were then put to the meeting and carried unanimously.

At Reading, during the recent gale, one of the spires of the ancient parish church of St. Lawrence was blown off.

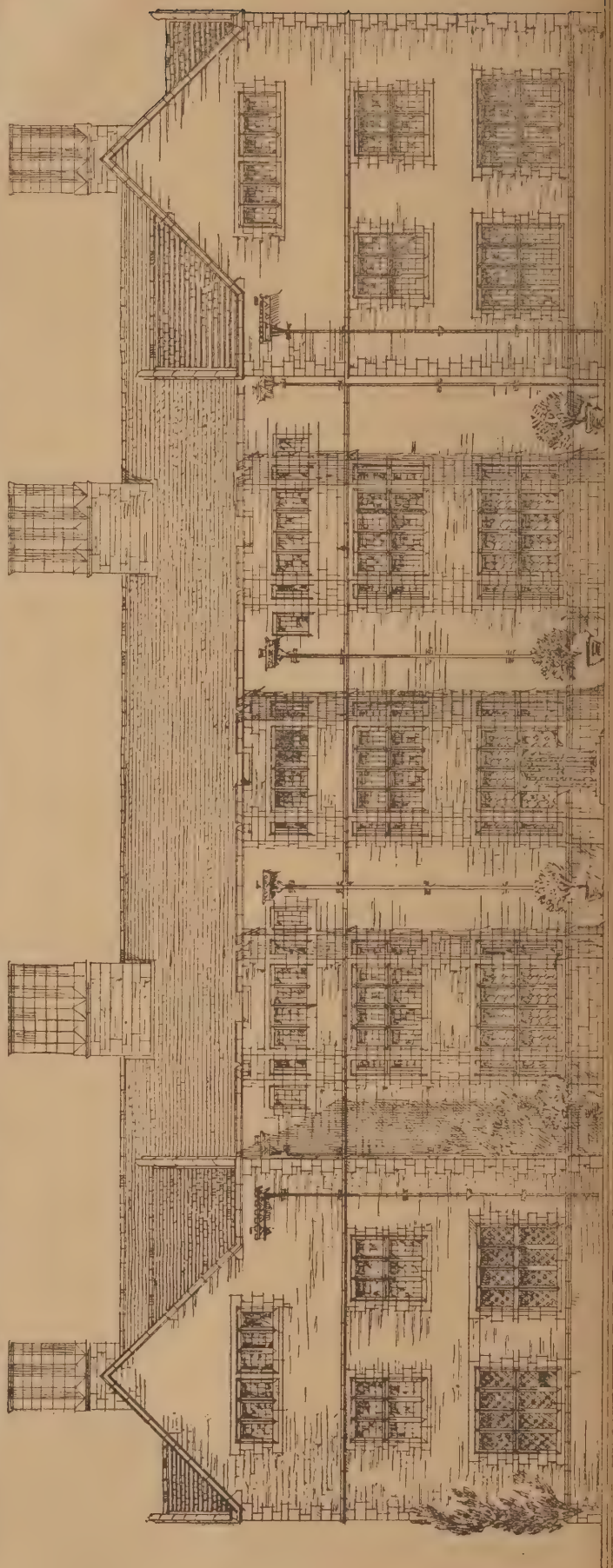
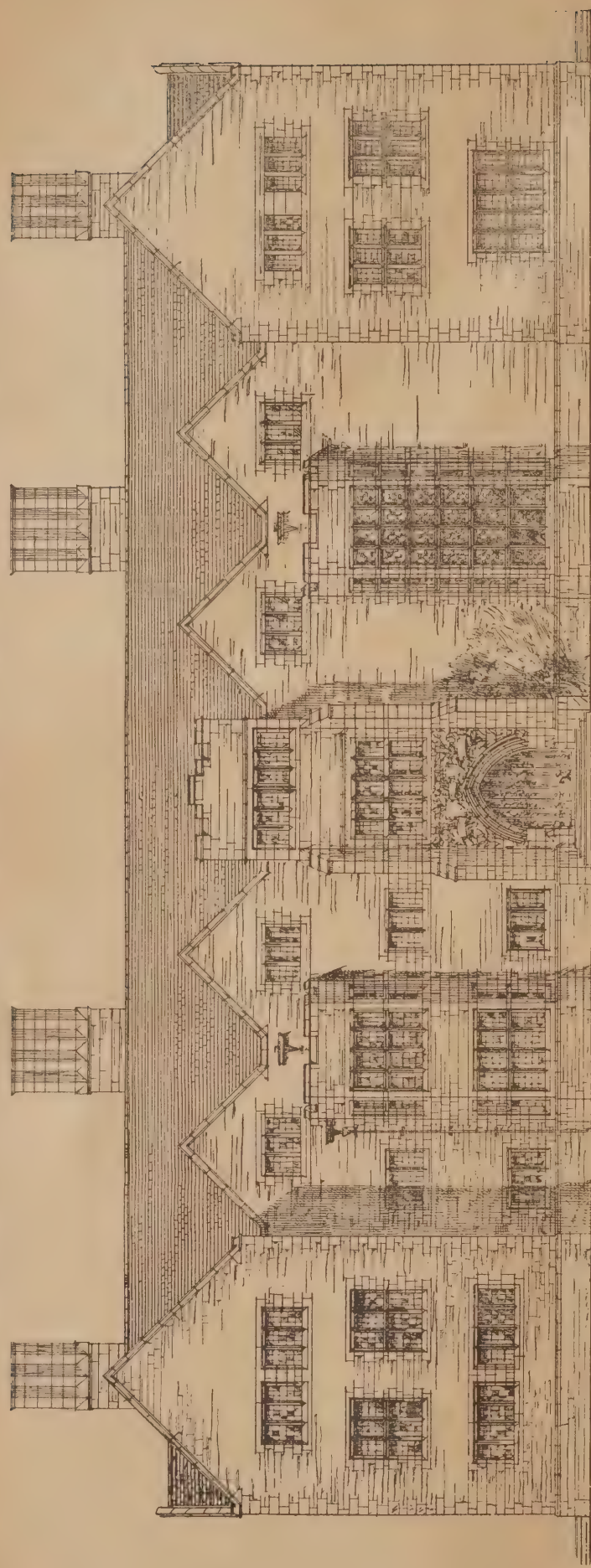
It is proposed to erect a temperance Institute at Dudley, at a cost of about £5000. The Institute would contain a large hall, with a gallery capable of seating 600 people, reading and recreation rooms, gymnasium, and a café.

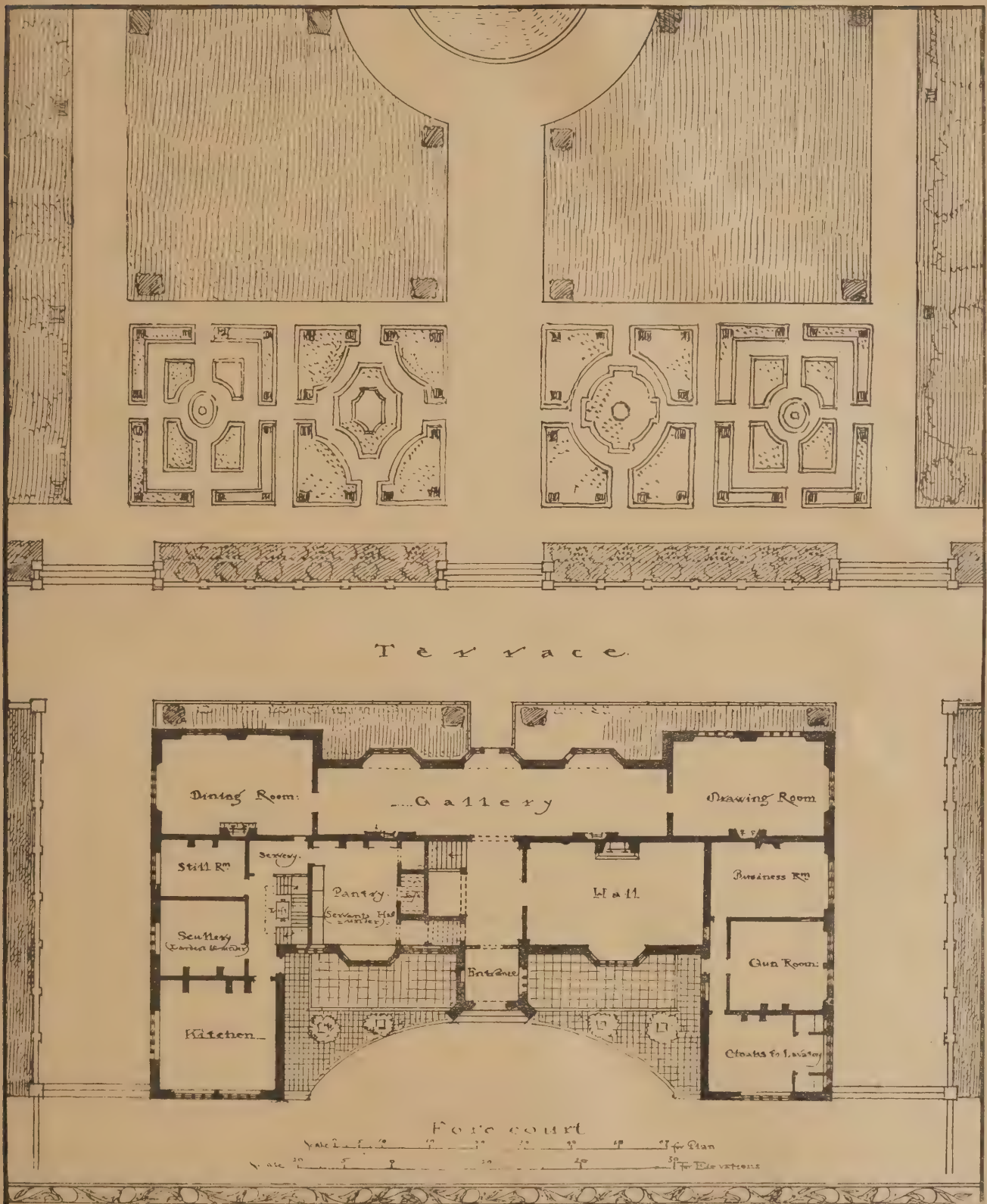
An illustration has just been afforded of the immense increase in value of City land. The site of the Methodist Centennial Hall in Bishopsgate Street cost about sixty years ago £15,000, and a similar sum was spent on the Hall. Recently a firm in the City made an offer for the freehold of no less a sum than £230,000. This works out at something like £27 a square foot, but the offer, magnificent as it seems, was refused by the owners.

The Southport Town Council has adopted a recommendation of the Parks Committee that trees be planted in the gardens on both sides of Bath Street in order to beautify the town. Other suggestions were made by members of the Council in favour of an extension of the principle of beautifying the streets. Alderman Griffiths remarked that they spent £1100 a year in cleaning people's back yards, which visitors did not see, whereas this work would be visible to all.

The new branch School of Art in course of erection at the corner of Moseley Road and Lime Grove, Birmingham, was the subject of a Local Government Board inquiry into the application of the Corporation for powers to borrow £10,000 necessary for the undertaking.

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DESIGN FOR A COUNTRY HOUSE: PLAN. GERALD C. HORSLEY, ARCHITECT.

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The Architectural Association

And "Some Recent Works on Specifications."

COMMENTS ON OUR QUARTERLY PUBLICATION.*

At the meeting of the Discussion Section of the Architectural Association last Friday, Mr. H. J. Leaning in the chair, Mr. Crawford Smith opened a discussion on "Recent Works on Specifications," with special reference to the following books: "Specification" by THE BUILDERS' JOURNAL; "Specifications for Building Works, and how to write them," by F. R. Farrow (D. Fournier, Builder Office, London, 1898); "Specifications in Detail," by Frank W. Macey (E. and F. N. Spon, London, 1898). Such, at any rate, was the subject announced for the paper, but Mr. Smith explained that, owing to a little misunderstanding with the Secretary, his paper would deal rather with the subject of Specifications in general than the particular works named.

The question of specifications, he said, was of the highest importance to architects. Many were wont to ignore this practical side of their profession and concern themselves only with the beauty of the design; but it was not too much to say that an architect must stand or fall by his specification, if he wished to insure the confidence of his client and of the contractor. Specifications should be direct, succinct, and compact. Clearness should not be sacrificed to brevity; but, on the other hand, a specification should not be unduly long. Much trouble might be saved by the judicious arrangement of trades. The fundamental idea of a specification was to supply what the drawings could not show. Dimensions shown on the drawings need not be repeated in the specification. Specifications and bills of quantities should be regarded as distinct and separate. In all cases the architect should write the specification himself. He alone could fully set out the requirements of his design, and he should not leave it to the quantity surveyor.

A most important clause in regard to specifications was that samples of all materials supplied should be submitted. In specifying timber it was advisable to mention the particular brand, and insist upon having the best quality. A good piece of advice given by Laxton, which, however, few architects were likely to ignore, was this:—"Every hour's work and all material used should be charged to someone."

As to whether specimen details should be included, Mr. Smith did not consider this a good plan as a rule, though sometimes a rough sketch might be given. The only book on specification of which he had had any experience was that of Mr. Leaning. This he considered uniformly excellent, and he had found it of much practical service.

Mr. George H. Smith urged the importance of clearness and definiteness in writing specifications; the meaning should be perfectly clear, not only to the architect and his client, but to the builder's foreman; therefore every detail not shown on the plans must be put in its proper place in the specification. Reference to a text-book, he thought, was seldom desirable, on account of the great variety of modern work. The architect who had to search through all the descriptions given of any particular detail would be a very long time over his specification. Every specification might be regarded as having a skeleton—the general clauses—to be covered with flesh—the more detailed clauses.

Assuming that to be the correct view of the matter, he naturally regarded the books under discussion in the light of their compliance or otherwise with this plan. Macey's book was too bulky; it was a complete and accurate

work of reference, and the best book on its particular line, but to use it in writing a specification would tend to cramp the writer and produce an undesirable uniformity of detail.

"Specification," the publication of the BUILDERS' JOURNAL, as he understood it, aimed at being more than a guide in writing specifications; it was rather a desk book for help of all kinds. The practical notes and descriptions of materials were easily referred to, but they might with advantage be largely increased. The admission of trade advertisements in the middle of the text did not at first sight appear desirable, but if the advertisers were restricted as to space it might be distinctly useful in giving an idea of the number of manufacturers of a particular article. The constructional details given were useful, and he should like to see the number of such illustrations as that on page 120 of the current issue largely increased. But the plates given at the end of the book appeared to him to be entirely out of place, and the space they occupied might well be utilised with further practical details. The glossary of terms and extracts from the Building Acts were useful, but it was a mistake to include the items under the heading "Preparation of Bills of Quantities." It was a happy idea to have each section revised by specialists, but the general editor needed to exercise supervision to prevent the contributors contradicting each other. The information given under the headings "Legal" and "Miscellaneous" was useful, but required to be increased, and he thought it would be well if marked sizes of goods were given under another heading.

Mr. W. E. Johnson, who said that he was only conversant with Farrow's work, made a few general remarks on the subject. He agreed with what had been said as to the importance of specification writing—a matter which he was afraid was very much overlooked by architects generally. He thought it unwise to rely too much on books. Young practitioners were liable to fall into the error of following them too closely. The best plan was for the architect to take the drawings, and, after fully considering exactly what he wanted, write his specification with his drawings and details before him. It was important that the half-inch details should be drawn before the specification was written. As to Mr. Farrow's work, he thought it very useful to architects generally as a book of reference, though exception might be taken to one or two points of detail, which he proceeded to specify. The more concise and brief a specification was the better; a long wordy specification gave the builder a greater opportunity of contorting it, and using it in a wrong sense.

Mr. Max Clarke criticised one or two details in the books of Messrs. Macey and Leaning, and pointed out that they did not always agree with each other. Experienced architects were apt to forget the time when they had to learn to write specifications. Suppose, for instance, a man did not know whether a sash bead required to be $\frac{3}{16}$ in., $\frac{1}{2}$ in., or $\frac{1}{4}$ in. thick; then it was convenient to have the whole thing written down. For that reason he thought Mr. Macey's book very useful. Of course, Leaning's book was very useful to a person who knew all about such details, for, of course, few people were familiar with all kinds of building. He did not think the editor of "Specification" was to be called to order for not having sufficiently edited the various sections. He had himself pointed out the discrepancy referred to by a previous speaker, but the work was prepared in such a hurry that there was no time to edit it thoroughly; he had no doubt the next edition would be very much better.

Mr. C. H. Strange said the architect formerly began to compile his specifications on the model of his masters; they gave the general outlines, and he had but to add new items which his own works called for. During the examination of work in progress he would make marks on the margin of his specification for future guidance; thus by a slow process his knowledge increased until he considered that he had in his own mind, from

hard-earned experience, a better skeleton of a specification than any book could afford him. That was the old conservative method, but in these days of hurry it had certain disadvantages. The old system was a fairly good one if one had a good model to go upon, but it was an atrociously bad one if one had not. It perpetuated antique forms of description, "specification English," and quasi-legal expressions; it tied one down to old forms of construction and helped to close the eyes to new methods. It had the further disadvantage that one had to keep a heap of old specifications, and hunt through them when preparing a new one. The importance of having a well-written specification was now being so generally recognised that one could not wonder that publishers were attempting to supply the need.

Existing publications might be divided into three classes, Mr. Leaning's and Mr. Farrow's forming one class, Mr. Macey's another, and the publication of the BUILDERS' JOURNAL a third. In the first class the work was intended more for students, those who were learning to write specifications, and in many cases the requirements of this class were admirably suited. Mr. Macey's book was intended to meet a much larger and more important want. It set out to put at the hand of the architect examples of doing any mortal thing in connection with a building in two or more ways. This plan had undoubtedly distinct advantages. The third class of publication, that issued by the BUILDERS' JOURNAL, set out to be something more even than Mr. Macey's book. It not only proposed to give an outline specification, but it gave all sorts of detailed information, tables and illustrations thrown in. It had one very important characteristic that recommended it very much to everyone, and that was its price. No doubt it would find its way into most offices.

Of course the work was open to improvement. He thought the illustrations were a mistake altogether; they had been so reduced in the reproduction that you could not make out half of them; some of them had no scale, and he did not quite see their usefulness. Then, again, the book was made needlessly cumbersome with matter only remotely connected with the main purpose—lists of architects and builders and elaborate pictorial headings. The tables and memoranda were most appropriately included, and the glossary also, he should imagine, would be very useful. He did not believe in setting out to make a specification brief; the more pains spent on it the better it was. Neither did he agree with the suggestion that the quantity surveyor should not write the specification. He thought the quantity surveyor was the right person to do it, always provided he had an outline specification from the architect on which to base his own.

Mr. C. H. Brodie said he was extremely glad to see these books published. After writing some hundreds of specifications, he still found it most difficult to write one properly. Specifications were, as a rule, too carelessly written, the phraseology was often ridiculous, and it was seldom consistent throughout the document. Mr. Brodie recalled the fact that when he was articled, being of an enquiring mind, he asked the meaning of some of the general clauses in the specifications prepared by his firm. Nobody knew. They had been copied through the centuries that had rolled over that office, each copyist repeating the mistakes of his predecessor, and perhaps adding some on his own account, until some of the clauses had become absolutely meaningless. He noted that Mr. Macey's hand-book had an index of no less than 93 pages; that must be a great help. But it was a most dangerous thing to try and write a specification from the model clauses in these books. The architect must know what he wants and how to convey his thoughts to another mind.

The Chairman, in summing up the discussion, expressed the opinion that the scope of his father's and Mr. Farrow's books was rather limited, and that Mr. Macey's book and "Specification," the publication of THE BUILDERS' JOURNAL, really met the wants of architects more than either of the other books.

* We shall have something to say next week in reply to the comments made upon "Specification." Many of the suggested alterations and additions had already been arranged for, previous to this discussion, and as far as possible the other suggestions will be adopted.—Ed. B.J.

He thought the idea of the proprietors of "Specification" in getting several collaborators, each a specialist in his own subject, should, and as a matter of fact did, produce the best results. He understood that a good many new features were to be included in the next number, among others a list of comparative prices. That was an admirable feature; architects liked to know the relative costs of carrying out a given work in two or more ways before coming to a decision. Provided this were well done, it would, he thought, meet a great want.

A drawback to "Specification" was that it had no index; perhaps that would be added in a future issue. He agreed with previous speakers that the quantity sections were inadequate, and he thought the book would be a great deal better without them. He would suggest also that some classification of grades of work might be adopted all through the book. It would not be a bad idea, for instance, to give the kind of timber an architect might legitimately use in building where he wanted to economise, but not to put in absolute rubbish. The specimen clauses given at the end of the "Notes" in the various sections in "Specification" did not always cover the same ground as the "Notes" themselves. The idea of the publication seemed to be first of all to present the architect with all necessary information and the alternatives, and then tell him how to describe what he wanted. Mr. Lening proceeded to give several examples of things he thought should have been treated on in the work, but to which he had not found any reference; these were: stair treads, artificial stones, various kinds of plastering, ridge ventilation, and maple flooring. As to the question whether the architect should write the specification himself, Mr. Lening thought there was no objection to the quantity surveyor's writing it, but the architect must take the risk of its not being done as he wished.

KEYSTONES.

It is proposed to erect a public hall at Askam.

MR. HERKOMER'S portrait of Herbert Spencer has been lent to the Tate Gallery.

DEWSBURY TOWN COUNCIL has resolved to apply for powers to construct a local tramway.

THE monument to the late Prince Bismarck, to be erected outside the Reichstag, in Berlin, is to be 20ft. high.

A NEW school for the Bible Christians was opened last week at Tintagel. Mr. Mason, of Marshgate, was the architect.

A NEW library and reading-room, the gift of Mr. Fletcher, of Letham Grange and Fern, has been opened at Fern, near Brechin.

THE Burgh Commissioners of St. Andrews have decided to erect a memorial fountain to the late Lord Playfair, in the neighbourhood of the Golf Club.

A large infant school is about to be erected in Eldon Road, Lower Edmonton, from plans prepared by Mr. Henry W. Dobb, architect, of 110, London Wall.

THE thirty-eighth annual exhibition of the Royal Glasgow Institute of Fine Arts will open on Monday, February 6th, and close on Monday, May 8th.

A NEW POST OFFICE is to be erected in Glasgow. The site covers an area of about 3000 square yards, and the price paid is said to be £20 per square yard.

At a meeting held last week a scheme for the formation of a Literary Society and Institute for Gateshead was prepared, and it is proposed to erect a new building in place of the one already owned by the Mechanics' Institute. At the meeting plans by Messrs. Armstrong and Knowles were exhibited.

SEVERAL additions and improvements have been made in the Church of St. Mark's, Kennington. A pulpit formerly in St. Michael's, Wood Street, and a new lectern have been presented, the font has been removed to the west end, and various renovations and decorations are in contemplation.

ON the 10th inst., prizes were distributed to the students of the Plymouth School of Art, which has had a most successful year.

A COMMITTEE has been appointed to consider whether the old church in the Preston suburb of Brighton shall be enlarged or a new one erected.

THE EARL OF DERBY and Mr. T. Sutton Timmis, of St. Helens, have each given a donation of £1000 to the building fund of the Liverpool Church House.

At a recent meeting of the Louth Town Council it was decided to obtain information from the Louth Water Company with a view of purchasing the under-taking.

EXTENSIVE improvements, chiefly in regard to street paving and surface drainage, are proposed to be carried out at Clifton. The cost is expected to amount to £6800.

THE Royal Nursing Home at Romsey, Isle of Wight, erected to commemorate the Diamond Jubilee of Her Majesty, was opened by Princess Henry of Battenberg on the 11th.

THE restoration of Holy Trinity Church, Hull, will shortly be put in hand. The work is estimated to cost upwards of £4000. The greater part of this amount has now been collected.

THE Great Northern Railway contemplate making extensive alterations and improvements at Grantham, by widening bridges, &c., and have petitioned Parliament to sanction the work.

THE late Rev. George Proctor, schoolmaster, Kemnay, has bequeathed the residue of his estate, amounting to about £3000, to the University of Aberdeen towards the founding of an astronomical observatory at King's College.

THE new parish institute erected at Cockington has been opened. The building comprises a small chapel, a large assembly room, with gallery and class-rooms, &c. The cost has been about £900, and it has been erected by Mr. Phare from plans by Messrs. Rowell and Son.

PLANS of blocks of houses for four tenants, to be erected in Wellington Place, opposite North Links School, by Mr. A. Brown, builder; a new tun room at Lochside Brewery; and the alteration and improvement of the police stables, have been agreed to for erection at Montrose.

AT Lincoln Cathedral, the new organ is now being blown by electric energy. Three motors, of $\frac{3}{4}$, 1, and 3 horse-power, each of which is controlled by a separate switch, operated by the organist, are placed in the triforium. At the first trial of the apparatus it worked extremely well.

THE ARCHBISHOP OF YORK has allotted from the Marriott Bequest Fund £1500 towards the cost of erecting a permanent church in North Newington, Hull, subject to a similar amount being raised within three years. A scheme has been set on foot for collecting the remainder of the money locally.

It is proposed to raise a fund for the restoration of St. David's Cathedral. The restoration of the beautiful Eastern buildings, which will cost, it is estimated, not less than £12,000, is intended as a memorial to the late Dr. Basil Jones and Deans Allen and Phillips, whose names are closely associated with the Cathedral and the diocese.

THE memorial to Lord Tennyson in Haslemere Church is to take the form of a window, after a design by the late Sir Edward Burne-Jones; it is one of the last of a series illustrating the story of the Holy Grail, and represents the vision which came to Sir Galahad in the little chapel. The window will cost about £100.

At a meeting of the Sheffield City Council on January 11th, the minutes of the Electric Light Committee were presented. It appeared that during the past twelve months, while the old company worked the undertaking on behalf of the Corporation, the gross revenue was £17,104 15s. 4d., against £14,823 10s. in the previous year, although the price of current was in March last reduced from 5d. to 4d., and after paying, as agreed, £10,837 interest to the shareholders and debentureholders, there would be not less than £3000 clear profit for the Corporation on revenue account as a result of the last year's working.

YORK CITY COUNCIL has rescinded a resolution passed last October in favour of the erection of a public slaughter house.

THE Paisley Town Council have under consideration a proposal to carry out extension of the gas works, embracing new retort house with bench of eighty retorts, enlargement of existing condenser, one pair of Beals rotary exhausters, exhauster and pump houses, tar pump, and new station meter, estimated to cost in all £9238.

At the Lancashire College Settlement last Tuesday week Mr. F. Brocklehurst gave a lecture on "Machinery and Labour;" the object of the discourse was to inquire into the effects of machinery upon the working classes as producers, and into the results of the improvement of machinery upon the individual as a unit, and upon society as a collection of units.

THE new vestry at the Church of St. Anne's, Eastbourne, has just been dedicated. The new building consists of a spacious room with a crypt underneath for the storage of seats, &c., the cost of which has been about £500. This, however, is but one of the additions to the church, and it is hoped ere long a tower will be erected in order to complete it. The architect is Mr. Merry.

THE new infants' block at the Cardiff Workhouse has just been opened. The building was erected by Mr. Joseph Thomas, to the designs of Mr. Seward, and Mr. Scott has carried out the duties of clerk of works. Messrs. John Williams and Sons have fitted up the hot water and heating arrangements, and the contractor was Mr. Thomas. The whole cost of the building is £1870.

THE estimated cost of the improvements to be effected by the London County Council under their Bill recently deposited in Parliament amounts to more than five and a-half millions sterling. The main item in the proposed improvements is the construction of the new street from Holborn to the Strand, the estimate for this, including the purchase of the necessary property, is £4,862,500.

AN altar panel in the beautiful material known as "Pictus Sertus" representing the Saviour as the Good Shepherd, and the Four Evangelists, has just been erected in St. Alban's Church, Leeds, as a memorial to one of the late curates. The artists are Messrs. Kayl and Co., Albion Street, Leeds, who are also the patentees of this new material for wall decoration.

AN address to the members of the Liverpool Chamber of Commerce is to be delivered shortly on the subject of a proposed express electric railway, by Mr. F. B. Bahr, A.M.I.C.E., of London. The line will consist of a single rail, supported on trestles. On the rail will run cars, each containing their own motors. It is proposed that a speed exceeding 100 miles an hour shall be attained.

THE West Riding Technical Instruction Committee are proposing to offer scholarships, free studentships, and exhibitions during the year ending March 31, 1900, in conformity with a scheme prepared, and to renew scholarships, free studentships, and exhibitions granted during previous years as they might think expedient, at an estimated cost, including examinations and other incidental expenses, of £10,500.

LAST week a portion of an iron bridge leading from Crewe Station to the railway works collapsed and fell on to the main Chester line, which runs underneath. Over 20ft. of the span fell, and the permanent way was much damaged, causing delay to trains. The large iron pillars supporting the structure appear to have given way first, probably owing to excavations caused by tunnelling underneath.

WAKEFIELD CATHEDRAL is to be enlarged as a memorial to the late Dr. Walsham How, the first Bishop of the diocese. It is expected that the total cost of carrying out the entire scheme of the late Mr. Pearson will be between £25,000 and £30,000. The Bishop has just received an anonymous donation of £3000, making £11,000 promised towards the first section of the work, the estimated cost of which is £14,700, and which will be put in hand at once.

VICTORIA STATION is to be considerably enlarged. The present building is quite inadequate for the present traffic; in fact, when it was opened in 1860 it was regarded by the railway officials as merely a temporary structure. The improvements are expected to cost nearly £1,500,000.

At a meeting of the Smethwick District Council on the 10th, Mr. H. Mitchell, head of the brewery firm of H. Mitchell and Co., presented a drill hall and recreation ground, including cricket and football enclosures, to the town of Smethwick. The gifts are estimated to be worth close upon £10,000.

We are informed that Mr. J. D. Burton, architect and surveyor, has removed from 2, Guide Lane, Hooley Hill, to 150a, Stamford Street, Ashton-under-Lyne. He has taken into partnership Mr. J. A. Percival, who for the past fourteen years has been his manager and draughtsman; and the style of the firm will in future be:—J. N. Burton and J. A. Percival, architects and surveyors, 150a, Stamford Street, Ashton-under-Lyne.

The chancel of Addington Church will be reopened and dedicated on Friday evening, the 20th inst., as a memorial to the late Archbishop Benson. The work of restoration consists in the reopening of a Saxon window which had been blocked, probably, for six centuries; and the construction of a hexagonal oak ceiling on the underside of the ancient thirteenth century roof timbers in place of the lath-and-plaster ceiling, which some same period had been substituted for the original boarding.

By the will of the late Mr. Paul Lutz, the Wolverhampton Corporation becomes possessed of thirty-one oil paintings, by Sir Edwin Landseer, R.A.; George Morland; P. F. Poole, R.A.; W. Collins, R.A.; C. Creswick, R.A.; W. Muller; G. T. Webster, R.A.; F. Goodall, R.A.; Sidney Cooper, R.A.; Mark Antony; Edward Frere; E. M. Cooke, R.A.; David Cox, Sen.; Erskine Nicol, A.R.A.; G. Arnold, R.A.; H. O'Neil, R.A., and others. They will be hung in the Art Gallery.

At the monthly meeting of the Mablethorpe Urban District Council held on the 11th inst., it was resolved to make a promenade walk over the top of the basin head facing the sea. It will be about 130yds. in length, and 12ft. wide. Seats will be placed at frequent intervals. The contract for the proposed new street, called Waterloo Street, which leads out of High Street on the west side and runs parallel with the railway, has been secured by Messrs. Mawer and Mellor, contractors, of Louth.

PERMISSION has been granted by the Dean of Guild Court, Edinburgh, for the following new works which are to be carried out in that city:—To William Little and Sons, for new workshop at 77, Pitt Street; trustees of Old Church, to erect hall at St. John Street; Robert Younger, Limited, for alterations at St. Ann's Brewery; Wm. Younger and Co. Limited, for additions to Holyrood Brewery; A. A. Vumbers, for workshop at Mayfield Road; Redpath, Brown and Co. Limited, for additions to works at Easter Road.

AN exceptionally sumptuous copy of Ptolemy's "Cosmographia," printed at Rome in 1490, and illuminated for the family of Frescobaldi of Florence, has just been added to the beautiful and interesting examples of the bindings of printed books exhibited in the King's Library in the British Museum. It is as a specimen of the richest French binding that the volume is particularly noteworthy. The work is stated to have been executed by Nicholas Eve, a noted binder, for Mary, Queen of Scots. Its value cannot be less than £700.

AN extensive and up-to-date Infirmary and Steam Laundry has been provided in connection with the Workhouse at Wakefield. The buildings, which have entailed an outlay of nearly £40,000, are to be opened to-morrow. They have been designed and carried out by Mr. W. Watson, of Wakefield. The Infirmary will accommodate 150 patients, a resident medical officer, lady superintendent, nursing staff, and servants. The laundry buildings comprise an extensive block, situate near the eastern boundary of the site. It is over 200ft. long by 45ft. wide.

Bricks and Mortar.

EFFINGHAM HOUSE, ARUNDEL STREET,

January 18th, 1899.

"I know what it is to live in a cottage with a deal floor and roof, and a hearth of mica slats; and I know it to be in many respects healthier and happier than living between a Turkey carpet and a gilded ceiling, beside a steel grate and a polished fender. I do not say that such things have not their place and propriety; but I say this, emphatically, that the tenth part of the expense which is sacrificed in domestic vanities, if not absolutely and meaninglessly lost in domestic discomforts and incumbrances, would, if collectively offered and wisely employed, build a marble church for every town in England; such a church as it should be a joy and a blessing ever to pass near in our daily ways and walks, as it would bring the light into the eyes to see from afar, lifting its fair height above the purple crowd of humble roofs."—JOHN RUSKIN.

LONDONERS have been wont to accept London fogs as a dispensation of Providence, to be endured rather than to be cured. Now, however, a little band of reformers, amongst whom are Sir W. B. Richmond and other eminent artists, are trying to teach them to regard smoke and fog as evils from which they may, if they will, escape. At a public meeting, held at St. Mark's School, Marylebone, the Rev. Morris Fuller, who presided, said that

rest upon substantial data, it would probably move the average Londoner a good deal more than Mr. Moschelles' sad story of the lemon coloured mermaid.

WE wish the crusaders against the smoke fiend all possible success, for the crusade is one against ugliness, disease, and death, and as such deserves the sympathy and help of all. It is worth while, however, to note that local authorities already have considerable powers in the matter, and in some cases they enforce them. Within the past few days fines have been imposed upon the proprietor of Niagara Hall, Westminster, and upon Messrs. Burroughes and Watts, the billiard table manufacturers, for allowing black smoke to issue from their chimneys, while a similar summons against the Army and Navy Co-operative Stores has been adjourned for a month to give the defendants time to abate the nuisance. If all London vestries were as vigilant in the matter as the Westminster Vestry appears to be, much good might be done. Meanwhile, would not the vendors of "smokeless" coal, be well advised at this juncture to make their existence more generally known?

THE redecoration of the Colonial Office, which is now in progress, has suggested to "F. C. G." of the Westminster Gazette, the amusing design for a frieze, which is here reproduced. The drawing is accompanied by the following explanation:—"Mr. Chamberlain's rooms in the Colonial Office are being



A COLONIAL OFFICE FRIEZE. BY "F. C. G." FROM "THE WESTMINSTER GAZETTE."

the atmosphere of London might be as pure as that of New York or Paris. In those cities the law against fouling the air with thick, black smoke was enforced. In Paris watchmen were placed on the Eiffel Tower to see that no one infringed the law. He suggested that the Monument in London might be applied to the same purpose, and that two or three watchmen might spend the day there on the lookout for offenders. He also suggested that if people generally would use anthracite coal in their grates, much would be done to mitigate the nuisance.

MR. FELIX MOSCHELLES spoke of the annoyance and inconvenience caused to artists by the constant murkiness of our atmosphere. He told how once, when painting his picture of "The Mermaid and Fisherman," a fog came on. A peculiar light was thrown upon his model, and he essayed to catch its reflection, and transfer it to his canvas. On his palette he had some white paint and some lemon yellow. In the uncertain light he used the wrong colour, with the result that his heroine appeared all in lemon colour, and his picture was spoilt. Dr. George Wyld moved a resolution calling upon the London County Council to combat the nuisance by promoting legislation on the subject. He stated that the destructiveness of London smoke was such that it depreciated property to the extent of two millions sterling per annum. Such a statement must, we imagine, be very much of the nature of a guess, but if it could be shown to

redecoration. We would suggest that the above design for the frieze in the Colonial Secretary's sanctum would be distinctly appropriate. The general style is Renaissance, and the principal recurring theme in the ornament is a boar-like chimera bearing a resemblance to President Kruger. In the volutes of the tail are entangled birds representing Dr. Jameson, Sir John Willoughby, and Colonel Rhodes. The apples recall the historic cart which was upset. Next come symbolic references to the varying relations existing between Mr. Rhodes and Mr. Chamberlain, at first friendly, but afterwards interrupted by a very pretty kettle of fish. The lower portion of this ornament represents Brer Fox getting away (Mr. Labouchere plucking at his tail) partially under cover of Sir Richard Webster, who typifies 'correctitude.' The next portion of the frieze shows Mr. Chamberlain with two long spoons stirring and screwing up the sleeping figure of Lord Salisbury, who is evidently unconscious of the stealthy approach of bears and the crowing of aggressive cocks. Below the frieze is an appropriate Ego and tongue moulding. We are quite sure that Mr. Chamberlain, in his leisure moments and whilst smoking the recuperative and soothing cigar, would find pleasure in looking round the walls of his room, and recalling memories of happy events." We have no doubt all our readers, whatever their political views, will appreciate the humour of a skit which is, we think, one of the gifted caricaturist's happiest inspirations.

AMONG provincial Art schools, few have a more satisfactory record than the Brighton Municipal School of Art, which has just held an exhibition of the works of its students. During the past year, 478 works were submitted to the Science and Art Department for examination, of which about 40 were selected for the national competition between all the schools in the kingdom, with the result that four medals and ten other prizes were awarded to the Brighton School of Art; and also one Royal Exhibition of the value of £60 per year for three years, tenable at the Royal College of Art, South Kensington. For the Science and Art Department examinations last year, 523 papers were worked, the result being that 197 were awarded first class and 199 second class. In special distinctions nine students obtained the mark "excellent" in the three subjects in which the award was made; one student a first and one a second-class in Honours Design; and three students gained Queen's prizes.

A STATEMENT made by the Mayor of Brighton at the opening of the Exhibition, as to the status of the students attending the Art School, affords highly satisfactory evidence of the extent to which a taste for art studies—at any rate, in Brighton—is being diffused amongst all classes of the community. The total number of students in attendance is at present 355. Of these 19 per cent. are mechanics, 27 per cent. shopkeepers, 3 per cent. servants, 14 per cent. teachers, and 11 per cent. clerks. The cultivation of the æsthetic sense amongst people not professionally engaged in artistic occupations must make for the advancement of art, as well as for the moral and intellectual progress of the

community. It were well if every town had an art school thus engaged.

THERE is, perhaps, no district in the City which has seen so many improvements in the matter of the erection of business premises as the neighbourhood of Wood Street and Aldermanbury. One of the improvements is the further extension of the premises of Bradbury, Greatorex, and Co. Limited. The latest addition to the firm's establishments comprises Nos. 10 and 11 in Dyer's Court. On this site roomy premises of three floors have been set up, according to the designs of Mr. Howard Chatfield Clarke, of 63, Bishopsgate Street. The new warehouse is replete with every convenience for facilitating the carrying out of orders, and has a floor area of over 11,000 square feet. The doorway is illustrated below.

At the annual exhibition of the Hammer-smith School of Art, Sir William Richmond, R.A., said that he entertained great hopes of the study and practice of the decorative arts in England rising to even greater eminence than had been the case in the past. All, however, depended upon whether the general public wanted better work or not. Certainly there had been deterioration, but he believed that a reaction was now setting in, and this was probably because it was found absolutely necessary for English goods to be of the best possible quality. The tendency in recent years with regard to Art seemed to have been too theoretical, but if art in its highest sense was to come back to England and shine as it once did, much more attention would have to be given to practical training. Doubtless it would be a long time before we reached the high ideal which many desired to see realised.

He urged those present to support the Vestry in the endeavour to establish a much larger Art school and technical institute in Hammer-smith.

THE extensive alterations and improvements that are being made in the market accommodation at Leeds are approaching completion, and the town will very shortly possess one of the finest sets of markets in the Kingdom. The process of demolishing the retail fish market is to be begun immediately, and the cleared space will be spanned by a roof and added to the vegetable market. It is an ugly building, and has the effect of lessening the light and ventilation. Up-to-date shops will in the course of a few months rise, and, pending their completion, the dispossessed fish salesmen will be found temporary accommodation by the authorities. Good progress is being made with the new wholesale dead meat market and abattoirs in York Street, which will be let to tradesmen at present occupying shops in the Shambles. But the most important of the projects in hand is undoubtedly the scheme for building a new Market Hall. The city engineer, Mr. Hewson, has been instructed to prepare a ground plan, and when this is completed architects will be invited to submit competitive designs. Any definite decision on the part of the Committee will, of course, be postponed until these drawings have been sent in, but the idea seems to be in favour of erecting a building which, externally at least, shall be more artistic and beautiful than the existing old-fashioned structure. The new Market Hall will have important frontages to Vicar Lane, Kirkgate, and the new street running from Briggate, through the Shambles, to George Street. There will be no galleries, as in the present building, the intention being to utilise only the ground floor for shops and stalls. The roof will be of glass, formed in bays.

MISS MARGARET BENSON and Miss Janet Gourlay have spent three seasons in examinations and excavations at Karnak, the site of the Temple of Mut, in Asher, and, having made interesting discoveries, they were brought to consider the desirability of publishing a book on the subject. This volume Mr. Murray will shortly have ready. Mr. Percy Newberry is responsible for the inscriptions and translations, and Mr. E. F. Benson has given considerable assistance to his sister and her collaborator in the preparation of maps and plans.

BIRMINGHAM, which is rich in the possession of works from the brush of the late Sir Edward Burne-Jones, will at some distant date receive a valuable addition to its treasures. At a meeting of the City Council last Tuesday week the Lord Mayor read a letter from Lady Burne-Jones giving the Council official intimation of her intention to bequeath to the Art Gallery at her death the portrait of her husband, painted by Mr. G. F. Watts. On the Lord Mayor's proposition the Council expressed their pleasure at such a gift, and heartily agreed to the condition that the portrait should be placed among Sir Edward Burne-Jones's own pictures. At the same time they expressed the hope that the date when the picture would come into the possession of the city was far distant.

THE mausoleum at Friedrichsruhe, which will shortly receive the remains of the late Prince Bismarck, is a building of modest dimensions, and without any imposing architectural attributes. The architect has tried to realise the restfulness of some out-of-the-way country church, and he has completely succeeded. The mausoleum, which stands on a hill near the late Prince's home, called the Schneckenberg, is approached by a winding path. It consists simply of a round tower and a short nave. The graves of the Prince and Princess are situated in the tower, while the remainder of the building is reserved for the general family vault. The style of the whole building is simple in the extreme.



DOORWAY, 10 AND 11, DYER'S COURT, E.C. HOWARD CHATFIELD CLARKE, ARCHITECT.

ACCORDING to a writer in the Church Gazette there are in England only four great altar screens. They are the cathedrals of Winchester and St. Albans, and the churches of St. Saviour, Southwark, and Christchurch, Hampshire. These four screens have several features in common. They are of about the same date, and, consequently, in the same style. They all provide a central altar space, flanked by a couple of doors. Each occupies the whole width of the sanctuary, and rises from the floor to the level of the clerestory, and each screens off a chapel. Each, too, adorns a church that was once monastic.

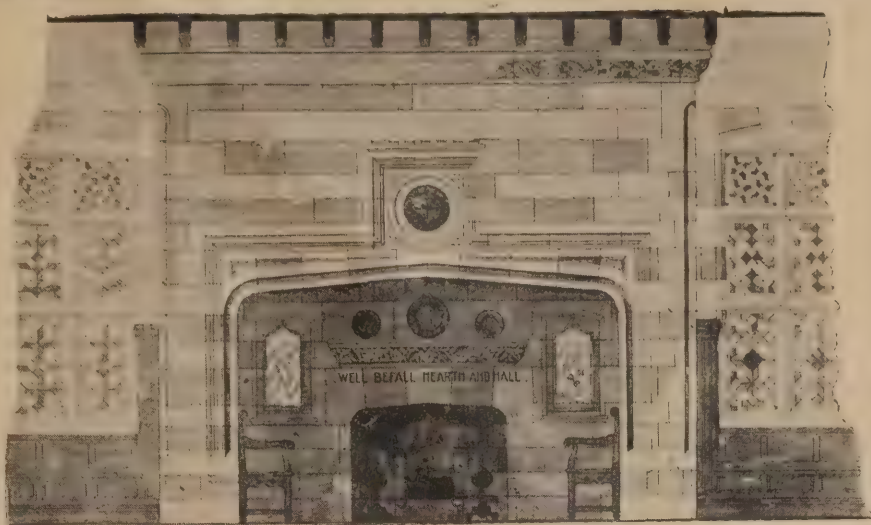
THE programme of the next session (the forty-first) of the Society for the Encouragement of the Fine Arts is before us, and a capital programme it is. The session opens to-morrow evening, January 19th, when Mr. J. S. Shedlock is to deliver a lecture, with musical illustrations, on Chopin's works. Among subsequent arrangements may be mentioned: "The Sacred Lake of the Incas," by Mr. John Wilson; "The Elements of Design in Painting," by Mr. T. R. Spence; "Some Goldsmiths and their Work," by Mrs. Philip H. Newman; "The Growth of Art in our Public Schools," by Mr. Robert Cameron, M.P. The Hon. Secretary of the Society is Mr. Philip H. Newman, R.B.A., 21, Endsleigh Gardens, London, N.W.

THE question of building a new town hall for Cardiff has aroused considerable discussion. At the last meeting of the Cardiff County Council a proposal was made that the matter should be deferred until various other improvements connected with drainage, tramways, and refuse destruction, were either completed or in working order. The proposal was defeated by a large majority. It is likely, therefore, that Cardiff will have its town hall, though not immediately. It was stated by one of the speakers that it would take at least nine months before the plans were ready, and that it would be six years before they could hope to have the building quite finished.

THE report issued by the Board of Trade on boiler explosions during the year ending June 30th, 1898, shows that 84 explosions were investigated, 46 of which occurred on board ship and 38 on land. By these explosions, 37 persons were killed and 46 injured. It is noteworthy that nearly all these accidents were caused by bad workmanship on the part of the makers of the boilers or the attendants. Thirty-four are stated to be due to the defective condition of the boiler or its fittings, 27 to defects in the design, workmanship, material or construction, or to undue working pressure, and 14 to ignorance or neglect on the part of the attendants.

EFFORTS are being made by various electrical companies to obtain the exclusive rights of supplying electrical power over large areas in various populous parts of the country. Thus, the General Power Distributing Company have a Bill before Parliament which, if passed, will give them a monopoly over a district of 2000 square miles in area, which includes such important towns as Sheffield, Doncaster, Nottingham, and Derby. Two other Bills aim at giving similar rights to companies operating in Lancashire and Cheshire. In South London the Brush Company is seeking powers for the supply of electrical energy over an area of about 10,000 acres, which includes Lambeth, Lewisham, Rotherhithe, Deptford, and Greenwich.

THESE schemes have aroused considerable opposition in many quarters. At a conference of the municipal authorities of Lancashire and Cheshire, presided over by the Lord Mayor of Manchester, it was resolved that united action should be taken in opposition to the Lancashire Electric Power Company's Bill and the South Lancashire and Cheshire Electric Power Bill. The chief grounds of opposition seem to be that the Bills, if passed, would have the effect of depriving municipalities of the capital invested in electric lighting undertakings, and that they violate the broad principle



DESIGN FOR HALL FIREPLACE. BY DAVID JOHN ROBERTS.

that municipal authorities should be allowed to control the lighting and other services in the interests of the ratepayers, unhampered by private competition.

At the annual general meeting of the Society of Miniature Painters, Sir William B. Richmond, R.A., was elected President, Messrs. Alyn Williams and Hal Hurst, Vice-Presidents, Mr. Edward Tayler, Hon. Treasurer, Mr. Cecil W. Quinell, Hon. Secretary, and Mrs. Behenna, Mr. and Mrs. Lee Hankey, Messrs. Heath, Hobson, Jackson, Nicholson, and Robertson, Members of the Council. The private view of the fourth annual Exhibition took place at the Modern Gallery, 175, Bond Street, yesterday, and the Exhibition is open to the public to-day.

THE artistic design given above for a hall fireplace was awarded the first premium at the Royal Welsh National Eisteddfod for 1897, held at Newport, South Wales. The author is Mr. David John Roberts, of Bangor, North Wales. The assessor was Mr. A. Beresford Pite, F.R.I.B.A.

A SOMEWHAT curious discussion has been going on in reference to the building of a new church for the congregation of St. Bartholomew's, Nottingham. The building committee decided that they would like the church to be built of rock-faced stone. The late Mr. J. L. Pearson drew the plans for them, and the committee asked his son, Mr. F. L. Pearson, to carry them out, but the latter has a very strong objection to rock-faced stone, which he considers is wanting in dignity. The committee, therefore, decided to build the church in brick, which would also be cheaper. The congregation generally, however, having set their minds on a stone church, declined to endorse this decision. It has now been decided to see whether the architect's scruples against rock-faced stone can be overcome.

THE Bishop of Salisbury, in his New Year Pastoral, deprecates the indulgence of taste or pride in lavishing money on church buildings and neglecting more pressing needs; this he describes as religious selfishness. He thinks that each diocese may claim to have a magnificent cathedral, and that no one would grudge expenditure on our ancient abbeys and notable shrines, but he does not see why every parish church should be magnificent. Commenting on these remarks the Morning Post observes that there has been, no doubt, a tendency in large towns to build parish churches on too big a scale, and to adorn them somewhat profusely, for which excellent reasons have been adduced. That state of things scarcely affects a rural diocese like that of Salisbury, and probably the majority of the Bishop's clergy have been only too thankful to be able to rescue their churches from decay and ruin without dreaming of imparting magnificence. Dr. Wordsworth would surely not intend to condemn the munificent devotion

which prompted the erection of the splendid temples at Wilton, in his own diocese, at Hoar Cross, at Stretton, or at Sledmere.

THE Pastel Society will hold its first exhibition at the beginning of February in the galleries of the Royal Institute of Painters, Piccadilly. Among the members who intend to contribute to the exhibition are Messrs. Swan, Boughton, Watts, Crane, Stott, Clausen, Brabazon, Priestman, Murhman, and Onslow Ford; and among the foreign artists are MM. Carriere, Besnard, Thaulow, Khnopff, Gandara, Lenbach Segantini, Wauters, and others. Mr. S. Melton Fisher is honorary treasurer, and Miss Marion Gemmell, honorary secretary.

SOME remarkable discoveries have lately been made at Rome. Some workmen engaged in making excavations in the Forum came across the column raised by the Emperor Augustus to the memory of Julius Caesar. Close by was a large slab of stone where the body of Caesar was burned. On top of this slab it is believed by Roman antiquarians that the Senate erected a votive column to Caesar's memory. Close to the head of the slab—so says the Daily Mail—the ashes of Julius Caesar were found in an urn. A column and some fragments and inscriptions of the ancient Temple of Vesta have also been found together with a handsome statue of Minerva, which according to the ancient histories had been transported from Troy to Rome by Aeneas. Another wonderful discovery is said to have been made in the Forum. To the east of the Rostra Julia, about the middle of the Forum, was found the celebrated Niger Lapis, the black stone marking the spot so famous in the legends surrounding the earliest history of the Eternal City, where Romulus was buried, or rather where he would have been buried had he not disappointed expectations by becoming a god and being translated to a happier sphere. Perhaps an attitude of philosophic doubt is pardonable with respect to the details of these discoveries.

THE church at Henley-in-Arden is in need of restoration, and the Vicar is appealing for funds. The church is not without interesting architectural features. From the architect's report it appears that this church bears evidence that the chancel, nave, and tower are of the period of Edward III., and that it is apparent that the north aisle was added subsequently, and possibly not of the width originally intended. The church bears unmistakable evidence of having been built by the same masons as those who worked at Wootton Wawen, at Lapworth, and other churches in the neighbourhood. In respect of the comparative thinness of the main walls, it stands alone among the churches of the district, and it would appear that the walls are solid, and of squared stones throughout, and not, as is usual in mediæval

work, built with an inner and outer face of worked stone, and a core of rubble. It is proposed to effect the restoration in a careful and conservative manner with a view to arresting decay. The cost is estimated at £640.

At a meeting held on Thursday at the rooms of the Institute of Civil Engineers, Professor Sylvanus Thompson presiding, the following awards of premiums for papers read during the session 1897-8 were made: The Institute Premium, Mr. Horace F. Parshall; the Paris Electrical Exhibition Premium, Mr. Robert Hammond; Extra Premium, Mr. Leonard Andrews; Premium for Original Communications, Mr. H. N. Allen; Students' Premiums, Mr. J. M. Donaldson, Mr. Morris Solomon, Mr. E. E. Tasker. Sir David Solomon Scholarships were awarded to Mr. T. R. Renfree, King's College, London, and Mr. H. J. Tomlinson, University College, London.

At the annual prize distribution and students' soirée in connection with the Clapham Art School on Thursday, the prizes were presented by Mr. T. McKinnon Wood, the Chairman of the London County Council. In his address to the students, Mr. Wood said that the art of Architecture was the one that had perhaps most relation to municipal functions. In London there were many fine buildings, also elsewhere, but the grand difficulty was that they had no room to see them. He was glad to see the Government had at last commenced the great improvement in Parliament Street, and they would have a finer view of the Abbey than ever before, and he hoped the architect would make appropriate use of this almost unique opportunity. But the County Council also had a proposal coming before Parliament for cutting a magnificent thoroughfare from Holborn to the Strand, 100ft. in width, which would provide great opportunities for the architects of the future. For he trusted the Council would keep in their own control the architectural development of the thoroughfare, and not repeat the mistakes of the past, but have a street architecturally worthy of the metropolis of the Empire. Continuing, he said he did not know why they should not have a school for modelling smaller works in such metal as bronze. Also in the case of the precious metals it was evident that the jeweller depended wholly in his work on the intrinsic beauty of the metals and precious stones he used. Silver work consisted in the mere repetition of old designs, and there was absolutely no original work. The prizes were afterwards distributed, Rose D. Bonnor receiving the bronze medal of the Science and Art department, and the national book prizes being carried off by E. Dunkley, M. Haghe, and B. Händler. In the eleven national competitions in which the school has taken part, it has now been awarded four gold, six silver, and seven bronze medals.

MR. HOLMAN HUNT has finished his new picture, "The Miracle of the Sacred Fire." It is the result of nearly five years' continuous labour; for he began it at Jerusalem in 1893, and it has been the subject of patient and at the same time wonderfully brilliant and sustained work ever since. For sheer power and energy of artistry it represents, perhaps, the great achievement of Mr. Holman Hunt's life. The subject is the curious ceremony which brings together Greek Christians from all parts of Eastern Europe and Asia on the Eve of the Greek Easter to the Church of the Holy Sepulchre in Jerusalem. The scene, which is one of singular animation and vividness, represents the moment when the "sacred fire" is miraculously kindled, or supposed to be kindled, within the Sepulchre, and the flame is being handed out to a shouting congregation of enthusiasts, who throng the pavement of the church and catch the flame on hundreds of torches and tapers. The canvas contains more than 400 figures, and it glows with the colour reflected from an astonishing assemblage of Oriental costumes, many of which are now disappearing, so that the picture should possess a very real historic value.

Professional Items.

ABERFOYLE.—A stained-glass window to the memory of the late Mrs. Dalziel, of Tigh-na-Traigh, has been placed in Aberfoyle Parish Church. It consists of three compartments, which are filled with figures illustrating the Nativity. Messrs. A. Ballantine and Gardiner, of Edinburgh, are the artists of the work.

BEMWELL.—A new Baptist chapel and hall are being erected at Bemwell, Newcastle-on-Tyne. The whole scheme consists of church, with nave, aisles, and transepts, having side and end galleries, and seated for 750. The choir and baptistry are placed behind the pulpit, with organ-chamber on one side and minister's and deacons' vestry adjoining, the hall being beyond. The hall is now completed, and has just been opened. It is seated for 250, with two class-rooms on the same floor, and in the basement there are infant's class-room for 100, class-room or tea-room for 50, and heating chamber, &c. The ventilation is by Sherringham inlets and Cousland and Mackay's concealed roof extract ventilators, and the heating is by low pressure, hot water. Mr. N. W. Maughan is the contractor, and Messrs. Emley and Sons are the heating engineers. The Gateshead Stained Glass Company Limited have supplied the lead glazing. The architects are Messrs. Badenoch and Bruce.

CARDIFF.—A new English Congregational chapel has been opened in Cowbridge Road. The chapel is in the fifteenth century perpendicular style of Gothic Architecture. The materials used are Newbridge stone facing with Corsham Down stone dressings, and the roof is covered with green slates. The carved gable finials, &c., are by Mr. Wormleighton, of Cardiff. Internally, the dimensions are 73ft. by 48ft. 6in. The seats give accommodation for 474 adults, whilst in addition a choir of about 50 can be accommodated on the platform. Galleries, when desirable, can be added, and further accommodation for 362 persons provided. The building is well lighted, the lead lights being by Mr. T. Evans, West Smethwick; the electric lighting has been carried out by Messrs. Clay Brothers, Cardiff; the heating by Messrs. Baker, Newport; and the general contractor was Mr. W. T. Morgan, of Cardiff, who has done his work excellently, the contract price being about £2600. Messrs. Veall and Sant were the architects.

CRINGLEFORD.—Cringleford Church has been restored and enlarged at a cost of over £1400. The restorations effected may be thus stated: The south wall of the nave has been removed, and in its place there is an arcade of three arches on four stone columns; an aisle with gable roof, capable of seating over 100 people, has been built; the decayed roof of the nave has been replaced by an open timber roof of pitch pine; the nave and aisle have been seated with oak; two buttresses have been built into the north wall; a new heating chamber has been built, and heating apparatus fitted throughout the church and chancel by Messrs. Reeve, of Duke Street; the tower and porch have been restored. In the course of all this work some interesting antiquarian discoveries have been made. While the north wall was being unflaked traces were found of two early arches, with a Saxon window splayed on both sides, and retaining some of its old oak frame. In the south wall were found portions of Saxon crosses and a small Norman capital of early date. A double recess inside the north wall and a squint on its outside have also been discovered. Mr. A. J. Lacey, diocesan surveyor, prepared the scheme for the work, which has been carried out by Messrs. G. E. Hawes and Sons.

GLASGOW.—Permission has been granted by the Glasgow Dean of Guild Court to the following:—Alexander Eadie, builder, Cathcart Road, to erect tenements of dwelling-houses

in Keir Street, Pollockshields; James Ferguson, builder, to erect three tenements of shops and dwelling-houses in Hyndland Road; the School Board of Glasgow, to add to the school in John Street, Bridgeton; the Anniesland Co-operative Society, to erect buildings in Anniesland; the United Co-operative Baking Society, to alter and add to their premises in M'Neil Street; Robertson and Baxter, wine and spirit brokers, to erect buildings in West Nile Street; William R. Aitken, builder, to form a street from Canal Street to James Street; and William Waddell, builder, to erect tenements in Langside.

HARROGATE.—The Crown Hotel, Harrogate, is undergoing extensive alterations and additions, under the direction of Mr. W. J. Morley, F.R.I.B.A., architect. The exterior of the new block, which will face the Royal Baths in Montpelier Road, will be a handsome structure of stone, having a lofty tower at the angle joining up to the present building and an ornamental gable, the whole forming an imposing pile, worthy of its important and prominent position. The building is to be warmed throughout by hot water radiators, &c.; fire appliances will be provided on each floor, and fire escapes at different points. The drainage is to be entirely new, and is to be on the most approved system and thoroughly ventilated, the pipes all having patent joints. All the rooms throughout will be handsomely decorated, and lighted with the electric light.

LEEDS.—It is proposed to erect a new Presbyterian Church and school hall at Leeds. The hall has just been built. The architect, Mr. W. H. Beevers, A.R.I.B.A., has so planned the two structures that they will be an added ornament to the locality. The hall, which has cost £1800, is built of pitch-faced stone lined with brick, with a pointed red-tiled roof. The church is to be in the Old English style of Architecture, with a handsome tower and spire at the junction of the two roads. It will be about 67ft. long by 37ft. wide, and there will be seats for about 500 people. The carrying out of the whole scheme will cost about £7000.

MANCHESTER.—The new laboratory, of which the foundation stone has been laid on the twenty-fifth anniversary of the occupation of the present Owens College buildings, will be the largest and most completely equipped in this country. It stands on a separate plot of ground adjoining the Owens College site, and consists of a main building and a large annexe, the latter being more especially intended for electro-technical work. The principal building is 100ft. long and over 60ft. wide, and consists of a basement and three stories. The cost of the building, with fittings and new apparatus is estimated at £30,000. It is intended to have at least one room set aside for constant temperature work, and to establish a small plant for the production of low temperatures. An electro-technical laboratory will be added, in which large currents will be available for electric furnaces. One of the features of the laboratory will be a carefully-planned system of ventilation, combined with an attempt to exclude dust as far as possible from all rooms, and especially from the instrument cases. The Plenum system had to be rejected because it takes up too much valuable basement space, because it is ineffective as regards exclusion of dust, and because the inevitable noise and mechanical shaking due to the fans would have seriously interfered with the work of the laboratory. The architect is Mr. J. W. Beaumont, who, before finally drawing the plans, was sent by the Council of Owens College to visit the principal modern laboratories of Germany.

PETERBOROUGH.—During the past week the south gable of the great west front of Peterborough Cathedral has been in the hands of the restorers, and the next step will be the removal of the heavy finial. This gable is not so much out of the perpendicular, nor is it in such a frightful plight as that which marked the degeneration of its northern sister. It is

aning towards the market-place about ft. 11in.; while the other was over 2ft. 2in. ut of plumb. The arch mouldings are ecore and will not be touched, the work nly proceeding to the main string course ust below the base of the gable. There are ome nasty cracks in the upper masonry, but hey are trivial compared with the chasms hich were in the north gable. The work is ill being done by Messrs. Thompson's firm, nder the conservative treatment of Mr. G. F. odney, A.R.A., the Restoration Committee's rehitect. The weather and iron clamps have layed havoc with the statuary in this par- ular gable, although on the whole they ompare well with the attenuated colony iscovered in the north niches. All the saints a their lofty positions are more or less aciated, and will be solidified by being ickled," as in the case of the aureoled gures in the other portion of the restored acade—i.e., by being immersed for some ime in a lime water bath.

PIETERMARITZBURG (Natal).—The Garrison Memorial Church at Pietermaritzburg, which as consecrated on December 16th by the Bishop of Natal, is one of the finest churches o be found in South Africa. An artistic eature in the church is the pulpit, which tands upon the north side of the building. t is circular on plan, and the interior of the ostrum is gained by an easy ascent of four steps. t is built in the Early English (thirteenth ntury) style of Gothic Art, and is made ntirely of English Bath stone, as are all the arious "dressings" used in the general build- ng. Around the body of the pulpit itself is a ontinuous arcading, supported by polished ranite columns from the quarries at Peter- ead, in the North of Scotland. Carving is paringly but judiciously introduced, the rispness of the conventionalised ornamenta- ion being a most pleasing feature. A bold and most effectively moulded cornice urrounds the whole. This handsome pulpit is he handiwork of Messrs. Harry Hems and Sons, the widely-known church sculptors, of Exeter, England. It was built to the design of Messrs. Methven and Ritchie, of Durban, he architects of the general fabric.

PUDSEY.—A new Sunday school in connec- ion with the Mount Zion Methodist New onnexion Chapel, Fartown, Pudsey, has just een opened. The building consists of a entral hall 66ft. by 35ft., with ten class- ooms, five on each side, measuring about 11ft. by 10ft. each. At the south-east end is an infants' room 24ft. by 15ft., adjoining which s another class-room 15ft. by 12ft., and a kitchen 15ft. by 12ft. In the basement is a room 32ft. by 16ft., to be used as a young men's nstitute, besides a heating chamber, &c. Four ntrances have been provided for the main oom, at the south-east end of which is a plat- orm, so arranged that the adjoining rooms an be utilised as ante-rooms. The internal ittings are of varnished pitch pine throughout. The school and class-rooms are heated with ot water on the low pressure system, and the entilation has received special consideration. The central hall is lighted from the two ends and by side windows over the roofs of the lass-rooms. The artificial lighting is by means of Stott-Thorpe pendants. The build- ng, which is in a simple Renaissance style, has een erected from the designs and under the uperintendence of Mr. Herbert Hodgson, architect, Bradford and Pudsey.

UPPERTHORPE.—A stained glass window has een placed in the Unitarian chapel, Upper- thorpe, to the memory of the late Mr. Charles Woollen. The window, which is by Mr. Henry Holliday, of London, is a beautiful iece of work. The words, "There abideth aith, hope, love; these three, and the greatest f these is love," are written over the figure f Charity, who carries one child on her arm and leads another by the hand. The centre f the picture is the face, which is singularly eautiful. The colouring is soft, and in eeping.

Under Discussion.

GLASGOW ARCHITECTURAL ASSO- CIATION.

The monthly meeting was held on Tuesday week.—Mr. George S. Hill, president, in the chair. A paper by Mr. James M'Kissack, entitled "Round about Ripon and York," was read, illustrated by photographic limelight views and sketches. The paper was descrip- tive of a fortnight's tour in Yorkshire, during which time the cathedrals of Ripon and York, the abbeys of Fountains, Whitby, Jarvaux, Rievaulx, &c.; the churches of Skelton, Thirsk, Masham, &c., were visited and studied. While the views consisted mostly of ecclesiastical work, several interesting half-timber examples and Gothic domestic work were also shown.

NORTHERN ARCHITECTURAL ASSOCIATION

A meeting of the members of the Northern Architectural Association was held on Wed- nesday at Newcastle. Mr. F. W. Rich (president) was in the chair, and there was a large attendance of members. Mr. G. B. Bulmer, F.R.I.B.A., of Leeds, read a paper on "Architectural Studies in Yorkshire," which was admirably illustrated by lantern views.

EXPLORATIONS IN PALESTINE.

At a meeting of this Association, held in the Royal Institution, Edinburgh, on Wednesday, Mr. Thomas Ross, the President, in the chair, a lecture on "Explorations in Palestine and Jerusalem" was delivered by Mr. A. C. Dickie, A.R.I.B.A., of the Dundee Institute of Archi- tecture. The paper dealt with the recent excavation at Jerusalem carried out by the Palestine Exploration Fund, under the direc- tion of Dr. Bliss and Mr. Dickie. Their prin- cipal work was the recovery of the southern limits of ancient Jerusalem, and the recent explorations showed, he said, that the city once extended very much further south than the present southern boundary. The ancient wall encloses the whole of the western hill down to the verge of the Kedron valley across the Tyropeon, under the Pool of Siloam, on to Ophel, where it joins the wall traced by Sir Charles Warren from the south-east angle of the Temple area. Towers occur at short inter- vals along the wall, and three gates were found between the Protestant cemetery and the Pool of Siloam. The lecturer also referred to the discovery of a church, baths, mosaics, and tombs, and concluded with a few notes on the mode of excavation and the difficulties to be encountered. The lecture was illustrated by drawings and lantern slides, lent by the Palestine Exploration Fund.—Mr. Dickie re- delivered the lecture the following evening to the Dundee Institute of Architecture, Science, and Art. The president, Mr. T. M. Cappon, F.R.I.B.A., was in the chair.

SOCIETY OF ANTIQUARIES.

At the monthly meeting of the Society of Antiquaries of Scotland, held in their Library at the Museum, Queen Street, Edinburgh, last Tuesday week, the Rev. J. E. Somerville, F.S.A.Scot., described an ancient structure in Canna, locally called the altar. It is built of flagstones of Torridon sandstone, and contains a "cella," in which are laid a quantity of votive offerings, consisting of rounded pebble from the sea shore. The erection forms the centre of a large circle of stones about 100yds. in diameter, within which and around the altar are arranged five cairns of stones. Near it is a flagged underground passage about 2ft. square, up which to a spring of water sick people had to crawl, and were then laid in a bed made of stones and left for the night in expectation of a cure. The structure seemed to consist of what in Ireland is called a "Station," adjoining a holy well. Its form is like that of Lobar Ashig in Skye, and the Well of the Virtues in St. Kildar. Martin, describing a stone covered holy well in Gighu, which also cured diseases, mentions that the

offerings left consisted largely of pebbles of prettily-variegated stones.—There were also exhibited: by Mr. Hay Fleming, LL.D., a bronze bowl or pyx with a Celtic cross engraved on the lid, which was recently found in digging a grave in the cathedral burying ground, St. Andrews; by the committee of the Laing Free Library, Newburgh, a bronze sword brought up from the bottom of the Tay in a salmon net at Mugdrum; by Mr. Bryden, Crieff, through Mr. A. G. Reid, F.S.A.Scot., Auchte- rarder, a large and finely-polished arc of fel- stone found at Dalpatrick, Strathearn; and by Mr. R. B. Gow, Kirkland, Dalry, Ayrshire, through Dr. D. Christison, a facsimile of a posy ring, with an inscription in old French, and a basket-ring of gold ploughed up near Beith.

MASTER BUILDERS.

The second annual dinner in connection with the Hereford and District Master Builders' Association took place on Tuesday week. Mr. W. P. Lewis (president) occupied the chair, Councillor James Davies the vice-chair; and there was a large attendance.—Mr. Symonds (Cardiff) said that in reference to the relations between architects and builders, their relations in the past had not been altogether satisfac- tory; but in most cases now, he was glad to say, architects were guaranteeing their quanti- ties. Mr. A. Krauss (Bristol) drew particular attention to the scarcity of plasterers. These men kept raising their terms, and the matter would have to be dealt with promptly.

The members of the Peterhead Master Builders' Association met on the same date at their annual dinner. Mr. William Stuart, sen., builder, occupied the chair.—The function was successful and enjoyable to a high degree.

TECHNICAL INSTITUTIONS.

Addressing the Association of Technical Institutions on Thursday at their sixth annual meeting, held at the Haberdashers' Hall, Lord Spencer, on his election as president, said that as a manufacturing country we could not admit failure or retrogression in manufacturing skill. But it was impossible to ignore the fact that other nations were pushing forward the educa- tion of their children in technical training, and were rapidly increasing in consequence the amount of their commercial products. We had to look to it therefore that we were not driven out of the field. At present we were far behind America, and we could not sit still and watch the commercial and educational experiments being made abroad. There had, however, been a general movement for equip- ping our people for the race, and he thought that no Act had done more since the Act of 1870 than the Local Taxation Act of 1890. A discussion followed.

VALVE DIAGRAMS.

At a meeting of the Aberdeen Mechanical Society held in Robert Gordon's College on January 10th, a paper on "Valve Diagrams" was read by Mr. S. Pringle (Hall, Russell, and Co.). Mr. Pringle, whose paper displayed in a remarkable degree the technical value of mathematics as applied to practical engineer- ing, touched in a general way, at the outset, on valves and valve motion. Then he dipped into the fundamental principles of Zeuner's diagram, the application of which to the solution of mechanical problems is familiar to all engineers. He next took up the question of the effects of Stephenson's link motion, so far, at least, as concerned the geometrical representation of the effect; and explained graphically the method of ascer- taining the forward and backward motion of the piston. He concluded by applying these principles to the manufacture of triple expan- sion marine engines. The lecture was followed by some lively discussion, chiefly with regard to the practical value of Zeuner's diagram. The preponderating opinion was with the lecturer, that the agent by the use of which the marvellous "Greyhounds" of the Atlantic were being turned out was one which engi- neers could not afford to despise. The paper was illustrated by carefully-drawn diagrams.

HIGH PRESSURE BOILERS.

Mr. W. Davis, A.I.E.E., of the Engineers' Department of the Stock Exchange, gave a lecture on "High Pressure Boilers," at the St. Bride's Institute, on Wednesday, before the Association of Parochial Engineers and Engineers in Charge. The lecturer dealt with the subject in a masterly manner, and a vigorous discussion followed. Mr. G. Brady, the chairman of the Whitechapel Health Committee, presided.

SANITARY INSPECTORS' ASSOCIATION.

The president of the Sanitary Inspectors' Association, Sir John Hutton, in the course of his annual address to the members at Carpenters' Hall, London Wall, said that the Association, numbering 685 members, practically represented all England, and several of the provincial branches, particularly that at Belfast, were showing active, vigorous life. The sanitary administration of London was a work of the utmost difficulty. The congregation of 4,464,717 persons in anything like sanitary safety was not a light accomplishment. Of London's forty-three sanitary districts the largest (Islington) contained a population of 341,134, but there were others, like Lambeth and Camberwell, nearly as large. It was therefore most satisfactory to find the death-rate of London 1904, or considerably less than that of Manchester, Liverpool, Leeds, Birmingham, Sheffield, and other large towns. Among other topics considered in the address were dust-destructors, by which the power of generating electricity for lighting purposes was made possible, food and meat inspection, cremation, and the preparation of ice-creams.—A cordial vote of thanks was accorded to the president for his address.

A NEW INSTRUMENT FOR TESTING ROAD SURFACES.

At a meeting of the Belfast Natural History and Philosophical Society, on January 10th, Mr. John Brown, of Dunmurry, read a paper on "The Viagraph, a New Instrument for Testing Road Surfaces." Mr. Brown referred to the notorious fact that Irish roads were as a rule much worse than those in England. Till now, however, no means existed of making an accurate comparison, of telling how much, and in what way, English or foreign roads were better than those in Ireland. It was in the hope of providing such means, and thereby attempting to convince Irish local authorities of the great need of improvement, that the viagraph had been designed. It consists practically of a straight-edge

applied continuously to the road (along the surface of which it is drawn) combined with a moving part, consisting of a serrated wheel free to follow the unevennesses of the surface, rising and falling over these freely. While the sledge-like straight-edged runners of the main frame cause it to neglect these unevennesses and to preserve a sufficiently even path over them, the vertical movements of the road wheel are transmitted to a pencil marking their amplitude upon a paper strip, which is at the same time drawn under the pencil point by the rotation of a drum driven by gear connected to the road wheel. The result is a profile of that part of road surface over which the machine has been drawn, made on a scale of $\frac{1}{2}$ in. to the foot longitudinally, and full size vertically. A second pencil provides a datum line corresponding to the profile that a perfectly even road would produce. A number of diagrams were exhibited, showing profiles of roads in Antrim, Down, Norfolk, Suffolk, Surrey, Devonshire and Lancashire. The records of the instrument (said Mr. Brown) would be of use to those criticising the state of the roads in any district, also to surveyors wishing to test various methods of road maintenance or to convince their county authorities of the need of improvement, or of the advantages already obtained by a given treatment. They would also be valuable to cyclists and others desirous of knowing the condition of the roads in any distant district in which they propose to travel.

Enquiry Department.

MATHEMATICAL INSTRUMENTS.

To the Editor of THE BUILDERS' JOURNAL.

DEAR SIR,—In reply to "G. W. B." in your issue of December 28th, I don't think the books mentioned deal with his subject, as the steel square is a mechanic's instrument, not a draughtsman's, although more used as such in the United States of America. The two books I know that deal with the subject are L. D. Gould's "Carpenters' and Builders' Assistant," price 2/50 dols. (10s. 6d.), and "Steel Square Problems," by the same, 1/00 dol. (4s. 6d.). The latter, which could be got from Spon's, is more suitable, as it deals with the one subject only. Personal demonstration (as you suggest) is best, but the steel square is not used to the same extent in England as in the United States.—Yours faithfully,

FRANK J. LOBLEY.

Ealing, W.

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Views and Reviews.

AN ELEMENTARY GEOLOGY.*

Among the many scientific subjects of which architects have to possess some knowledge, that of Geology is prominent, and Skertchley's little book, of which a new edition, revised by Dr. Monckman, has recently been published, meets their elementary requirements well. Whether Skertchley's theories and assumptions are always sound may possibly be open to question, but these matter little to the builder of to-day, who only requires to know how matters are at present; and even for the sake of the investigator, who would probably soon develop ideas of his own upon these points, the new editor is probably right, as he says in his preface, in taking care to do nothing to impair the individuality which is the great excellence of the work. The chapters upon the formation of the earth are of considerable interest, but of far more practical value are those dealing with the stratigraphical arrangement of the rocks, their fossil contents, and their mineral constituents; and they have the advantages of being those most free from theorising, well arranged, fully illustrated, and clearly expressed.

* "Skertchley's Geology, revised in accordance with the latest requirements of the South Kensington Syllabus," By James Monckman, D.Sc. (London). Ninth Edition. Price 1s. 6d. (Murray's "Science and Art Department" series of text-books.) London: Thomas Murby, Ludgate Circus Buildings, E.C.

NORTHUMBRIAN MASONRY.*

This very interesting account of many of the incidents in the development of a craft that has been ennobled by long contact with the highest in our land will be read with pleasure by many. Too often, handicraftsmen are inclined to imagine that their work is beneath them—a perusal of this work will create a pride if none exists in the bosoms of such, and probably incite them to take a deeper interest in the work they may be engaged in. Not the least instructive portion of the work is the indication of the teaching, or class work in connection with the mason of the mediæval day. The many references to the quaint customs of bygone times, the curious day divisions, and the secretive properties of the lodge of the operatives well repay perusal.

The interlocking of the freemason with the operative mason is of interest to many outside the trade. To those in the trade—in days when happily there is again a desire for the use of stone, no book, other than one of a purely technical nature, will be more thoroughly enjoyed.

* "Northumbrian Masonry, and the Development of the Craft in England." By John Strachan, Q.C. London: George Kenning, 16, Great Queen Street, W.C.

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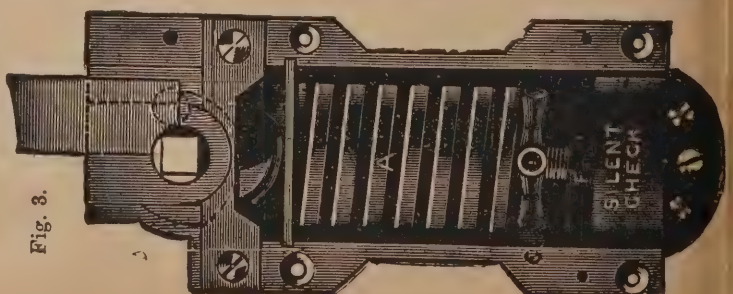
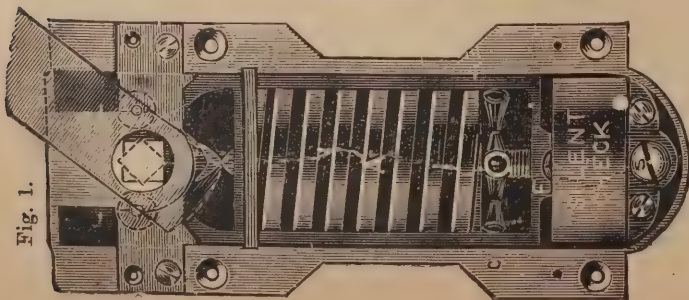
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TENDERS.

Information from accredited sources should be sent to "The Editor." No result if tenders can be accepted unless they contain the name of the architect or Surveyor for the Work.

AMWELL (Herts).—For rebuilding the "George the Fourth" inn, Amwell, Herts, for Messrs. Christie and Co., Messrs. Hodgesdon. Mr. James Farley, architect, Hertford.

and F. Wood ... £1,839 J. Bentley ... £1,670
Hunt ... 1,820 W. Lawrence, Wals-
A. Hunt ... 1,789 ham Abbey* ... 1,939
* Accepted.

BLACKPOOL.—For the erection of new bank, for Manchester and Salford Bank, Limited.

Burgess and Galt, Manchester (accepted) ... £1,650

BROMLEY (Kent).—For the erection and completion of new and stables for Mr. J. Goodwin. Messrs. Ashley and Armstrong, architects, 50, Berners-street, London, W.:

yme & Duncan, £1,477 9 6 T. Crossley & Son ... £1,301
L. White & Son, 1,474 0 0 T. W. Jones* ... 1,382
ohn Lonsdale ... 1,454 0 0 T. D. Grady* ... 1,370
oudas Payne ... 1,416 0 0 Pryer and Co. ... 1,366
A. Lowe ... 1,408 0 0 F. P. Duthoit ... 1,303
* Received late.

CHICHESTER.—For the erection of a hotel, &c., Selsey, for the Selsey Hotel Company. Messrs. Rake and Cogswell, architects, Prudential-buildings, Portsmouth.

H. Roberts ... £4,310 H. Jones ... £4,000
ight and Son ... 4,210 W. Wallis, London &
H. Corke ... 4,100 Littlehampton* ... 3,813
* Accepted.

DEVIZES.—For the erection of new bacon factory at Devizes, for the Devizes Bacon Company. Mr. Ernest C. Isborn, architect, Devizes. Quantities supplied by Mr. F. H. A. Hardcastle, 5, Old Queen-street, Westminster, S.W.:

Downing & Rud-
man ... £4,877 0 0 A. Beazley ... £3,947 0 0
J. Perkins ... 4,495 0 0 G. Moore ... 3,882 0 0
Drew Bros ... 4,309 0 0 Douglas and Sons, 3,644 3 9
A. Krauss ... 4,300 0 0 R. B. Mallings ... 3,450 0 0
P. Ford ... 4,163 7 6 W. C. Chivers ... 3,330 0 0
Hayway & Wooster, 4,111 0 0 Henry Ash* ... 3,289 0 0
* Accepted.

ELIE, N.B.—For laying six miles of water-pipes and other work, for the Local Authorities. Messrs. Belfrage and Carfrae, C.E., 1, Erskine-place, Edinburgh:

R. Skinner ... £5,548 3 7 D. Whyte ... £4,970 18 4
L. Kelly ... 5,442 9 10 R. C. Brebner & Co., 4,929 1 10
J. Stevens ... 5,309 3 0 G. Mackay & Son, 4,871 16 0
J. Kennedy ... 5,251 16 8 Nimmo & Couper, 4,803 11 7
J. Angus ... 5,209 10 8 J. W. Bain, 2,
J. Morris & Sons, 5,183 17 1 Lauriston-place,
T. Munro ... 5,112 12 11 Dundee* ... 4,575 3 4
* Accepted.

LONDON.—For alterations to the "Lord Nelson" public-house, Trafalgar-road, Greenwich, S.E., for Messrs. Barclay, Perkins and Co. Mr. G. Hubbard, architect, 23, Finsbury-circus, E.C.:

Wallis and Son ... £3,120 H. L. Holloway ... £2,533
Balaam Bros. ... 2,855 W. Nash, New Cross ... 2,398
F. and H. F. Higgs ... 2,820

LONDON.—For alterations and new shop front at 114, Richmond-road, S.W., for Mr. E. Binocli. Messrs. Shaw and Galette, architects, 49, Finsbury-pavement, E.C.:

C. Speckley and Co., £574 10 0 E. Swan and Son,
Lyle Manufacturing Fulham* ... £330 0
Co. ... 337 0
* Accepted.

LONDON.—Accepted for the erection of seven villa residences at Higheroft-road, Crouch-hill, N.:

H. Wells, 17, Crouch-hill ... £4,500

LONDON.—For new school, manual training, cookery centres, and caretaker's house, at Stonebridge-park, N.W., for the Willesden School Board:

Dove ... £22,995 E. Lawrence and Son, £20,793
Nightingale ... 22,873 Chessum and Son ... 20,697
Higgs and Hill ... 22,200 Yerbury ... 20,598
Holliday & Greenwood, 21,189 George Neal (accepted), 20,423
Scriveney ... 20,945

LOWER EDMONTON.—For the erection of new Infant School, Eldon-street, Lower Edmonton:

Knight and Son ... £10,067 Edwards and Medway, £8,383
Snewin Bros. and Co., 9,063 T. E. Sharpington ... 8,370
A. Porter ... 8,935 P. Hart ... 8,160
A. Monk ... 8,800 W. Lawrence ... 8,149
Chessum and Son ... 8,634

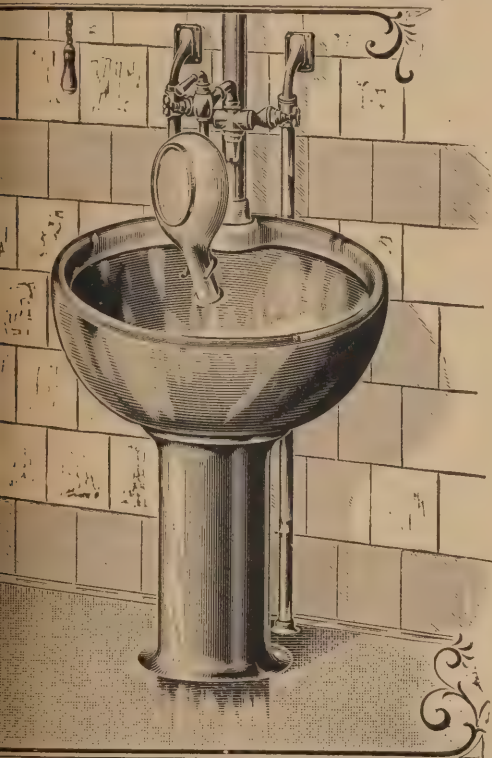
PENGE.—For drainage and sanitary work, &c., at the Royal Watermen's Almshouses, Penge. Mr. L. Jacob, architect, 423, New Cross-road, S.E.:

Akers and Co. ... £1,171 0 0 Deduct if
J. E. Davis ... 1,868 11 7 sin, in lieu of
Falkner and Sons ... 1,230 0 0 of 9in. pipes.
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General Builders, Ltd., 1,232 0 0 33 0 0
Gregory and Co., 1,344 0 0 32 0 0
H. Leney ... 1,550 0 0 33 0 0
A. P. Maers ... 980 0 0 25 0 0
W. Mills ... 1,027 0 0 16 0 0
W. J. Pinfold (accepted), 735 9 0 41 0 0
C. R. Pledge ... 1,368 0 0 17 15 0
Wenham and Waters ... 1,245 0 0 19 0 0
40 0 0

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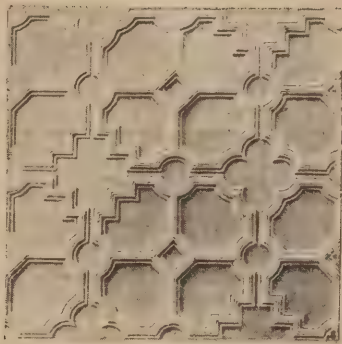
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PUTNEY—For the erection of stabling and coachman's cottage at Chartfield, Putney Hill. Mr. A. R. Thorn, architect, Elm Park Estate Office, 268, Fulham-road, S.W.:—
H. Parsons and Co. ... £1,300 | G. E. Selman* ... £1,000
H. Roffey ... 1,276 | *Accepted.

TAUNTON—For the execution of sewerage works, Target Field, for the Town Council. Mr. J. H. Smith, C.E., Municipal Offices, Corporation-street, Taunton:—
Allen and Son ... £9,302 9 0 | G. Bell ... £7,805 0 0
R. H. B. Neal ... 8,470 0 0 | W. S. Meredith ... 7,700 0 0
W. Gibson ... 8,441 16 7 | B. Cook and Co.,
Facey ... 8,300 0 0 | 16, Victoria-
H. W. Pollard ... 7,998 0 0 | street, West-
R. Hitchcock ... 7,882 19 0 | minster* ... 7,518 0 0
*Accepted.

TOTNES (Devon)—Accepted for the construction of sewage and outfall works, also buildings, &c., for the Tubes Corporation. Messrs. Lomax and Lomax, C.E., engineers, Deansgate, Manchester:—
George Bell, contractor, Tottenham and Man-
chester ... £8,854

TWICKENHAM—For the supply of 500 tons Guernsey granite spalls, for the Urban District Council. Mr. F. W. Pearce, surveyor, Town Hall, Twickenham:—
L. Somerfield ... 12 3 | R. L. and J. Fennings,
W. Griffiths ... 11 5 | London Bridge* ... 10 10
J. Mowlem and Co. ... 11 2 | *Accepted.

CONTRACTS OPEN.

STEPNEY UNION.

TO BUILDERS AND CONTRACTORS.

The Guardians are prepared to receive TENDERS for certain ALTERATIONS and ADDITIONS at the Ratcliff Workhouse in Salmon-lane, Ratcliff, E.

The drawing and specification can be seen, and bills of quantities, prepared by Mr. B. BANKS MARTIN, Architect, 103, Plashet-grove, East Ham, obtained at the Guardians' Offices, as below, on payment of a deposit of Two Pounds Two Shillings, which will be returned to persons sending in a bona-fide Tender.

Sealed Tenders must be delivered at the Offices before NOON on THURSDAY, the 26th instant, and persons tendering must be in attendance at FOUR o'clock on that day.

The contractor will be bound in the contract to pay trade union rate of wages.

The Guardians do not bind themselves to accept the lowest or any Tender.

S. A. LEWIS,
Clerk.

Guardians' Offices,
Barnes street, Stepney, E.
January 5th, 1899.

WIMBLEDON URBAN DISTRICT COUNCIL.

TO BUILDERS.

The Council hereby invite TENDERS for the ERECTION of an ISOLATION HOSPITAL, to include Three Wards Blocks, Administrative Block, Cottage, Receiving and Discharging Block, Laundry and Disinfecting Station, and Mortuary, on site off Gap-road, Wimbledon.

Bills of quantities, with form of Tender, can be obtained on payment of £5 5s; (which will be returned on receipt of a bona-fide Tender) from C. H. COOPER, A.M.I.C.E., Surveyor to the Council, at the Council Offices, Broadway, Wimbledon, where plans and specification may be inspected.

The Council do not bind themselves to accept the lowest or any Tender.

The contractor whose Tender is accepted shall enter into a formal agreement, under seal, with sufficient sureties, for the due fulfilment of this contract.

Sealed Tenders, addressed to me, and endorsed "Tender for Isolation Hospital," to be delivered at the Offices of the Council, Wimbledon, by NOON on MONDAY, FEBRUARY 13th, 1899.

By order,

W. H. WHITFIELD,

Clerk to the Council.

January 6th, 1899.

TOTTENHAM URBAN DISTRICT COUNCIL.

REFUSE DESTRUCTORS.

The Council invite the submission of DESIGNS for a REFUSE DESTRUCTOR, to be erected within their district.

Three premiums of £25, £15, and £10, will be awarded for the three best Designs, in order of merit. Designs to be sent not later than TWELVE o'clock noon on TUESDAY, FEBRUARY 7th, 1899.

Particulars and plans of sites may be obtained on application to Mr. P. E. MURPHY, Engineer to the Council, at their Offices, Coombes Croft House, 712, High-road, Tottenham, any day during office hours.

By order,

E. CROWNE,

Clerk of the Council.

Offices, 712, High-road, Tottenham,
January 13th, 1899.

TO BUILDERS.

The Commissioners of H.M. Works and Public Buildings are prepared to receive TENDERS for the ERECTION of NEW GOVERNMENT OFFICES in Manchester.

Drawings, specification, and a copy of the conditions

and form of contract may be seen on and after the 16th instant on application to the Registrar, Probate Registry, Manchester.

Bills of quantities have been prepared for the use of Builders by Messrs. J. S. LEE & SON, of 35, Craven-street, London, and, together with forms of Tender, may be obtained at the undermentioned Office on payment of One Guinea.

The sums so paid will be returned to those persons who send in Tenders in conformity with the conditions specified below.

The Commissioners do not hold themselves responsible for the accuracy of the quantities, nor do they bind themselves to accept the lowest or any Tender.

Tenders are to be delivered before TWELVE o'clock noon on MONDAY, the 30th inst. addressed to the Secretary, H.M. Office of Works, &c., Storey's Gate, London, S.W. and endorsed "Tender for Government Offices, Manchester."

REGINALD B. BRETT,

Secretary.

H.M. Office of Works, &c.

January 12th, 1899.

LITTLE ILFORD SCHOOL BOARD.

The School Board for Little Ilford, Manor Park E., invites TENDERS for the ERECTION of SCHOOL BUILDINGS, OUTBUILDINGS, CARETAKER'S COTTAGE, &c., proposed to be erected in the Bess borough-road, Little Ilford.

Plans and specifications may be inspected at the office of the Architect, Mr. S. JACKSON, 65, Fenchurch-street, E.C., after JANUARY 12th, 1899.

Application for bills of quantities, prepared by Mr. Walter Lawrance, 30, Hart-street, Bloomsbury, W.C. to be made to the Architect at the above address on or after JANUARY 12th, accompanied by a £5 Bank of England note, which will be returned on receipt of a bona-fide Tender.

All Tenders must be delivered at the Clerk's Office on or before JANUARY 25th, in the official envelope provided.

The person whose Tender is accepted will be required to enter into a bond with two sureties for the due performance of the contract.

The Board does not bind itself to accept the lowest or any Tender.

JNO. S. APPLETON,

Clerk to the Board.

769, Romford road,
Manor Park, E.

234.—WASH-OUT.



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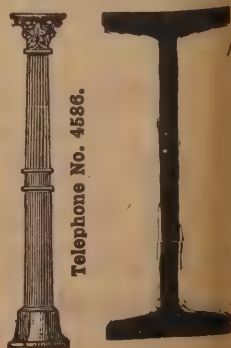
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THE EVOLUTION OF THE ARCH.

BY CHARLES W. TOMLINSON.

FEW great inventions have sprung into full perfection at one bound, most of them having gone through a long and tedious process of development or evolution. So with the arch. It is hardly probable that the mind of any single man could, if he had only been accustomed to a trabeated style of construction, conceive the idea of spanning an opening by a number of small blocks of material, maintaining their equilibrium by mutual support.

It is a very common opinion that the Egyptians did not know of the arch, but Sir Gardner Wilkinson—who should certainly speak with authority on the subject—mentions several instances of tombs being vaulted with bricks; for instance, one of Amenoph I. at Thebes, about 1540 B.C.

Fergusson says that it is probable that the Egyptians knew of the arch, but would not employ it, as it would introduce an element of complexity into their otherwise simple designs. He also says that in the present day, the Mahometans in India use the arch a great deal. Yet, in the same country, the Hindoos will not employ it on any consideration, having a proverb "An arch never sleeps," meaning

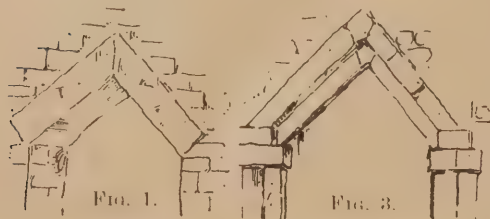


FIG. 1.

FIG. 3.

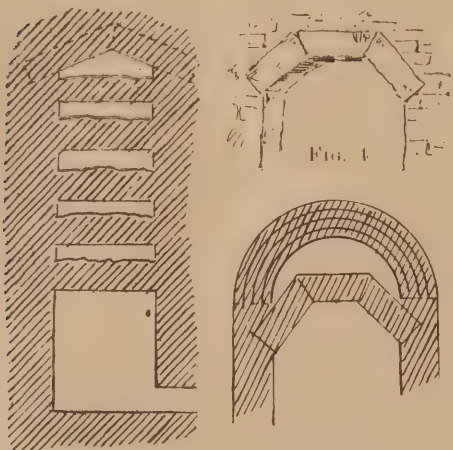


FIG. 2

FIG. 5

that its constant and never ceasing thrust is always tending to pull the building to pieces.

One may imagine the arch to have originated in this wise: The builder, having an opening to bridge, and finding none of his stones long enough for a lintel, conceived the idea of putting two of them at a slope, resting against one another in the centre (Fig. 1), as was actually done in the uppermost portion of the King's chamber in the Great Pyramid (Fig. 2). As long as their bases were prevented from sliding the stones could not fall, and, needless to say, with the whole mass of the Pyramids behind them, there would be no fear of this catastrophe occurring. Instances of the same form of arch may be seen in our own country at Barnack, Northamptonshire (Fig. 3). The next step would be to make the two stones into three, as shown in Fig. 4. An example of this occurs in a tomb near the Pyramids at Gizeh (Fig. 5), in which we have the primitive form of arch below, but with a regular arch of four courses above. The three stones of the arch then would soon develop into five, and the rest would be simple until the correct semicircular arch was fully developed.



FIG. 6

This is one line along which the arch may have been evolved. But a parallel line runs near along which the arch may have been completed, but which terminates in the pointed arch.

Imagine an opening, bridged by the courses, being corbelled out gradually until one moderate-sized stone could act as a lintel (Fig. 6). As an actual example, see the section of the grand gallery in the great Pyramid (Fig. 7). The next step would be to knock off the angles of the corbels until an arch was obtained as at Missolonghi (Fig. 8, from Dodwell's "Greece"). Another step and the angles would be struck off to a curve (Fig. 9, from Dodwell) as at Thoricus, but still with the joints horizontal. It is, not a great step then to radiate the joints, and the correct pointed arch is obtained.

These are but speculations, but that they are probably sound seems borne out by the actual examples. Anyhow, we do know this, that no examples of the arch occur in Grecian Architecture, whether its existence was known or not. The Romans were the first to use it to any great extent, and they even carried it further, inventing the dome, though the dome is ante-dated in the treasury of Atreus at Mycenae, which gives, indeed, a primitive form of the dome, though the joints are horizontal. The Romans did not use the pointed arch, but it would be going a great length to say that they were not aware of its existence. The first instances of its use occur in Provence in the eleventh century.

How was it evolved? On the lines already suggested? Or was it an accident, or thought out by some master builder with a master mind? A legend used to be told about the intersecting branches of trees over a woodland walk giving the idea, and again, the accident of the intersections of a double arcade suggesting the notion. Or, further, some architect builder, wishing to make his nave arcade higher and more imposing, may have sat down, and with much thinking solved the problem by using two centres, and striking his curves till they met.

Once the pointed arch was invented, the rest would be easy; the horseshoe, the trefoiled arch, the three-centred, the four-centred, and the oggee, would all soon be successfully experimented with. In fact, the arch seems to have been continually developing, as the flat arch is comparatively a modern idea, while the skew or oblique arch belongs to even more recent times.

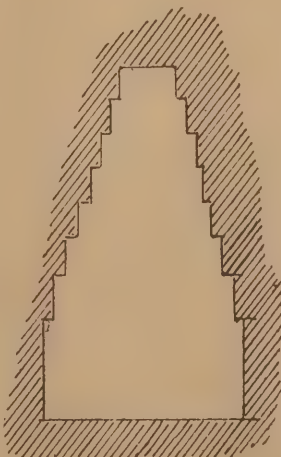


FIG. 7.

BYE-LAWS RELATING TO NEW STREETS AND BUILDINGS.

BY J. S. PICKERING, A.M.I.C.E.

IT is proposed in this paper to refer more particularly to bye-laws made in England under the provisions of the Public Health Acts rather than to bye-laws made under local Acts, but the remarks made will apply in some measure to bye-laws with reference to sanitary matters in general.

The Public Health Act, 1875, empowers sanitary authorities to make bye-laws with respect to new streets and buildings, and repeals previous Acts under which such bye-laws were made. But it provides that bye-laws made under these repealed Acts are to be deemed bye-laws under the Act of 1875 if not inconsistent with the provisions of such Act.

In 1877 the Local Government Board drew up a "Model" series of bye-laws for the guidance of local authorities. These have been somewhat amended from time to time, and have been framed with great care, and under the best legal advice. What is also of the utmost



FIG. 8

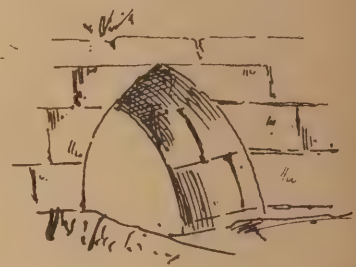


FIG. 9

importance, their provisions are considered to be in accordance with the statutory enactments by which they are authorised. But, notwithstanding these conditions, the "Model" bye-laws have not been received with general approval.

It is true that bye-laws made since the passing of the 1875 Act generally adhere closely—and in the greater number of cases almost word for word—to the "Model" series; but this is not so much on account of their general suitability to the districts for which they are adopted, as to the fact that the Local Government Board will not sanction any important departure from their "Model" code. The result is that many authorities do not possess any bye-laws at all, others depend upon bye-laws of doubtful validity made under former Sanitary Acts, while the great majority do not enforce the particular bye-laws they have been compelled to include in adopting the "Model" series.

It is somewhat astonishing that this state of affairs should be allowed to continue with the extension of local government which has taken place in the country, and when there is a general desire on the part of local authorities to carry out the provisions of the Sanitary Acts.

The varying circumstances of different

districts make it impossible to frame a series of bye-laws applicable to all. Bye-laws, for instance, affecting new streets and buildings in large towns would be altogether unsuited to the requirements of say the villages of rural districts. But obvious as this is, it is a matter which is overlooked, and accounts for the absence of bye-laws in many Rural Sanitary Districts.

Section 157 of the Public Health Act, 1875, provides that every Urban Authority may make bye-laws with respect to the following matters; the level, width, and construction of new streets, and the provision for the sewerage thereof; the structure of walls, foundations, roofs and chimneys of new buildings for securing stability, and the prevention of fires, and for the purposes of health; the sufficiency of the space about buildings to secure a free circulation of air, the ventilation and drainage of buildings, and the closing of buildings unfit for habitation.

Surely these provisions are of sufficient importance to make their adoption imperative. Possibly twenty-three years ago, when the Act came into force, it would not have been desirable to make the adoption of bye-laws compulsory, but considering the advance of sanitary science since 1875 and the general determination of the community to live in greater comfort, and consequently under healthier conditions, there now appears to be no valid reason against the adoption of proper bye-laws in every sanitary area. It is evident that the Legislature do not accept this view, or they would not continue to make the adoption of important sanitary measures permissive on the part of local authorities.

The Public Health Acts Amendment Act, 1890, contains many important provisions affecting the health of the community, but they cannot be put into force without months of delay in complying with the wearisome details provided for in the adoption of the Act. Section 23 of this Act gives to sanitary authorities increased powers as to making bye-laws affecting new streets and buildings. Under this section a bye-law may be made with reference to the height of bedrooms and other rooms used for human habitation. It seems almost incredible that, until the passing of the 1890 Act, sanitary authorities had no control over the height of such rooms, although many authorities possessed a bye-law fixing their minimum height. This was one of many bye-laws inconsistent with the provisions of the Public Health Act, 1875, and therefore *ultra vires*, but it has been carried out as though it possessed full legal force.

In many of the larger towns bye-laws made under the Public Health Act, 1848, the Local Government Act, 1858, and other Acts repealed by the Public Health Act, 1875, have not been amended, though repugnant to the laws of the country, and the authorities possessing them prefer to retain these, trusting to their legality not being questioned, rather than adopt the more modern bye-laws as sanctioned by the Local Government Board. This position on the part of local authorities should scarcely be possible; in any case it should not be a necessary position to take up in order to secure bye-laws adapted for the health and convenience of a district, for it must not be overlooked that many of these ancient bye-laws, as in the case of the one referred to, are eminently desirable, whatever may be said of their validity from a legal point of view.

Bye-laws made under Acts previous to the Public Health Act, 1875, are, as a rule, so conveniently elastic that this is another reason given for their retention in preference to the rigid bye-laws of the present day. The following are specimens of the bye-laws in force in a town with a population of upwards of 130,000:—

"The walls of every new building shall be constructed of such thickness as shall be approved by the said Council."

"The owner or occupier of every house shall provide proper ventilation in the drainage thereof by means of the rain-water pipe from the roof of the house, or by such other method as the said Council shall direct."

These are a striking contrast to the detailed

bye-laws referring to the thickness of walls and the ventilation of drains in the "Model" series, and yet they are only examples of similar bye-laws in force in numerous large towns.

Another convenient old bye-law is one giving the authority discretionary power with respect to the enforcement of air space at the rear of buildings. The Local Government Board will not now sanction a new bye-law which provides for this discretionary power. But most sanitary authorities, nevertheless, do not hesitate to exercise their discretion when an occasion arises, such for instance as in the pulling down and re-erection of a building where the provision of the bye-law cannot be adhered to without considerable sacrifice of property. It may of course be contended that the air space is necessary for the health of the occupants of a dwelling wherever the building is situated, and more especially in a populous district where property as a rule is the most valuable. But an authority has often either to allow a building to be re-erected (and possibly improved from a sanitary point of view) without the requisite air space, or submit to it being altered in such a way that it will not come within the scope of the bye-laws as a new building. Discretion in a case of this description seems desirable, but it must be admitted that any general admission of discretionary power in the bye-laws would probably result in frequent acts of indiscretion on the part of some authorities.

Bye-laws of the "Model" series relating to the thickness of walls are seldom carried out in their entirety, especially where they have been adopted in the smaller towns and rural districts, where there is often a feeling that their enforcement may prejudicially affect the desirable growth of the district. So far as bye-laws can be prepared to meet the varying conditions affecting the thickness of the walls of a building, the "Model" bye-laws do not appear to leave much to be desired. Possibly the thickness prescribed for the walls of small houses up to three storeys might be somewhat modified to meet the objections usually raised against them in the smaller districts; but there will always be a difference of opinion as to what should be regarded as the reasonable and necessary strength of a building, and much will, of course, depend upon the quality of the material and workmanship.

As the powers and privileges to make (and necessarily to enforce) bye-laws under the Sanitary Acts have not been so fully appreciated as the framers of the Acts must have anticipated, it is a question as to the proper course to be adopted to bring about a better state of things. That it is desirable for all sanitary authorities to have proper bye-laws affecting new streets and buildings there can be no doubt. However seldom it may be necessary to bring such bye-laws into operation, they will be of service at some time or other, even in the most sparsely populated districts. If then suitable bye-laws are essential in rural districts, how much more important that populous towns should possess bye-laws framed with the highest possible considerations for health and convenience. This in the author's opinion will only be brought about by the adoption of bye-laws being made compulsory, and a greater latitude being given to sanitary authorities to frame bye-laws adapted to their own particular districts.

But the possession and value of bye-laws will be of little effect if the necessary means are not adopted for enforcing them. Even in districts where there is an apparent desire to see the bye-laws strictly carried out, the surveyor's staff is generally so inadequate that the necessary amount of supervision cannot be given. In the author's opinion no new house should be occupied without a certificate from the surveyor that it has been erected in accordance with the bye-laws, and is fit for human habitation. But it would be manifestly unfair to expect a surveyor to give such certificate unless he had satisfied himself by systematic and regular supervision on the part of a competent staff during building operations that such certificate was justified. Then again, such a certificate could not be given

where the bye-laws were not enforced. In some of the older bye-laws this certificate is required to be given, but it is not probable that a bye-law would now be sanctioned to this effect. Indeed, it would scarcely be desirable until the necessity for a better supervision of new buildings is recognised by sanitary authorities.

It appears to the author that many provisions contained in bye-laws might with advantage be incorporated in the Sanitary Acts, making them statutory enactments rather than measures to be adopted at the option of local authorities. It also seems desirable that bye-laws should be made less comprehensive, many matters of detail now included being made the subject of regulations varying according to the requirements of each particular district. Under these conditions a general series of bye-laws more acceptable than the present "Model" series could probably be framed, and sanitary authorities would be able to include in their regulations many important matters which would make bye-laws cumbersome and unnecessarily lengthy. In the case of new streets, for instance, the bye-laws might very properly lay down the requirements as to widths under various conditions, but the actual method of construction would be better dealt with in detailed regulations, forming a practical specification of the requirements. Then again, matters connected with the drainage of a building could be more conveniently and in greater detail be referred to in regulations. It would add to the value of such regulations to accompany them with a complete set of descriptive drawings.

Many authorities supplement their bye-laws with regulations as to drainage and other matters, but as these are not confirmed by the Local Government Board, and very frequently contain conditions which could not be legally enforced, they cannot be said to be wholly satisfactory.

In any revision of the "Model" bye-laws and the Acts under which they are framed, the author is of opinion that the Incorporated Association of Municipal and County Engineers might afford most valuable assistance. Throughout the Sanitary Acts and the "Model" series of bye-laws there are many technical defects which the municipal surveyor could very readily rectify, and thus put an end to much unnecessary litigation. The Local Government Board in 1877 acknowledged the assistance rendered by the Royal Institute of British Architects in framing the bye-laws dealing with new streets and buildings, and they would, no doubt, equally value the help of a professional body whose members must by their every-day experience possess a most intimate knowledge of the subject.

It is to be hoped that the time is not far distant when every sanitary authority in the country will be in possession of bye-laws which it will be deemed a duty to carry out in the interests of the health of the community.

THE Board of Trade has authorised the construction of a light railway from Porthywaen, in the county of Salop, to Llangynog, in the county of Montgomery.

New boilers and mains have recently been put down at the York Street Gasworks, Leeds. The two new boilers, which are of the Lancashire type, are 25ft. long and 7ft. in diameter, and work at a pressure of 100lb. to the square inch. The new mains are of 24in. as compared with 18in., the size of the old ones. An iron tank has been erected over the boiler house. It is about 35ft. long, 20ft. broad, and 6ft. deep.

A BILL to authorise the construction of railways in the counties of Cardigan, Montgomery, and Radnor, has been deposited for next Session, under the title of the East and West Wales Railway. By this scheme, it is proposed to incorporate a new company for the purpose of constructing a railway nearly 48 miles in length, commencing in the parish of Llanilar by a junction with the Manchester and Milford Railway, and terminating at New Radnor by a junction with the New Radnor extension of the Kington and Eardisley Railway.

MEASURING STANDING TIMBER.

AS most persons are aware, it is decidedly difficult to the unpractised eye to correctly estimate the contents of trees when standing. By careful practice, however, the eye can be trained to estimate distance and size with considerable accuracy, and many men after proper study and training are able to arrive at the dimensions of standing timber with great facility and correctness. The height of a tree can be measured in a variety of ways, but simplicity and ease are the great desiderata.

In employing an optical instrument of any kind for measuring, the operator must place himself on a level with the base of the object to be measured. In using the apomecometer or hypsometer this is not always easily done, as the observer has to be at a distance from the object equal to the height to be measured, but with a sextant the case is different, and the attainment of a proper position is less difficult. If the index of the sextant is set at 45deg., then it is used in the same way as the apomecometer or hypsometer (with which it is presumed most readers are familiar) at a distance from the object equal to the observer's height, but with the index set at 36deg. 30min. the distance of the operator from the base would be just half the height of the object, and a position on a level with the object would be more easily obtained.

To practise with this instrument, begin by measuring a tree; put a mark on the tree at the height of your eye above ground. A knife, nail, or bradawl stuck in the bark through a piece of white paper is a good mark. Then if the ground be pretty level, set the index of the sextant at 45 deg., and walk backwards in the plane of the tree until the part of the tree, the height of which you wish to ascertain, is shown in the glasses of the instrument as level with the mark stuck in the tree; the product is the height required. Should the surface of the ground be very irregular, or brushwood or other obstacles obstruct a sight at 45 deg., set the index to 63 deg. 30 min., perform the operation as already described, but double your distance from the tree, and add thereto the height of the eye or mark for the required height of the object. To use the sextant for this purpose, set the index to the necessary angle, take the bottom of the instrument in the right hand, hold it in a vertical position, with the index facing to the left, look through the eyehole and unsilvered part of the object glass at the mark on the tree, and move backward or forward until the point, of which the height is to be ascertained, is reflected from the index glass to the silvered part of the object glass, and appears exactly on a level with the mark on the tree; then, according to the angle at which the instrument has been set, calculate the height.

After a little of this practice, the eye becomes trained to estimate the quarter girth of a standing tree with considerable accuracy. A good method of practice is to watch the felling of trees. Estimate by the eye the dimensions of a tree while standing, and then measure for proof when the tree is on the ground, comparing the actual dimensions with those of the estimate. It is also advisable to practise comparisons of girth by girthing the tree as high as you can reach conveniently, say 5ft. from the ground, and accustoming the eye to estimate the difference between that girth and the size of the tree at any other part of its height. This method of comparison is very useful for confirming previous guess estimates, but for nothing else.

When estimating the contents of standing trees, the quantity of measurable timber in the tops should also always be taken into account. Oak tops are sometimes of considerable value, and when the calculation includes their measurable contents, the probable yield of bark can be pretty accurately foretold. Hedgerow trees having heads large in proportion to the size of bole will not yield so much bark per cubic foot of timber as trees grown in clumps; and the difference may vary from 1½lb. to 2lb. per cubic foot. W. N. B.

Surveying and Sanitary Notes.

THE Guildford Corporation has been fined £5 for polluting the River Wey by the discharge of sewage. The Thames Conservancy Board were the prosecutors.

THE Tramway Committee of the Glasgow Corporation have approved of an agreement between the Corporation and the Renfrew County authorities for the erection of a new bridge over the Cart at the village of Cathcart. The bridge is to be 50ft. wide, and to cost £8000.

SIR REDVERS BULLER has given orders for the quartermasters of regiments at Aldershot to attend a course of lectures on sanitation and the prevention of disease in barracks during the present and next month at the Training School of the Royal Army Medical Corps.

THE Corporation of Blackpool have applied to the Local Government Board for permission to borrow £6132 for works of street improvement. The proposed improvements consist in paving the two main thoroughfares of the town—Church Street and Talbot Road—with hard wood.

THE Upper Stour Valley Drainage Board have on hand a scheme for extending the main sewers and making increased provision for sewage disposal. Application has been made to the Local Government Board for permission to borrow the £16,785 which the proposed improvements will cost.

At a special meeting of the Warrington Town Council a resolution was passed approving the promotion of a Bill in the next session of Parliament for the construction of additional waterworks and the improvement of the Borough of Warrington in various ways. To carry out all the proposed improvements will involve an expenditure of £418,000.

MR. SANG, civil engineer, Kirkcaldy, has completed his plans and drawings for the proposed new road and viaduct to be made to connect Kirkcaldy and Pathhead. There is a difference of opinion in the Town Council as to the cost of the undertaking, some averring that £20,000 would be expended; but the Council sanctioned the scheme on the understanding that it was not to exceed £14,000.

A MEMORIAL has been deposited in Parliament against the London County Council's Water Bill. It bears the signatures of over 100 persons who are interested in the property which is proposed to be taken for the Yrfou and Wye Valley reservoirs. It is anticipated that the contest before the examiners will last at least a fortnight, and will necessitate the bringing up of a considerable number of witnesses from Wales.

A REPORT by Mr. Young, general manager, has been submitted to the Tramways Committee of the Glasgow Corporation with reference to the operating of the electric cars on the Springburn route. The report says that the overhead system has been in operation for a period of ten weeks. It is still rather soon to give a definite figure as to the amount of the working expenses under electric traction, as the condensing plant has not yet been in operation; but, after including a fair sum for maintenance and renewals, it may be taken that the total working expenses will not exceed 6½d. per car per mile. The average working expenses under horse traction may be taken at 8½d. per car per mile, although during the last financial year the amount worked out at slightly under that figure.

THE Paisley Water Commissioners, who have been investigating the alleged pollution of streams at Stanely, have come to the conclusion that while it did not appear that any pollution was yet taking place, such might

occur, and the conduit at Nethercraigs should be safeguarded from such a possibility. A 7ft. wall is about to be erected at the part of the conduit where it was feared pollution might take place, and this is expected to effectually prevent any such occurrence. The Commissioners have also decided to submit samples of the water to chemical analysis.

AN alarming accident occurred last week at the Nutclough Fustian Society's works, Hebden Bridge. In order to meet the wishes of the West Riding County Council, the firm had constructed two huge brick tanks for the purpose of filtering the dye-water before it is turned into the river. One of them, measuring 28ft. by 19ft., had been filled with dye-water to the depth of 10ft., and a strong current of steam turned into it, when the outer wall, running alongside the river, was bodily forced out, and carried almost across the river bed. Happily no one was injured. The damage is estimated at £120.

At a dinner to the members of the Elland District Council, the Chairman, Mr. J. F. Crossland, referred to the various improvement schemes which were on hand. The sewage works, he said, were far from being the "white elephant" which they were described. The estimate of the cost was 6½d. in the pound, and the actual cost had been 6¾d. Active steps would be taken to erect the baths during the present year. He believed progress would be made in the direction of introducing electric light. The question whether or no the Halifax Corporation should be asked to extend their tramways to Elland would be shortly decided.

At a meeting of the Rawdon District Council on Tuesday evening, Mr. A. J. Pratt presiding, a letter was read from Mr. A. N. Briggs, a property owner, asking if anything was being done by the Council in opposing the bringing of Bradford sewage to Esholt.—The Chairman said he had informed Mr. Briggs that a town's meeting would probably be called to discuss this matter. Personally, he was against the Bradford Corporation's proposals, but before any expense was incurred by the Council in opposing the scheme the ratepayers should be consulted.—The Council decided that a ratepayer's meeting should be summoned to consider the matter.

WE understand that the Bingley District Council has approved the scheme prepared by Mr. R. Armistead, civil engineer, for the completion of the sewage disposal works at Dowley Gap and the making of the necessary main sewers from the outlying portions of the district, at a total cost of some £23,000. The disposal works are to be laid out for treatment on the biological system, upon which Mr. Armistead reported favourably some months ago when he prepared his draft scheme for the Council, and of which the Leeds and Manchester Corporations have recently expressed strong approval. At the works the sewage will first flow through a grit chamber, 44yds. long by 5ft. wide, where the solid matter will be arrested, provision being made for this to be washed out and discharged upon the low-lying land. From the end of this chamber the sewage will pass into the inlet carrier, and thence into the covered tanks by means of inverted pipes, discharging 3ft. below the water level. Four tanks are to be provided of a capacity equal to 70 per cent. of an estimated daily flow of 1,000,000 gallons. Storm overflows will be conducted on to the low-level land. The sewage is to be discharged from the tanks at a depth of 1ft. 6in. below the water level on to the first or rough set of filters, of which four are provided, covering an area of one acre. After remaining in these for the requisite period, it is passed on to the second and finer sets of filters, of the same number and area as the others, after which it is discharged by a glazed brick carrier into the effluent sewer. In addition to the tanks and filters, there will be ten acres of land filtration, and the scheme is so arranged as to utilise either of the methods of filtration or a combination of both.

Builders' Notes.

So great has been the expansion of the trade of Barrow since the acquisition of the naval construction works by Vickers, Sons, and Maxim, that 1000 additional houses are required for the workmen already employed, and for those who will be employed as soon as the extensions to the shipyard and engineering shops now in progress are completed. Builders in the town cannot keep pace with the demand for houses, and some bolder enterprise will be required soon to keep abreast of the demands of the position.

WE are informed that somewhat serious trouble has arisen in the building trade at Norwich in relation to the use of Broseley tiles, which the bricklayers considered should be laid by them. They have now struck, with the concurrence of the local branch of the Bricklayers' Union, against Mr. T. H. Yelf, contractor, who is building the new Jenny Lind Infirmary in Unthank's Road, and who engaged a firm of builders' merchants to tile the roofs. He has resisted the demands of the bricklayers, and if they do not accept arbitration the Master Builders' Association threaten a lock-out.

THE Nottingham Board of Guardians have accepted the tender of Mr. Frederick Evans, Old Basford, in £158,000, for the erection of a new workhouse at Bagthorpe, subject to the contract being completed in three years. The lowest of the tenders originally sent in was £274,500, which exceeded both the estimates of the Board's advisers, and the expenditure sanctioned by the Local Government Board. Accordingly, the Guardians called in their consulting architect, who suggested modifications of the scheme, whereby, without reducing the accommodation or sacrificing any material feature of the plans, a saving of at least £100,000 would be effected, and it is on this revised basis that the new tender has been accepted.

AN important step has been taken by the operatives in the engineering trade in Birmingham and district, who have adopted new rules embodying a rearrangement of the basis of overtime rates. The workmen claim that, in view of the rates prevailing in other large engineering centres, they are entitled to time and a quarter for the first two hours, and time and a half afterwards, and that, instead of excess being reckoned on a fifty-three hours week, it should be calculated from five each evening. Double time is demanded for Sunday. The Employers' Association has conferred upon the subject, but states that there is no neces-

sity for such alterations. The reply will be submitted to the men, and district members may elect to fight the employers if negotiations fail.

A SUSPENSION cableway, called a "Blondin" railway, has been fixed across the Thames at an altitude of some 70ft. for use in rebuilding the Vauxhall Bridge. Messrs. Pethick, of Plymouth, are the contractors, who are using it in the construction of the bridge, and the method of construction has been to fix a mast some 77ft. high on each side of the river, carrying the cable across with a span of about 930ft. The cable is 6½in. in circumference, with a breaking strain of 150 tons, and a truck suspended from it is capable of bearing a load of four tons. The car can travel at a rate of 400ft. per minute, and can be lowered to any level below the cable line. This cable does away with the extensive staging that would otherwise have had to be erected. Its cost has been £1,750.

THE federated building trades of Newport have notified the masters of their requirements on and after the 1st May next. In October last the Newport Master Builders' Association gave the workmen six months' notice as to certain alterations in the agreement subsisting between them; and now the men, having federated all workers engaged in the building trades, ask for an increased wage as follows:—Carpenters, plasterers, masons, and plumbers 9d. per hour; mason fixers, 9½d.; bricklayers, 8½d.; painters, 8d.; general labourers, 6d.; and scaffolders, drainers, and engine tenders, 6½d. per hour. The federation also demur to working with non-Unionists; hitherto society men and non-society men have worked amicably side by side. The masters require several alterations, some of which are the outcome of the prolonged strike of last spring and summer. The masters demur to the federation being able to call out their members by giving two hours' notice, and wish to obtain an extension of the conciliation idea, by which there shall be no suspension of labour pending the decision of the Conciliation Committee, which is composed jointly of masters and men. They also wish to enforce a schedule that the wages of the average skilled workman shall be 8d. per hour.

THE authorities of the Congo State are pushing forward the various railway schemes that are on foot. A large quantity of railway material for the Mayumbe Railway is now being sent and will be landed at Boma, whence the railway starts in the direction of the Chiloango River. The work is sufficiently advanced to permit of laying the rails immediately they arrive.

Trade and Craft.

MOSES EADON AND SONS.

We are informed that the London office of Messrs. Moses Eadon and Sons, of President Steel Works, Sheffield, formerly located at Bishopsgate House, E.C., has now been removed to 5 and 6, Bishopsgate Street Without, E.C. Messrs. Eadon and Sons are manufacturers of saws; plane, moulding, and tongueing irons; buckles, tillers, cotters, and gibs; cast and rolled steel for all purposes, and various tools.

ABBOTT BROTHERS.

Messrs. Abbott Brothers, Southall, Middlesex, have sixty different embossed wood mouldings regularly in stock. These artistic mouldings for internal decoration are made in walnut, oak, and American white wood, but those in oak only are stocked, the demand being almost exclusively for these; samples can be obtained free from the makers, or a set of samples will be sent for five shillings. Messrs. Abbott Brothers are also inventors and manufacturers of designs in various white wood goods, "Vulcan" pyrographic machines, poker work on glass and wood, &c.

J. DUCKETT AND SONS, LIMITED.

We have received from Messrs. J. Duckett and Sons, Ltd., Burnley, Lancashire, their illustrated catalogue of sanitary specialities. It provides a useful description of this firm's improved forms of slop-water closets, urinals, street gulleys, grease traps, disconnecting traps, &c. Their slop-water closets, which are flushed automatically by slop-water, are deservedly becoming very popular, especially after their sanction by the Local Government Board for outside use, as reported in our issue of September 21st, 1898. The advantages claimed for this closet, as compared with the clean-water closet, are:—That in the severest winter it is not liable to get out of order by freezing up; that there is a great saving of town's water, amounting often to at least three gallons of water per head per day, or probably 15 per cent. of water consumed, which to public bodies is of great importance; that where the slop water from a dwelling is collected and passed through the closet, the flushing of the closet will be on an average about four times per head per day; the house drain is regularly flushed; the cost of maintenance is reduced to a minimum, plumbers' bills being done away with absolutely; the prime cost is less; there is less liability to get out of order through rough usage; and the volume of sewage to be treated is less.

COMPLETE LIST OF CONTRACTS OPEN.

DATE OF DELIVERY.	WORK TO BE EXECUTED.	FOR WHOM.	FROM WHOM FORMS OF TENDER MAY BE OBTAINED.
BUILDINGS—			
Jan. 20	Cwmaman, Aberdare, Wales—Thirty-five Cottages	Cwmneol Building Club	T. Roderick, Architect, Clifton-street, Aberdare.
" 21	Delph, Oldham—Erection of Premises	Industrial Co-operative Society Ltd.	Society's Office, Delph, Oldham.
" 21	Greasborough, near Rotherham—Villa Residence	J. Rawlin	J. Platts, Architect, Old Bank-buildings, Rotherham.
" 21	Leeds—Erection of Shoe Factory		S. E. Smith and J. Tweedale, 12, South-parade, Leeds.
" 21	Whitby—Alterations to Hotel		J. J. Milligan, 77, Baxter-gate, Whitby.
" 21	Dunoon, Scotland—Erection of Police Station		W. Fraser, Architect, Burgh Buildings, Dunoon.
" 23	Kingstown, Ireland—Laying-out Open Space	Commissioners	J. Donnelly, Town Clerk, Town Hall, Kingstown.
" 23	Bury, Lancs.—Supply of Retorts, Firebricks, &c.	Corporation	H. Simmonds, Gas Engineer, Gasworks, Bury.
" 23	Cheltenham—Reservoir Retaining Wall	Corporation	Borough Surveyor, Municipal Offices, Cheltenham.
" 23	Guide Bridge, Lancs.—Refreshment Rooms	Great Central Railway Co.	Engineer, London-road Station, Manchester.
" 23	Hengoed, Wales—Erection of School, &c.	Gelligaer County School Governors	James and Morgan, Charles-street-chambers, Cardiff.
" 23	Newtowncunningham, co. Donegal—Residence	Presbyterian Church Committee	M. A. Robinson, Architect, Richmond-street, Londonderry.
" 23	Rawtenstall, Lancs.—Five Cottages	R. Parker	F. J. Hobson, Architect, King-street, Rawtenstall.
" 24	Leeds—Repairs to Schools (Yearly Contract)	Leeds School Board	W. Packer, Clerk, School Board Offices, Leeds.
" 24	Leeds—Supply of Retorts, &c.	Gas Committee	R. H. Townsley, General Manager, Gasworks, Leeds.
" 24	Croydon—Additions to Laundry, &c.	Union Guardians	F. West, 23, Coombe-road, Croydon.
" 25	Blackpool—Alterations to Station Buildings	Laucs. & Yorks. & L.N.W. Joint Rlys.	Engineer, Hunt's Bank, Manchester.
" 25	Porth, Wales—Hotel Alterations, &c.	T. Davies	A. O. Evans, Architect, Pontypridd.
" 25	Stalybridge—Post Office	Commissioners H.M. Works	Offices, Storey's-gate, Westminster.
" 25	Cranbrook—Boiler House, &c.	Union Guardians	The Master, Workhouse, Cranbrook, Kent.
" 25	London, N.—Pulling-down Buildings, &c.	Islington Vestry	J. P. Barber, Vestry Hall, Upper-street, N.
" 25	Isle-of-Thames—Cottage Home Buildings	Union	L. Grant, High-street, Sittingbourne.
" 25	Little Ilford—School Buildings, &c.	School Board	S. Jackson, 65, Fenchurch-street, E.C.
" 26	Tonbridge—Chimney Shaft at Workhouse	Union Guardians	The Clerk, 23, Church-road, Tonbridge Wells.
" 26	Ratcliffe, E.—Alterations at Workhouse	Stepney Union	R. B. Martin, 103, Plashet-grove, East Ham.
" 26	Leeds—Alterations to Bank Premises, &c.		T. Winn, 92, Albion-street, Leeds.
" 28	Greasborough, near Rotherham—Laying out Burial Ground, &c.	Burial Board	J. Platts, Architect, Old Bank-bldgs., High-st., Rotherham.
" 28	Bakewell—Infirmary, Tramp Wards, &c.	Union Guardians	E. M. Longsdon, Town Hall, Bakewell.
" 28	Wingate—Erection of Shop	Co-operative Society	Secretary, Station Town Co-operative Society, Wingate.
" 30	Manchester—Government Offices	Commissioners of H.M. Works	Offices, Storey's-gate, Westminster.
" 31	Northallerton—Bathroom, and Water supply, &c.	Workhouse Guardians	Fairbank and Son, 13, Lendal, York.
" 31	Ripponden, Yorks—Fireproof Mill	Commercial Co., Ltd.	R. Horsfall and Son, 22a, Commercial-street, Halifax.

COMPLETE LIST OF CONTRACTS OPEN—continued.

DATE OF DELIVERY.	WORK TO BE EXECUTED.	FOR WHOM.	FROM WHOM FORMS OF TENDER MAY BE OBTAINED.
BUILDINGS—Continued.			
Jan. 31	London—Underground Convenience	Camberwell Vestry	Surveyor, Vestry Hall, Peckham-road, S.E.
" 31	Berwick-upon-Tweed—Lock-up and Police Station	Town Council	R. B. Dick, 55, Northumberland-st., Newcastle-upon-Tyne.
" 31	Hellingly, Sussex—Making Bricks	East Sussex County Council	F. J. Wood, County Surveyor, County Hall, Lewes.
Feb. 1	Burton-upon-Trent—Widening Bridge	Corporation	G. T. Lynam, Borough Engineer, Burton-upon-Trent.
" 1	Bootle—Technical School	Corporation	J. H. Farmer, Town Clerk, Bootle.
" 6	Leeds—Alteration to Public Baths, &c.	Baths Committee	W. Hanstock and Son, Architects, Branch-road, Batley.
" 13	Wimbledon—Isolation Hospital	Urban District Council	C. H. Cooper, Council Offices, Broadway, Wimbledon.
" 15	Leeds—Public Offices	Urban District Council	D. G. Macdonald, Council's Surveyor, Windmill-lane, Rugby.
No date.	Bawtry, Yorks—Alterations, &c. to House		J. F. Walsh, Lanes, & Yorkshire Bank-chambers, Halifax.
"	Brampton, near Carlisle—Two Houses		J. S. Thompson, Solicitor, Bank-st, Carlisle.
"	Bridlington Quay—Four Terrace Houses	Whitaker Bros.	Chorley, Connon, and Chorley, 15, Park-row, Leeds.
"	Ermouth—Houses, Shops, &c.	W. J. Sellers and others	P. Kerley, Architect, Exmouth.
"	Felixstowe—Erection of Villa		G. W. Thompson, Granville House, Arundel-street, W.C.
"	Leeds—Two Pairs Semi-detached Houses		Kendall and Bakes, Victoria-square, Leeds.
"	Queenstown, Cork—Alterations to Business Premises	T. Murray	A. Hill, 22, George's-st, Cork.
"	London—Public Baths	Poplar Vestry	Clarkson, 136, High-street, Poplar, E.
ENGINEERING—			
Jan. 20	Barrow-in-Furness—Wiring Free Library	Corporation	Borough Electrical Engineer, Town Hall, Barrow-in-Furness.
" 20	Newmilns, Scotland—Reservoir		P. C. Hart, 32, John Finnie-street, Kilmarnock.
" 20	Farnham—Sewage Cooling Tanks, &c.	United Breweries Ltd.	T. W. Tovey, Secretary to United Breweries Ltd., Farnham.
" 21	Glasgow—Electricity Generating Plant	Corporation	W. A. Chamen, 75, Waterloo-street, Glasgow.
" 23	Belfast—Supply of Cranes, &c.	Harbour Commissioners	G. F. L. Giles, Engineer, Harbour Office, Belfast.
" 23	Neath, Wales—Filters Bed	Corporation	D. M. Jenkins, Engineer, Gwyn Hall, Neath.
" 23	Govan, Scotland—Electric Lighting Plant	Commissioners	W. Arnot, 79, West Regent-street, Glasgow.
" 24	London—Tunnel	London County Council	Engineer's Department, County Hall, Spring-gardens, S.W.
" 24	London—Overhead Traveller	County Council	Engineer's Department, County Hall, Spring-gardens, S.W.
" 24	London, N.—Alterations to Engines	County Council	Engineer's Department, County Hall, Spring-gardens, S.W.
" 25	Fulwood, near Preston—Tramway	Urban District Council	Council's Surveyor, Fulwood.
" 25	Edinburgh—Putting Hoist in Order		H. Morrison, Clerk to Library Committee, Edinburgh.
" 26	London, S.W.—Cattle Wagons	Uganda Railway Committee	Crown Agents for the Colonies, Downing-street, S.W.
" 26	Christiana—Porcelain Telegraph, &c., Insulators	Norwegian State Telegraph Administration	Commercial Department, Foreign Office, S.W.
" 27	Newhaven and Seaford, Sussex—Sea Wall, &c.	Defence Scheme Commissioners	Engineer, L.B. and S.C. Railway, London Bridge, S.E.
" 28	Southampton—Superstructure, &c., of Bridge	County Council	W. J. Taylor, County Surveyor, The Castle, Winchester.
" 28	Cropton, Pickering—Water Supply	Rural District Council	R. Kitching, Clerk, East Gate, Pickering.
" 28	Sheffield—Condensers	United Gaslight Company	F. W. Stevenson, The Engineer, Commercial-st, Sheffield.
" 30	Belfast—Tipping Crane, &c.	Harbour Commissioners	G. F. L. Giles, Engineer, Harbour Office, Belfast.
" 30	Midhurst, Sussex—Reservoir, Mains, &c.	Rural District Council	J. Taylor, Sons, & Santo Crimp, 27, St. George-st, Westminster.
" 31	London—Dynamos, Switchboards, &c.	London County Council	Engineer's Department, County Hall, Spring-gardens, S.W.
" 31	London—Four Gas Engines	County Council	Engineer's Department, County Hall, Spring-gardens, S.W.
" 31	London, E.C.—Ferry Paddle Steamers	Bengal-Nagpur Railway Co. Ltd.	Company's Office, 132, Gresham House, Old Broad-st., E.C.
Feb. 1	Townsville, North Queensland—Supply of Crane	Harbour Board	Chairman, Townsville Harbour Board, Townsville.
" 6	Belfast—Steel Barges	Harbour Commissioners	G. F. L. Giles, Harbour Engineer, Belfast.
" 6	Lowestoft—Electric Lighting Plant	Corporation	W. C. C. Hawtayne, 9, Queen-street-place, E.C.
" 10	Birmingham—5½ miles of Aqueduct	Corporation	J. Mansergh, 5, Victoria-street, S.W.
" 16	Alexandria, Egypt—Two Swing Bridges	Inspector of Irrigation	Inspector of Irrigation, Third Circle, Alexandria.
No date.	Gosforth—Boiler, Engine and Shafting		Clerks, Joint Agricultural Council, County Hall, Wakefield.
IRON AND STEEL—			
Jan. 24	London, N.—Supply of Cast-iron Pipes and Columns	Edmonton Urban District Council	G. E. Eachus, Engineer, Town Hall, Lower Edmonton.
" 25	Bury, Lancs.—Ornamental Railings		Borough Engineer, Bank-street, Bury.
" 25	London, E.C.—Railway Stores	East Indian Railway Company	A. P. Dunstan, Secretary, Nicholas-lane, E.C.
" 25	London, E.C.—Railway Stores	Bombay, Baroda, & Central India Ry. Co.	T. W. Wood, Secretary, 45, Finsbury-circus, E.C.
" 28	Taunton—Iron Fencing	Town Council	Borough Surveyor, Corporation-street, Taunton.
" 28	St. Anne's-on-Sea, Lancs.—Supply of Pipes	Urban District Council	H. Bancroft, 88, Mosley-street, Manchester.
PAINTING AND PLUMBING—			
Feb. 6	Manchester—Painting—(12 Contracts)	Lancashire and Yorkshire Railway Co.	Engineer, Hunt's Bank, Manchester.
ROADS AND CARTAGE—			
Jan. 20	Sutton Coldfield—Street Works	Corporation	W. A. H. Clarry, Town Hall, Sutton Coldfield.
" 21	Banbury—Supply of Hartshill Stone	Town Council	N. H. Dawson, Borough Surveyor, Town Hall, Banbury.
" 21	Brigg, Lincs.—Granite, &c.	Rural District Council	F. C. Hett, Clerk, Brigg.
" 21	Dartmouth—Footpaths	Urban District Council	T. O. Veales, Surveyor, Dartmouth.
" 23	Woodford—Road Works, &c.	Urban District Council	Surveyor's Office, Woodford Green.
" 23	Beckenham—Widening Road	Urban District Council	J. A. Angell, Surveyor, Beckenham.
" 23	Bromsgrove—Street Works	Rural District Council	H. W. Smith, 4, Foregate-street, Worcester.
" 23	Elgin, Scotland—Metal Breaking and Cartage		A. A. Turriff, Burgh Surveyor, Elgin.
" 24	London, S.W.—Various Materials	Chelsea Vestry	T. W. E. Higgins, Surveyor, Town Hall, Chelsea.
" 24	Bargoed, Wales—Road		G. Kenshole, Architect, Ystrad, Mynach.
" 25	Bury, Lancs.—Road Works		Borough Engineer, Bank-street, Bury.
" 25	Hull—Paving Works	North-Eastern Railway Company	T. M. Newell, Engineer, Dock Office, Hull.
" 25	London, N.—Improvement Works	Vestry of St. Mary, Islington	J. P. Barber, Surveyor, Vestry Hall, Upper-street, N.
" 25	Sutton, Surrey—Road Works	Urban District Council	C. C. Smith, Surveyor, Council Offices, Public Hall, Sutton.
" 25	London, N.E.—Thames Ballast and Sand	Hackney Vestry	J. Lovesgrove, Town Hall, Hackney, N.E.
" 30	Huddersfield—Tram Works	Corporation	Borough Engineer, Town Hall, Huddersfield.
" 31	London, S.W.—Works and Materials	Wandsworth Board of Works	Offices, East Hill, Wandsworth, S.W.
Feb. 1	St. Thomas, near Exeter—Road Materials	Rural District Council	J. Bray, Surveyor, Alphington.
" 28	Selby—Asphalte or Tar Macadam	National Schools Managers	Rev. A. G. Tweedale, The Vicarage, Selby.
No date.	Cardiff—Road and Sewer Works		Veall and Sant, Architects, Cardiff.
"	Nelson—Paving, &c.	Sheffield Farm	— Waddington, Solicitor, Burnley.
SANITARY—			
Jan. 21	Withnell—Sewage Works	Urban District Council	T. Beaver, Surveyor, Brinscall, near Withnell.
" 23	Birmingham—Drainage Works	Public Works Committee	J. Price, City Engineer, Council House, Birmingham.
" 23	Pooley Bridge, near Penrith—Construction of Sewers	West Ward Rural District Council	J. P. Shepherd, Clerk, Penrith.
" 23	Shalford, near Guildford—Scavenging	Hambleton Rural District Council	F. Smallpeice, 138, High-street, Guildford.
" 25	Castle Gresley, near Burton-on-Trent—Sewerage Works	Repton Rural District Council	C. F. Chamberlin, Clerk, Union Offices, Burton-on-Trent.
" 25	Plymouth, Devon—Disinfectants	Rural District Council	Medical Officer of Health, Elmleigh, Plymouth.
" 26	Withington, Lancs.—Sewers	Urban District Council	A. H. Mountain, Council's Surveyor, Town Hall, Withington.
" 27	Hartley Wintney, Hants.—Pipe Sewers	Rural District Council	F. L. Wetherall, Clerk to Parish Council, Hartley Wintney.
" 28	Glasgow—Outfall Sewer	Corporation	City Engineer, 64, Cochrane-street, Glasgow.
" 28	Castleton, Derbyshire—Drainage Works	Rural District Council	Sterling & Swann, Engineers, Town Hall, Chapel-en-le-Frith.
" 30	Amphill—Sewerage Works	Urban District Council	T. Hennell, 6, Delahay-street, Westminster.
" 31	Chipping Norton—Drainage Works	Town Council	N. Lailey, 16, Great George-street, Westminster.

COMPETITIONS.

DATE DESIGNS TO BE SENT IN.	DESIGNS REQUIRED.	AMOUNT OF PREMIUM.	BY WHOM ADVERTISED.
Feb. 1	Bradford—Central Fire Brigade Station	£100, £50, £30	City Surveyor.
" 7	Tottenham—Refuse Destructor	£25, £15, £10	Urban District Council, Tottenham.
" 10	Dartford—Three New Schools	£31 10s., £10 10s.	Dartford School Board, Kent.
" 28	Knutsford—Laying-out Cemetery, &c.	£20, £10	W. J. Downes, Surveyor, Urban District Council, Knutsford.
" 28	London, S.W.—Covered Sanitary Dust-cart	£25	Clerk, London County Council, Spring Gardens, S.W.
March 1	Northwich—Dwelling-house on Land Liable to Subsidence	£20, £10, £5	Salt Compensation Board, Northwich.
" 31	Forfar—Isolation Hospital	£31 10s., £21, £15 15s.	Dundee and Forfar District Committees.
April 14	Bradford—Cartwright Memorial Hall and Art Gallery	£150, £100, £50	City Surveyor, Bradford.
No date.	Gosport & Alverstoke—Technical Institute and Library	£100, £25, £10	Urban District Council, Gosport and Alverstoke.

Property and Land Sales.

PERIODICAL SALES.

ESTABLISHED 1843.

MESSRS. H. E. FOSTER & CRANFIELD (successors to Marsh, Miller, and Co.) conduct PERIODICAL SALES of

REVERSIONS (Absolute and Contingent), LIFE INTERESTS AND ANNUITIES, LIFE POLICIES, Shares and Debentures, Mortgage Debts and Bonds, and Kindred Interests,

on the FIRST and THIRD THURSDAYS in each month throughout the year, at the MART, Tokenhouse-yard, E.C. Remaining date for 1898:— December 15th.

The following are the appointments fixed for 1899:—

January 19th	May 18th	September 21st
February 2nd	June 1st	October 5th
February 16th	June 15th	October 19th
March 2nd	July 6th	November 2nd
March 16th	July 20th	November 16th
April 6th	August 3rd	December 7th
April 20th	August 17th	December 21st
May 4th	September 7th	

Offices, 6, Poultry, London, E.C. Telephone No. 999 Bank.

SURREY.—Choice BUILDING ESTATE. —In a charming district, two miles from Horley station (L.B. and S.C. Rly.) under one hour from London and adjoining a village where are church, shops, and post-office; two miles from Roman Catholic Church.

FOR SALE, a compact and valuable FREEHOLD PROPERTY of 53 acres, with a frontage to the main Brighton road of 2000ft., and perfectly ripe for development, with residences of a good class. Prettily timbered. Gas and water mains along the frontage. Would be divided.

Plans and full particulars of the owner's agents, Messrs. GREEN and SIMES, Auctioneers and Estate Agents, Blenheim Mansions, Queen Anne's-gate, London, S.W.; or Mr. W. M. LEACH, Auctioneer and Estate Agent, Crawley, Sussex.

FAIRMILE PARK, near Cobham, Surrey.—A FREEHOLD BUILDING ESTATE of about 40 acres, with possession.

MESSRS. DRIVER and CO. have received instructions to offer to AUCTION at the MART, Tokenhouse-yard, Lothbury, NEXT SPRING (unless previously sold by private contract), the above property, situate in a favourite residential district, about a quarter of an hour's walk from the Oxshott and Fairmile Station, and about a mile and a half from Cobham Station. The estate comprises Building Land, ripe for development, the higher portion (sloping to the south) possessing charming views over the intervening country to Epsom Downs; and a Residence known as "South Lodge," with stabling and garden; Eight small Villas, some Cottages, and the "Griffin" Beerhouse. On a portion of the estate brickearth is being worked, and will be included in the sale as a "going concern."

Particulars and plans, when ready, can be obtained of CHARLES JUPP, Esq., Solicitor, 48, Lime-street, E.C.; and of Messrs. DRIVER and Co., 23, Pall Mall, S.W.

By order of Trustees.—Preliminary Advertisement.—Freehold Building Estate, Streatham, near West Norwood Railway Station.

MESSRS. FIELD and SONS, and Messrs. WOLFORD and WILSHIN, who are jointly concerned, will SELL by AUCTION, at the MART, at an early date, a valuable FREEHOLD BUILDING ESTATE, known as High View Park, comprising 16a. 1r. 10p., lying immediately at the rear of and with approach from Leigham Court-road; also a contiguous Freehold Building Site of 2a. and 5p. in a new road intended to connect Canterbury-grove with Thurlby-road.

Particulars and plan, in due course, of Messrs. KINGSFORD, DORMAN, and Co., Solicitors, 23, Essex-street, Strand; of Messrs. WOLFORD and WILSHIN, Auctioneers, Anerley, S.E.; and of Messrs. FIELD and SONS, as above.

LEA VALLEY, PONDERS END, and BROXBORNE.—Freehold Wharf and Building Land, the latter with possession, some of which has been included in the schedule of the land required by the East London Waterworks Company.

MESSRS. NORTON, TRIST, and GILBERT will SELL by AUCTION, at the MART, Tokenhouse-yard, London, E.C., on TUESDAY, FEBRUARY, 28th, 1899.

LOT 1.—8 acres 0 roods 11 perches of Land, with a frontage of 500ft. to the Lea and Stort Navigation Canal, also bounded on the north and east sides by the stream. This land is situate immediately opposite the Corticine Floor Covering Works, Ponders End, and is a fine site for the erection of a factory requiring waterside accommodation. It is in the occupation of Mr. Ives. This land has been scheduled to be acquired for the New Reservoir for which the East London Waterworks Company are applying for Parliamentary powers.

LOT 2.—14½ Acres of Freehold Building Land, with a frontage of 1080ft. to the road, close to Dobbs Weir, and within one and a half miles of Broxbourne Town and Station, now ripe for building purposes, possession of which can be given on completion of the purchase.

Particulars and conditions of Sale may be obtained from the Senior Official Receiver in Bankruptcy; of Messrs. CLARKE, RAWLINS, and Co., 66, Gresham House, London, E.C.; at the MART; and of the AUCTIONEERS, 70, Queen-street, Cheapside, London, E.C.

To Land Syndicates, Building Societies, Capitalists, and others.

PINNER.—Important Freehold Building Estate of over 47 acres, with residence, known as Barrow Point, occupying a beautiful position close to the quaint old village of Pinner, within five minutes from the railway station on the Metropolitan line, and extending to within about ¾ of a mile of Pinner Station on the London and North-Western Railway, having easy access from the West-end and City. The whole ripe for immediate building operations, and admirably adapted for villa residences of a superior class.

MESSRS. FAREBROTHER, ELLIS, MEGERTON, BREACH, GALSWORTHY, and CO. beg to announce that the above valuable PROPERTY, which they recently offered for Sale by Auction, may now be treated for privately.

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LEYTON.—Valuable FREEHOLD BUILDING LAND, in well-developed and improving neighbourhood, 120ft. frontage to Tyndall-road; depth, 90ft. Choice site for eight medium-sized houses; ready for building operations. Roads sewered and made by Urban District Council. Solicitor, C. G. Hobbs, Esq., Portland-chambers, 93, Great Titchfield-street, W.

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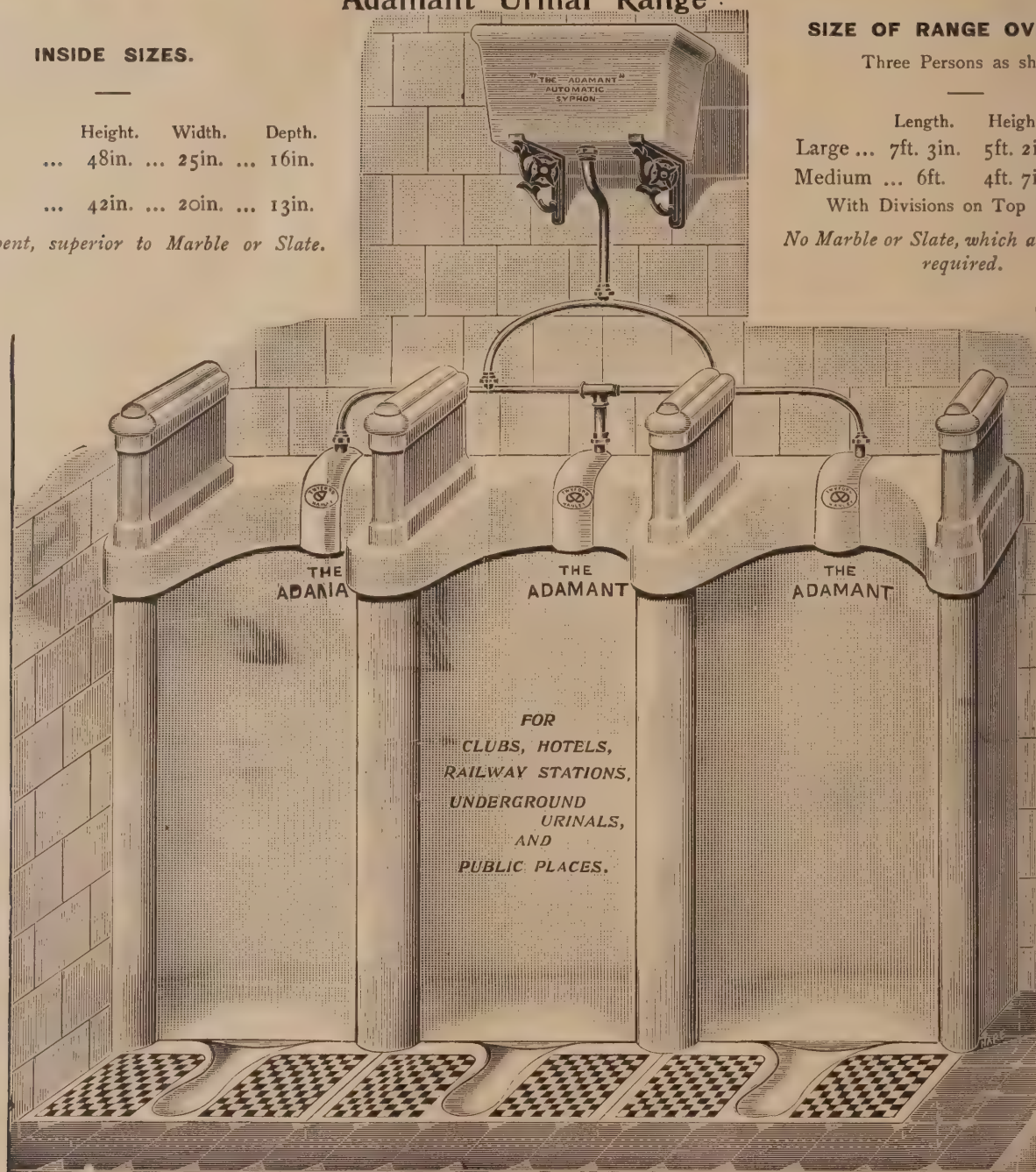
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An Architectural Causerie.

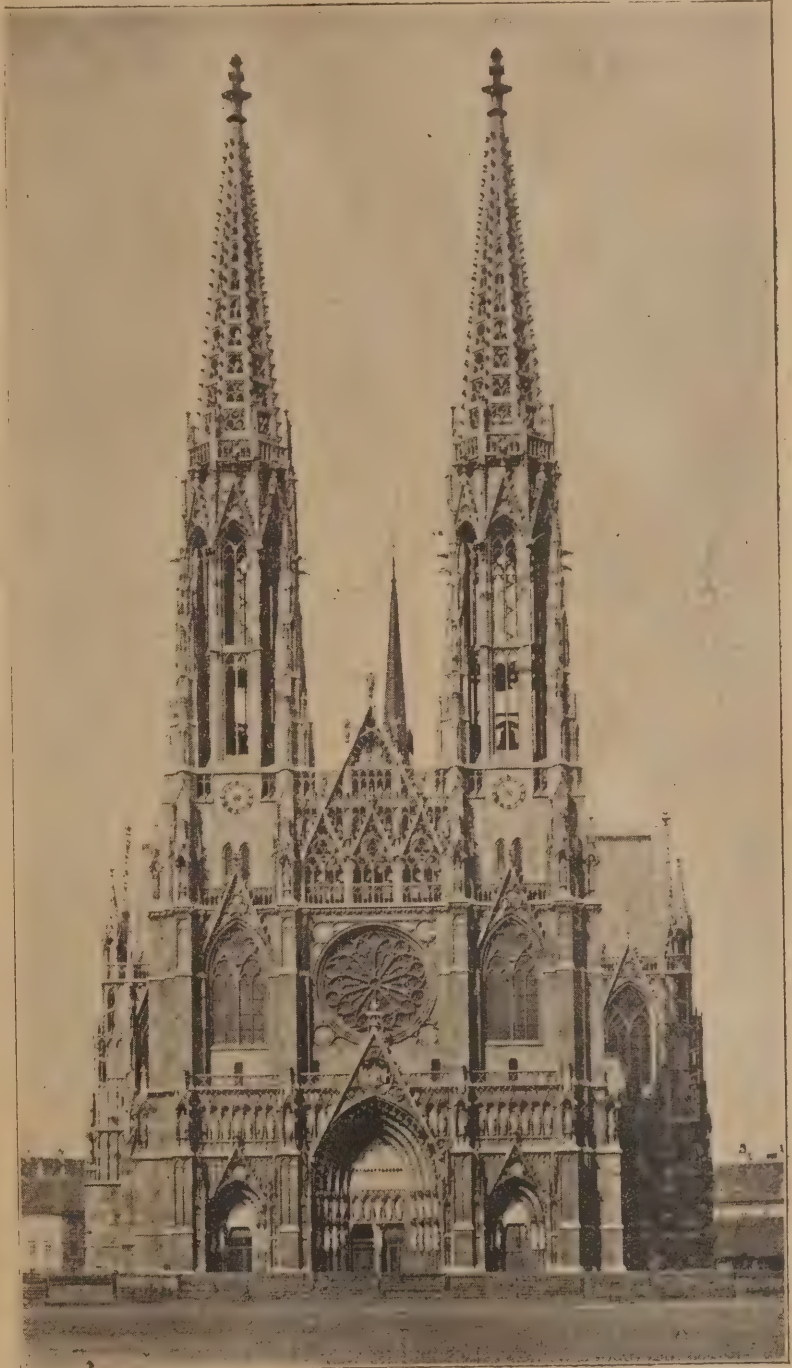
The Architecture of Our Railway Stations.

A DAILY contemporary, in referring to the Marylebone Terminus of the Great Central Railway, now approaching completion, speaks of the buildings as being "pretty," and goes on to say that prettiness is not so much the quality to be looked for in a great terminus as dignity and impressiveness. For a daily paper this is indeed wonderful insight as to matters architectural. We are not used to criticism of so enlightened a kind proceeding from the non-technical Press, and are correspondingly surprised and gratified. When it spoke for "dignity and impressiveness," our contemporary was doubtless referring to Euston and its Doric propylæum, designed and built by Hardwicke for the London and Birmingham Railway (as the London and North-Western was then named), over sixty years ago, at a cost of £50,000. That sombre portal certainly fills both conditions, although, for our own part, we must needs confess that, apart from its architectural merits, it has a depressing influence which it does not seem to be good business on the part of a railway company to encourage. It bears—despite its dignity—too much of the gloom of the mausoleum, to which bourn a railway should not be presumed to lead. Apart, however, from the forbidding character of this grand entrance to Euston Station, it is interesting to note that in the beginnings of railways it was so deeply thought that they should be embellished with Architecture that the huge sum of £50,000 was spent for no directly useful purpose at this one particular spot. The idea was as short-lived as this instance of its working was extravagant, and since that day our railway stations have been built with a single eye to business and the welfare of the shareholders, and have almost without exception, been neither pretty nor dignified. The sole exceptions we can instance are the great Midland terminus at St. Pancras, the impressive interior of York station, and the handsome bays of the Great Western's terminus at Paddington. St. Pancras, with its grand pointed arch of iron and glass, enclosing with one comprehensive sweep the whole of the station, and with its noble Gothic façade by Sir Gilbert Scott fronting the otherwise architecturally sterile neighbourhood of King's Cross, is, of course, the most prominent of these examples, and one which we could well urge the other companies to live up to. Only it is to be feared that St. Pancras was a heroic enterprise which no other railway is either courageous enough or public-spirited enough to emulate. As for stations that are not termini, their case is beyond cure, and to the end of the railway era we shall doubtless have to endure such entirely hideous and uncomfortable stations as those common enough (and more than common enough) in London. Some years ago the enterprising conductor of one of the "snippets" papers started a competition to determine which was the ugliest and most disgraceful station in London. Every Londoner has his pet aversion, but the prime favourite and ulti-

mate prize-winner in this race was Wormwood Scrubbs. You may look vainly for that name now, for the Company concerned with that dismal station has re-christened it "St. Quentin Park." Under that flamboyant title, however, it is still the same old structure, coopered together out of ancient and derelict packing-cases and egg-chests. This is but the foremost example of a numerous type. They manage things better on the Continent, where such stations as the Nord, at Paris, and the fine elevation of that at Frankfort, are but examples of

The Influence of Material on Architecture.*

It is with a certain nervousness that one ventures to discuss this essay. It has received the approval of the Royal Institute of British Architects, both as to its subject matter and its literary style. But as the author has chosen to appeal to a wider circle, this wider circle will doubtless judge him by its own standard. The influence of material on Architecture is a fascinating



THE VOTIVE CHURCH, VIENNA.

numerous instances to set against such crimes as our Charing Cross, Cannon Street, Waterloo, or London Bridge. Some day, perhaps, when we obtain that long-dreamt-of central interchange station for London, which it was proposed by an enthusiastic member of the Institute of Civil Engineers thirty years ago to build somewhere in the neighbourhood of Farringdon Street station, we shall wipe away the reproach, but when that scheme shall emerge from the realms of dreamland none can tell. C. G. H.

theme; to write an essay on it, within given limits, is no light task: there is ample scope for the display of literary ability in selection and compression. The author takes up the position that "Architecture is an affair of material." Quite so! but it is also an affair of climate, and other determining influences. Life, says the philosopher, is the outcome of power and circumstance. So is Architecture.

* "The Influence of Material on Architecture." By Banister F. Fletcher. London: B. T. Batsford.

To form any just estimate, to draw any definite conclusions, we must take into account the whole of the circumstances, and give each one its relative value. The material is but one of the many circumstances that influence the form in which the power embodies itself. Its importance must not be over-rated. Although it is evident that the various styles of Architecture could not have taken the forms they did unless suitable material had been to hand—material capable of being used in the way the artist wished to use it; yet it must not be forgotten that the arrangements were suggested by the physical and mental needs and the spiritual aspirations of the people, and only modified by climate, conditions of labour, and the limits imposed by the nature of available material. In any branch of human endeavour, the human spirit is, after all, the dominating factor. Man may be the creature of circumstance, but he is none the less master of his fate. In circumstances where but one material is to be had with which to build, that he must use, or none at all; but in circumstances where there is a choice—and these are the usual circumstances—he is free to choose, and he has chosen. And again, when he has chosen the material, it is still capable of being used in various ways, dictated by the characteristic genius of the people. It is not to be supposed that the Greeks developed their style, and built as they did, under compulsion of the material. There were other materials in Greece than the marbles of Pentelicos; and, having chosen as they did, they would have treated the material differently had their national genius been other than it was. In the same way the builders of the twelfth century in England did not use small stones because they could not get large ones; they used them because the effects obtainable by their use were in accord with their ideas, and for reasons connected with labour and mechanical appliances. Throughout all the genius of the people was the ruling factor. In treating of the work of the Romans the author seems to recognise this, and points out how the official Architecture of the empire was imposed on the subject races precisely as was the Roman law, and other adjuncts of their civilisation. He shows, also, how the Romans, in adopting the use of concrete, broke up for this purpose stones of all description and of varying characteristic qualities; but he omits to draw the inference that the local materials had little or no influence on the Architecture; and he hardly emphasises sufficiently the fact that the official regulations rode roughshod over the peculiarities and properties of the local materials, and made no more concession to them than the Roman law made to those of the people. Imperial Roman Architecture was not an affair of material, it was an affair of State. In dealing with the Architecture of the Renaissance, the author admits that material had little to do with the matter, and suggests the reflection that it was all the worse for the Architecture. The fact is that in taking up the position that Architecture is an affair of material, it seems that he attempts, as it were, to prove too much, to defend an untenable position; and, as if he unconsciously felt the weakness of this position, he appears to involuntarily shift his ground somewhat into proving that the merit of Architecture varies as the logical treatment of material, which is not exactly the question he set out to discuss. Would not a truer conception of the influence of material have been obtained by considering it more in the light of a limiting influence to man's aspirations? as an influence which keeps the artist's feet firmly planted on solid earth, although his head may be in the clouds and his imagination storming at the gates of heaven? The author's thesis is a half-truth; true enough for an epigram, but not for an essay.

A. R. J.

On Reflection.

The R.I.A. of Ireland.

Council of the Royal Institute of Architects in Ireland, whereby a popular feeling that an infusion of the enterprise and energy of the younger members of the Profession would benefit the general usefulness and welfare of the Institute, has effected the election of four gentlemen from the ranks of the junior practitioners. It has for a long time past been the custom of the Council to nominate its own members who, as a matter of course, have been re-elected year after year somewhat to the detriment of the usefulness of the Institute. The personnel of the Council has thus remained materially unchanged for the last twenty-five years but for the vacancies caused by death among its members. This has induced a somewhat lethargic attitude towards that "Advancement of Architecture" which was the avowed object of its constitution. The Institute meets but once a year, and has done little or nothing to supply the great need that has existed in Dublin for assisting or directing the studies of young architects; and it has been left to the Architectural Association of Ireland to supply the Architectural classes, and provide opportunities for the professional education of would-be architects in the city. Dublin is distinguished by much fine Architecture, dating particularly from the end of the eighteenth century, and has examples of some of Sir William Chambers' best work; and it is a pity that this high standard of taste, which the city exemplifies, should be permitted to decay for lack of proper opportunities for the education of its coming architects. Among the members newly elected to the council of the Institute are the President and two members of the Architectural Association, and we hope that they will be able to arouse in the elder body some such enthusiasm and enterprise as characterises the younger Association.

The Bradford Competition.

THE competition for the Cartwright Memorial Hall and Art Gallery at Bradford promises to be one of the most important and satisfactory of the year. The presidents of the R.A. and the R.I.B.A. who were asked to name an assessor to "assist the Corporation in their selection," nominated Mr. Alfred Waterhouse, R.A. The building is to cost no more than £40,000, and, as is usual, the requirement seems to be on a more magnificent scale than the funds. The "conditions" on the whole, however, are satisfactory. It is stated, with emphasis, that the authors of all designs submitted otherwise than in accordance with the regulations are to be disqualified, and the Corporation reserves the right to withdraw the premium if the tenders for executing the selected designs should amount to a greater sum than £38,000. We notice what we believe to be an innovation in the framing of the clause dealing with the rules by which anonymity is to be preserved. No motto or distinguishing mark is to be attached to the several designs by their authors, but each set is to be forwarded in a case which is also to contain a blank sealed envelope giving the usual particulars of authorship. The drawings and envelopes will be privately marked by the officials when the cases are opened. We do not see what particular end is served by this exceptional precaution to secure anonymity. It will not prevent any possible favouritism on the part of the Corporation, for the character of each design affords a sufficiently distinctive mark for identification; and the mottoes are a great convenience to the competitors, their friends and the

members of the Profession generally, who take a lively interest in the exhibition of the designs, and in the reports thereon.

Tavistock Road (Plymouth) Competition.

WE had occasion some weeks ago to refer to this competition. Though the drawings were sent in on September 24th, the terms of the conditions were of such a nature that the Plymouth Corporation has up to this been unable to secure the services of a reputable architect to act as assessor. Although, as we understand, the post has already been declined by one fellow of the R.I.B.A., we learn that another, Mr. Sidney R. J. Smith, has now stepped into the breach. We have no doubt he will do his best to bring the matter to a satisfactory issue, but it is stated that in Plymouth the dissatisfaction at the conduct of the Corporation has been so strong that the competition has been put under a taboo by local architects. This action indicates a spirit of independence which we are accustomed to look for in vain among architects where a competition is concerned. We hope that Mr. Smith will not be induced to lend himself to any procedure which may discredit the reasonable objections of his brother architects.

Ballintubber Abbey.

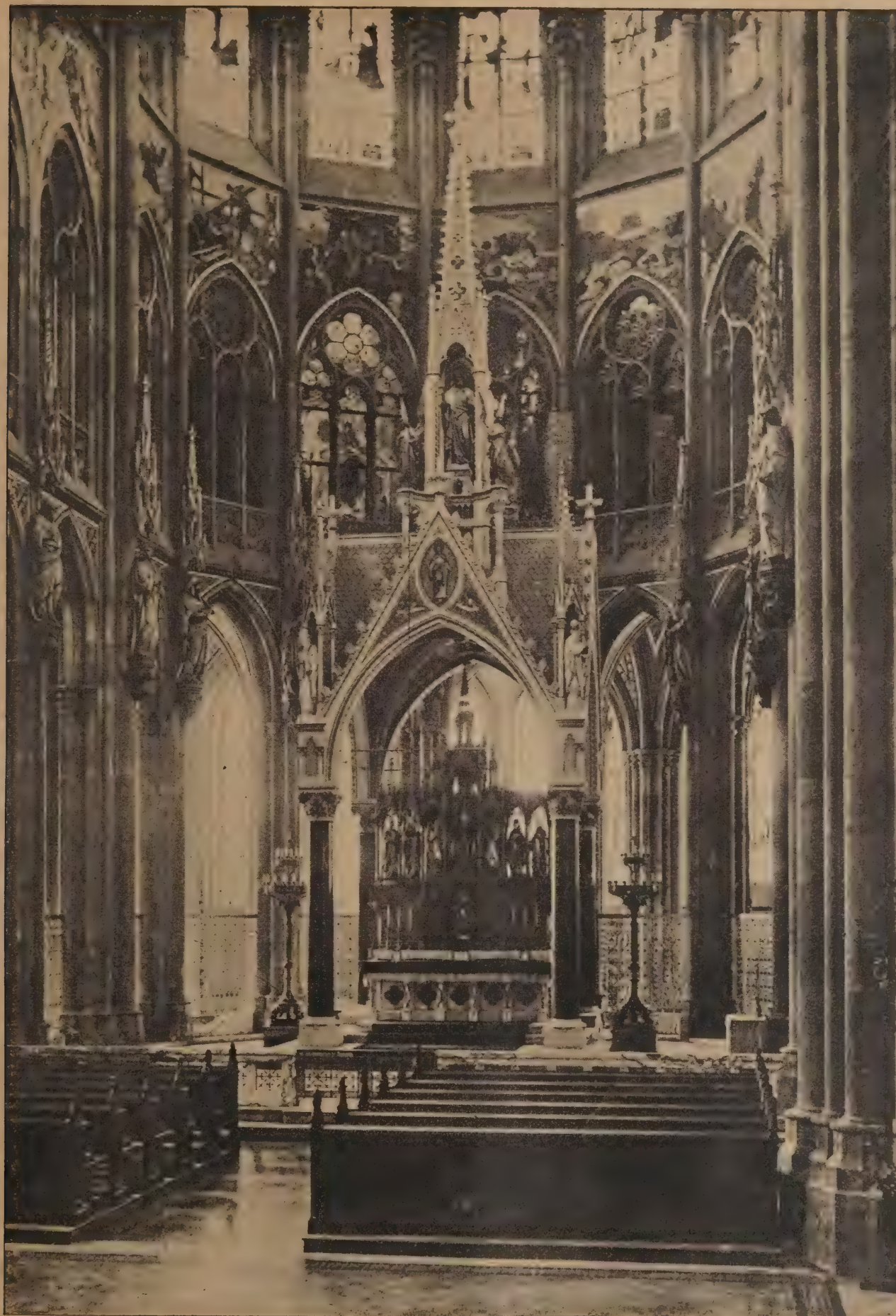
SOME few weeks ago we referred to Clonfert Cathedral which is in course of restoration, and an article which lately appeared in the Morning Post has called our attention to another interesting mediæval ecclesiastic relic in Ireland, which deserves the solicitude of those who are concerned for the protection of ancient buildings. Ballintubber Abbey has a cruciform plan with four side chapels opening from the transepts. Its extreme dimensions north and south are 75ft., and east and west 132ft. The original building dates from 1216, and is in the characteristic Hiberno-Romanesque style which the late Edmund Street sought to reproduce in his restoration of Christ Church Cathedral, Dublin. A fire in 1263 destroyed most of the earlier building, and the entire church has long been a complete ruin. The Morning Post writer tells us that for over 300 years, week after week, the neighbouring Roman Catholics have religiously gone through the celebration of Mass in all weathers, protected only by the four ruined walls of the Abbey church. There have been several attempts at restoration during the present century, and a roof was, ten years ago, built over the chancel and transepts, chiefly designed for the utilitarian purpose of protecting the interior from further decay and the congregations from the stress of weather. An attempt is now being made to secure further and complete restoration by re-roofing the entire church, repairing and glazing the windows, groining the spaces between the great arches of the crossing in stone, and excavating and clearing the ground round the building to its original level. Subscriptions to this end will be received by Miss Fitzgerald Kenny, of Clogher House, Ballyglass, County Mayo.

THE entrance to the lower chamber in the Central Lobby of the Houses of Parliament is at present occupied with scaffolding, a number of workmen being engaged in placing an elaborate mosaic, representing St. David, in the niche over the doorway. The mosaic is to be a companion work to that depicting St. George, over the entrance to the House of Lords, and it is intended to place mosaics representing the patron Saints of Scotland and Ireland in the corresponding spaces over the doorways leading to St. Stephen's Hall and to the Commons' dining-room and committee-rooms. The David mosaic will be in place before the opening of Parliament. The work is in the hands of a foreign firm.

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DOORWAY IN GREAT TITCHFIELD STREET.

LONDON DOORWAYS.

BY RUPERT C. AUSTIN, A.R.I.B.A.

I HAVE often thought that while much is written about old work and its beauties, our modern work is either wholly neglected or else done scant justice to by perspective draughtsmen, whose drawings are completed before the work is built, and so must necessarily be lacking in local charm. It has been my aim to reproduce some of our London doorways which, either in general treatment or detail, call for special remark.

No. 8, Great George Street, S.W., illustrates a typical London residential house, with the usual flight of steps from the street; but there similarity ceases. It is true there is a plain, semicircular, 9in. arch, but within the arch how cleverly the detail is schemed! The door is a stout ten-panelled one, very simply treated. On the right is a small octagonal attached column with base, and cape enriched with echinus which supports a stone lintel decorated with a most delicate ornament evidently based upon the Assyrian wave. The door does not occupy the whole width of the archway, but leaves room between the column and the jamb for a small window protected by a gilded iron grille, which, owing to the effect of the London atmosphere, has toned down to a pleasant colour.

The tympanum is glazed, and subdivided near the top by a wood moulded cornice supported on balusters of the same material, which divide it equally into three parts. The middle one contains an octagonal glazed lantern. The whole of the glass in the tympanum is protected by an iron grille of a

most original pattern, and also gilt. The great charm of this entrance lies in its simplicity, but it should be seen to be thoroughly appreciated. I believe the house was designed by Mr. Leonard Stokes.

The entrance to All Souls Church Home, Great Titchfield Street, is, I believe, an addition. Certainly the doorway differs in a marked degree from the surrounding work, which is plain in the extreme. Here is exactly the opposite of 8, Great George Street, although both doors have fanlights over them. Saturday afternoon presents a lively scene in Great Titchfield Street, with its rows of costers' barrows, the owners of which loudly proclaim the merits of their respective wares; while above the Guardian Angels look down upon the hurrying throng of humanity. It was a stroke of inspiration which conceived such an entrance as this in such a street.

In conclusion, I have only to draw attention to the charming detail in the architrave. Drill holes are used here with great effect to emphasise the shadows in the carving; the remainder of the doorway speaks for itself. Stone is used throughout; the surroundings only are of stock brick. I do not know who designed this work; no doubt some reader can furnish the information.

THE VOTIVE CHURCH IN VIENNA.

BY A. DE BURGH.

AMONG the many great monuments erected during this century to the memory of sovereigns, princes, church-dignitaries, statesmen, soldiers, poets and authors, painters and composers, philanthropists or other great and renowned men and women, or to commemorate important events, there is little doubt the finest and most costly is that perfection of a Gothic building in Vienna, the Votive Church, built by popular subscription as a token of gratitude for the escape of the Emperor Francis Joseph of Austria from the assassin's knife on the 18th of February, 1853.

A short history of the attempt upon the life of the sovereign will be the more interesting in view of the tragic fate of the Empress and the fact that the venerable monarch himself has lately celebrated his jubilee. This was the sole attempt during his long reign. Accompanied only by one of his equeuries (a gentleman of Irish descent, Count O'Donnell), the young Emperor, wearing a General's uniform, was taking one morning a promenade on the esplanade, formed by the flat top of the then existing city walls, which have since been razed to the ground. He was suddenly attacked by a man, who, raising a knife, thrust it into the Emperor's neck from behind, while he was looking down over the wall. The buillion lace of the uniform collar broke the force of the stab, and Count O'Donnell and a private citizen, who happened to pass by, overpowered the fanatical would-be regicide, the Count sucking the wound to prevent any possible poison on the dagger from taking effect. The Monarch returned to the Imperial Castle in a carriage which was at once procured. The wound, though deep and painful, did not prove fatal, and indescribable was the joy and thankfulness of the Austrians over the escape (which was indeed a narrow one) of their beloved youthful sovereign.

The Archduke Ferdinand Max, afterwards Emperor of Mexico, a younger brother of Francis Joseph, took the initiative for

the erection of some suitable memorial which should for ever commemorate the gratitude of the people; and after many consultations with prominent men in all stations of life it was decided to build a church. Nearly £120,000 were collected upon the first issue of an appeal for funds, and architects throughout the world were invited to send plans. The task of selection was left to King Ludwig I. of Bavaria, a man of great taste and a lover of everything beautiful. His choice fell upon the plan of Henry Ferstel, and on April 24th, 1856, the first stone was laid. Twenty-three years afterwards, on the twenty-fifth anniversary of the marriage of the Emperor and Empress, the church was solemnly consecrated and used for the first time for public worship.

The cost of the whole building has been very great, but there was never any difficulty in raising the necessary funds, either for the successful completion of the exterior or for the ornamentation of the interior, which is in every detail in keeping with the pure Gothic style of the entire structure. It is perhaps no exaggeration if we say that the Votiv-Kirche is the most perfect example of modern Gothic architecture, not even excepting such works as the Duomo of Milan, or La Chapelle in Paris.

The ground plan of the church consists of a long nave, divided longitudinally by high columns into three aisles with seven side-chancels, ending in a raised chancel. A transept runs at right angles through the edifice, giving the ground plan the shape of a cross. The principal façade, with the great ornamental door, is flanked by two towers, with spires of most graceful and delicate marble fretwork, and there is a third and lower spire situated upon the roof at the central juncture of the nave and transept.

The space covered by the building is 3380 square metres, the nave is 95 metres long by 28.5 wide, of which 11.3 are occupied by the centre aisle, whereas the other two running parallel, and divided from it by columns, have the exact width of the towers. The transept has a width of 48 metres. The front façade is 36 metres wide; the towers, with spires, have a height of 95 metres, the same as the whole length of the church. It will be seen by these figures that the proportions are well preserved.

The nave supports its roof by five pairs of



DOORWAY AT 8, GREAT GEORGE STREET.



WROUGHT IRON BALUSTRADE, ROTHENBURG. FROM WALTER CRANE'S
"BASES OF DESIGN."

columns up to where it meets the transept, after this two more pairs of columns support the roof as far as the chancel. The chancel itself, which contains the high altar and various smaller chapels, is part of a regular twelve-sided figure, of which seven sides are actually existing and five are absent, forming the opening of the nave into the chancel.

The stonemasons' work is perfect in every detail, in true Gothic style, and speaks well for this particular handicraft.

The grand façade is adorned with a great number of figures in marble representing prophets and holy fathers of the Church. The illustrations accompanying this article will demonstrate better than words the beauty and magnificence of the edifice.

The interior is in perfect keeping with the exterior. The whole of the church owes its existence to the beneficence and liberality of the subjects of Francis Joseph, and it is especially significant that persons in every condition of life, of every nationality, and every creed, have equally contributed towards this truly noble memorial. Amongst the most exquisite and noticeable objects in the church are the painted and stained windows. The two gigantic windows (north and south) especially are master-works of the art; one is the gift of the Emperor and the other was presented by the Vienna Town Council. All the glass paintings on the windows have been executed by the late well-known painter, Geyling, after sketches by renowned artists. The rose windows cause remarkable light effects. The walls are embellished by frescoes (by the late Karl Schönbrenner) and the coat of arms of all the various provinces over which the Austrian monarch reigns occupy prominent positions among them.

Among the innumerable interesting works of art the church contains is the ancient tombstone of Count Niklas Salm, who died the death of a hero in the defence of Vienna against the Turks in 1529. This memorial was erected in 1580 by the Emperor Charles V. in the Church of St. Dorothy; but the building was converted into a public office and the tombstone was handed to the now princely family of Salm. It is now re-erected in the Votive Church. It is of light grey marble, and in the shape of a sarcophagus on which the gallant general is represented in full armour kneeling before a crucifix. The tomb is also ornamented with bas-reliefs of twelve battles in which the venerable military leader had participated, and with twelve medallions con-

taining portraits of contemporary men of renown, amongst them Emperors Frederick IV., Max I., Karl V., Ferdinand I., &c.

The position the Votiv-Kirche occupies near the Ring-Strasse is a very favourable one, and allows it to be well seen from all sides, and although it is surrounded by large palaces and other buildings, there is nothing which obscures any part of it. Our illustrations, on p. 385 and in the centre plate, give some idea of the beauty of this fine edifice.

THE BASES OF DESIGN.

A LECTURER may aim at two objects; one, to instruct, the other to impress his hearers, though, of course, the two may be combined. In hearing these lectures of Mr. Crane's the audience must have been enormously impressed with the encyclopædic knowledge of the lecturer, probably gained a good deal of information, and certainly must have enjoyed and admired the many beautiful examples of applied art, exhibited by means of photographs and very effective diagrams; but it may be doubted whether he was well advised to publish them with so little revision. The language is frequently slipshod and jerky, and badly punctuated sentences disfigure and veil the author's meaning. These defects which would not be observable in a lecture, when the mind is intent upon following the sentences as they drop from the speaker's lips, and there is no opportunity to look back a little way and see whether, for instance, the sentence really terminated with that full stop, or whether the sense went on past two or three others, to all appearance scattered haphazard over the page. The book is copiously illustrated with the most delightful examples of many styles and forms of design, selected with good taste, and well reproduced for the most part, and for that reason, if for no other, it should be a desirable possession. Of these designs a few may be mentioned as being particularly striking: the beautiful Persian carpets on pp. 107 and 171; Mr. Crane's own wall paper designs and drawings for pages of books, and the lovely carved stone lattice from the Mosque of the Palace at Ahmedabad. Also the French Gothic sculptures on pp. 262-5, and the woodcuts of plants a little further on, together with the Italian Renaissance pictures and sculpture.

The planning of the book is good and pretty complete. Commencing rightly with the Architectural basis, it proceeds to the influence

* "The Bases of Design," by Walter Crane. Price 19s. London: G. Bell and Sons.



PORCH OF CATHEDRAL OF S. JACOPO, PISTOIA. DRAWN BY WALTER CRANE.

of conditions of utility, material, and method before treating of less vital influences, such as those of climates, race, symbolism, naturalism, and individuality, and terminates with a chapter on the collective influence in design, which treats of complex forms of Art workmanship in which many crafts combine to produce the final result. This concludes with a paragraph which deserves to be written up in letters of gold in every workshop in the kingdom: "Strive, each in his sphere, whatever our main work may be, to do it worthily and well, remembering that it is better to do a small thing well than a big thing badly, and that it is the spirit in which our work is done, not the place it may accidentally occupy, or the class to which it may belong, or the reward it may receive in the ordinary estimation, that makes it great or little." And in the same chapter occur these sentences: "Art, however, is only concerned with quality—to make everything as good of its kind as possible, to seek variety, beauty, appropriateness." "Mechanical perfection is one thing, and artistic feeling quite another, and the more as an end a people seeks after the first the less it is likely to care for or understand the other," which show the point of view from which Mr. Crane approaches the question of design for manufactures.

Throughout the book he speaks as the decorator, and may be thought to rather overmagnify his art. The strongest instance of this is in the first chapter, where on page 26 he ascribes the "birth of the pointed arch" to the interlacing of circular arches in a decorative arcading. This is much on a level with the opinion of one's childhood which ascribed the vaulted Gothic Cathedrals to an imitation of the branching lines of avenues of trees, the real fact being, of course, that it was born from the necessities of construction. When the architects of the 12th century desired to vault a cruciform building, the vault being semi-circular, the diagonal section of the crossing showed a flatter curve which they found not stable, therefore the diagonal section was made circular. But this entailed raising the crown of the narrower arches to the same height if the vaulting surfaces were to be kept simple, and the easiest way of doing it was to make them pointed, the diagonal section of one form of pointed vault being semi-circular; and when it was found that this form was also stronger it became generally adopted, the principle of equilibrium by the balance of opposing forces supplanting the ancient Roman principle of the individual stability of each unit of construction. In speaking of the decoration of construction, in Chapter I. Mr. Crane calls attention to the early habit of decorating the spaces between the skeleton. Either decorate construction, or leave it bare, applying decoration to the spaces which might be removed without endangering its stability, is a good rule to follow. If it is applied to both indiscriminately the effect is generally bad—confused and overloaded. In every form of design the proportioning of the voids and the solids, the spacing and contrast of massiveness and delicacy is the greatest difficulty the designer has to overcome, and some training in architecture would be of the greatest value to designers in every branch of the art, on account of the realisation of the great importance of consideration of utility and the necessities of construction forced upon them by that study. It is a curious fact that the proportion which satisfies the eye is always stable, though stability may frequently be secured with an unsatisfactory proportion.

The subjects of pottery, metal work, textile fabrics, stained glass, and printed material, both textile and paper, are treated of from various points of view, following the suggestion of the chapter headings, but throughout, the individuality of the author is apparent, the special, personal point of view, which is that of the craftsman as much as the designer. "Directly," he says, "from a false idea of refinement, or with the object of displaying mechanical skill, the craftsman is induced to try and conceal the fundamental conditions of his craft, and tries to make it ape the qualities of some totally different sort of work, he ceases to be an artist, at all events. The true

artist in any material is he who, in acknowledging its conditions and limitations, finds in them sources and opportunities of new beauty, and, in being faithful to those conditions, makes them subserve his invention." And in another place he says, "The production of things of beauty for ordinary use has declined with the gradual separation of artist and craftsman. Decoration, or ornament, we have been too much accustomed to consider as an accidental and unrelated addition to an object, not as an essential expression and organic part of it. The more we are able to keep before our minds the place and purpose of any design we have to make, the more we realise the conditions of use and service of which it must be a part, as well as the capacities of the material of which it is to be made; and the more we understand its constructive necessities, the more successful our design is likely to be, and the nearer

public requires books for purposes of amusement and instruction. It is hard to say to a whole class of art workers "the power of representing natural objects which you have cultivated with so much care is entirely beside the mark—quite misdirected energy." Is there no merit in Bewick's birds—or in Mr. Timothy Cole's woodcuts from the old masters, or in Mr. Lodge's charming natural history transcripts? Yet these must all be condemned if Mr. Crane's canon be accepted. The truth is that for certain purposes certain processes are best, and, as his own example shows in this book, and, as he acknowledges in his preface, there are other purposes which are better served in other ways than that he considers ideal. The chapter on the Graphic Influence includes in its early sentences an admirable dictum on the difference between naturalistic and decorative drawing. "The main difference seems to be that in purely graphic or natural-



CORBEL (FOURTEENTH CENTURY), DENNINGTON CHURCH, SUFFOLK.
FROM WALTER CRANE'S "BASES OF DESIGN."

we shall approach to bridging the unfortunate gulf which too often exists between the designer and the craftsman." Such sentences as these show how keenly Mr. Crane realises the importance of there being the closest union between the designer and craftsman—an ideal which seems far from realisation at present, though in a few crafts in which the trades unions are not quite all powerful it may not be past praying for.

The personal bias also shows very strongly in the sections on book illustration and black and white drawing. Mr. Crane's opinions are well known, and his own work and that of those who hold the same creed is before the public. There is no doubt that much of it is excellent, and has appealed to the taste of a large portion of that public most successfully. But surely this art is not so much less elastic than others that there is but one mode in it which is admirable? The principal object of a book is not always to look consistent and harmonious—some sometimes wants to read it; in fact, the number of sumptuous books produced for the bibliophile must always be small, while the mass of the

istic drawing individual characteristics or differences are sought for, while in ornamental or decorative drawing typical forms or correspondences are sought for," which, if kept in mind, would prevent the writing of a great deal of the nonsense which is poured out as criticism on pictures, the aim of which is decorative. Commencing with the cavemen's incised outlines, this chapter carries us down to the most modern black and white work, mentioning on the way Japanese woodcuts, Greek, Egyptian, and Gothic sculpture, the Grimani breviary, Dürer's woodcuts and copperplates, and monumental brasses. This will serve as an example of the wide range traversed by each chapter. In the next, on the Individual Influence in design, some of the more prominent and influential of the Italian painters and sculptors, Mediæval and Renaissance, are treated of—Giotto, Orcagna, Niccolò Pisano, Benozzo Gozzoli, Botticelli, Mantegna, Leonardo and Michael Angelo—Raphael being scarcely mentioned. In the account of Mantegna a curious omission may be noticed. Although the chapel in the Eremitani at Padua is mentioned, it is only to

speak of the four figures painted on the vault; the six fine frescoes of the history of St. James on one wall, and the two representing the Martyrdom of St. Christopher on the other, not being referred to, though they are the most striking decorations of the chapel and are among the best early works of the painter.

But it is an ungrateful task to point out a few omissions from among so copious a list of examples which cover so great a field, and bring before the eye and the mind so much of the history of art, which, as Mr. Crane says, "becomes, finally, the *only* history of races—the only record left of people to tell us of their intimate life, their hopes and fears, their struggles and their aspirations." "Eloquent books of the life of peoples and powers long ago covered by the drifting sands of time." The book is on the whole a good one, and should prove very useful both to students and to those of a greater age, who retain a studious attitude of mind. A. W.

HOUSE-PLANNING FROM THE ÆSTHETIC POINT OF VIEW.*

By H. HEATHCOTE STATHAM.

(Continued from page 376.)

BEFORE long, however, the quadrangle plan was destined to give way almost entirely before the favourite scheme of the later Renaissance, that of the centre block and wings, and as a system of house planning on a great scale nothing so grandiose has ever been devised. Vanbrugh, though he did not actually invent it, was the great high priest of this movement, the leading motive of which was, instead of

HIDING THE OFFICES AWAY.

as Bacon suggests, to make them contribute to the show. If we have to cover so much land with building, the architects seemed to think, let us make the most of it in the architectural result; let our stable wing on the one hand and our kitchen or laundry wing on the other serve to extend the effect and act as architectural supports to the central mass. Mr. Blomfield, in his admirable book on the English Renaissance, quotes the words of Reynolds in admiration of this treatment as used by Vanbrugh:—

"To support his principal object he produced his second or third groups or masses; he perfectly understood in his art what is the most difficult in ours, the conduct of the background . . . and no architect took greater care than he did that his work should not appear crude and hard, that is, it should not abruptly start out of the ground without preparation."

In fact, Vanbrugh had a great deal of the feeling of those who have been called sculptor-architects. In the case of Castle Howard, the lines of the balustrade fence on each side of the courtyard are as it were, modelled in and out in breaks and curves, to escape what Reynolds calls the "hardness" of straight lines. This same modelling of wall lines is a point also with Wren, as is shown, *inter alia*, in the admirably designed plan of the boundary walls between the street and the courtyard of the old Trinity almshouses, which we have lately just managed to save, and of which Mr. Thackeray Turner remarked with truth that those walls alone were enough to indicate

THE HAND OF WREN.

Vanbrugh's great work is, of course, Blenheim, a plan of the grandest type, with its great terraced and cloistered forecourt 350ft. long by 300ft. wide, and the kitchen and stable courts, each (with their surrounding buildings) about 250ft. by 200ft., opening from it to left and right. The plan is absolutely axial in both directions, two great longitudinal corridors running in parallel lines from wing to wing. Among other points it may be

observed that the use of internal courts to light the corridors, which is sometimes regarded as a very modern expedient, is used here for the principal corridor at all events.

THE QUADRANT TREATMENT

connecting the wings with the centre is another example of Vanbrugh's modelling. The use of quadrant corridors to connect the house with the separate outbuildings became a constant feature of the later Renaissance plans; in this case it is not a corridor, but a portion of the main building treated in this shape. It looks very fine in effect, but there is always this objection, that it involves the existence of odd-shaped triangular rooms in its rear. In this case these irregular spaces are utilised as dressing rooms in connection with rectangular bedrooms. It is one defect in the plan that the extreme right wing is one great gallery (180ft. long), and the corresponding left wing is divided up into rooms, though the exterior architectural treatment is identical in both cases.

THE GREAT GALLERY

should certainly have been a special feature; that is one of the pitfalls of absolute symmetry. Vanbrugh has been laughed at, too, for having made the chapel and the kitchen balance each in the angles of the outlying blocks, but this is not so illogical as it is said to be. Man was philosophically regarded in those days as a being composed of two elements, body and soul, neither of which could in this world exist apart from the other. The needs of the soul were provided for in the chapel on one side, and those of the body in the kitchen on the other side; both were equally necessary to a complete mundane existence, and Vanbrugh treated them accordingly.* The principal defect of Blenheim, in an architectural sense, is the want of a grand staircase, appropriate to the general grandeur of the plan. The main staircases, in two side halls on each side of the great hall, are convenient enough, but these halls are only 11ft. wide, leaving only about 5ft. for the width of each flight of stairs—a miserable proportion for so great a house.

AT CASTLE HOWARD

the staircases are planned in just the same way and of the same size. The staircase, alone in these plans, seems to be treated in a purely utilitarian manner; regarded as a means of ascent only. The architectural glory of a great staircase does not seem to have dawned on the mind of Vanbrugh. We may compare with Blenheim the magnificent plan of Charleval given by Du Cerceau, which, with its series of colonnaded courts—the great one in the centre and smaller ones on each side—the great square central block flanked by gardens, and the surrounding canals, is really sublime, and seems more like a castle in the air or a chateau on paper than a design seriously intended for execution. Across the canal at the back is a great, formal garden as large as the whole of the rest of the plan. Turning to the less magnificent but most interesting and varied English Renaissance plans collected in the "Vitruvius Britannicus," we find all kinds of variations played on the idea of outstanding wings connected with the centre by colonnaded quadrants. At Rowhampton House, by Archer, the quadrants are convex, and it will be noticed that the front walls of the forecourt show that same kind of modelling in curves which seems to come naturally from Wren's pupil. In the plan of Eaton Hall, the general square lines of Seaton Delaval predominate, the stables and other offices flanking the courtyard without even being masked by arcades; but the great semicircular sweep of the wall of the outer court is fine. At Beaconsfield (Millner), where the concave quadrant is again employed,

THE STABLE OPENINGS

are round on the outer side, not towards the courtyard. In that remarkably stately modern plan, Mentmore, in like manner the

kitchen wing fronts away from the house, and the back walls of kitchen and conservatory blocks, facing each other at each side of the forecourt, are made use of as decorative screens with niches for sculpture, so that they form part of the architectural pomp of the entrance. The quadrant connection at Beaconsfield is badly managed, as it does not butt against the house block, but returns on itself, leaving an open end. At Hopeton House, Scotland (Sir William Bruce—"justly esteemed the best architect of his time in that kingdom"), the convex quadrant is again employed, this time better managed in its connections; the staircase occupies a fine position in an octagon hall in the centre of the house.

AT LOWTHER HOUSE, WESTMORELAND.

(no architect's name) we have an entirely original arrangement. The advanced wings ending each in an elliptical hall (the chapel on one side, the library on the other), the forecourt slightly raised and protected by a balustrade, and reached by a semicircular range of steps projecting outward at a 40ft. radius; the whole embraced, as it were, by a range of arcaded cloisters on each flank, projecting beyond the forecourt. Braman Hall, one of Colin Campbell's own designs, shows a square block with two small wings connected on each side to the house by a lofty colonnade of three bays, with very bold effect; here, as at Blenheim, the outer blocks are the chapel and kitchen, treated identically. Castle Ashby,

A COURTYARD PLAN BY INIGO JONES.

takes us back a generation and illustrates one point in Bacon's plan, the staircases being placed in projecting turrets at the re-entering angles of the courtyard. Eastbury, by Vanbrugh, is very much on the same lines as Seaton Delaval, with the square forecourt with arcades down each side to mask the stable and kitchen wings, and the same vast rusticated order to the house. Here Vanbrugh again uses his favourite arrangement of the two staircases one on each side of the central hall, but in this case he is more liberal to the stairs; the central hall or vestibule, about 12ft. wide, is here only a connection between the great hall in front and the "Salon" at the back, while the stairs have an ample space 20ft. wide on each side, but shut off from the vestibule. At Seaton Delaval, the

STAIRS ARE PROVIDED IN A PROJECTING TOWER

at each end of the main longitudinal corridor (which crosses the end of the great hall), the towers being square externally, but the stairs elliptical on plan. At Grimsthorpe, Vanbrugh goes back to the quadrangle plan, and for once aims at a fine effect with his staircases, which are 8ft. 6in. wide in the lower flights and 7ft. in the upper, and placed within a double screen of columns at each end of a hall 125ft. long; the staircases visible through the columns and not shut away out of sight. At Burlington House the stable and kitchen wings occupied the middle portion of each flank of the courtyard, where the buildings of the learned societies now are, and the court was closed by the two quadrant colonnades at the end opposite the house—that colonnade which was so stupidly removed and allowed to go to pieces. At Houghton (Colin Campbell) the kitchen and laundry wings, connected by the habitual quadrant, are set back into the rear instead of being brought to the front, and the same is the case with the stable and offices wings at Duncombe Park (W. Wakefield) in which the quadrant is dispensed with, and the outlying blocks are more conveniently connected with the house than usual. In "Mereworth" Campbell contrives a square house with a portico on each face and a centre domed hall, which might be capable of charming treatment; unfortunately he has found nothing better to do with his staircases than to make them corkscrews in the piers of the dome; a very mean treatment for a house of this class. The plan of Kedleston (as shown on paper) with its outlying pavilions connected by quadrants, is well known, it has been in so many books; it is a kind of plan which looks more effective on paper than it

* A paper read before the Architectural Association on Friday, January 6th, 1899.

* The symmetrical treatment of chapel and kitchen occurs in other plans in the "Vitruvius Britannicus"; it is not confined to Vanbrugh.

ever can look in reality, as you can never see it all at once; moreover the

QUADRANTS ARE BADLY MANAGED;

instead of butting into the wings, they terminate in a blank end, and you have to make a right-angled turn to get any further. The treatment of the centre block of the house, with its great columned hall leading into the square salon, and thence to the garden steps, is really fine. On the other hand, the staircase is ignominiously packed out of sight in a side recess. The quadrants at Kedlestone, it may be observed, are closed, and with windows, not colonnaded. At Nostel (by Paine) the same idea is better carried out, though the interior plan of the house is very commonplace compared with Kedlestone. At Nostel we find a recognition of one of the drawbacks to the use of

THE COLONNADED QUADRANT.

The colonnade looked very pretty in itself, but the servants passed visibly to and fro along it, which must have looked out of place sometimes. So at Nostel the quadrant consists of a walled passage for the traffic, with the colonnade in front and concentric with it for effect, thus making the best of both worlds. The same contrivance was carried out at Fonthill, and in some others of the houses of this type. At Holkham Hall (by Kent) the pavilions at the angles are rectangular, and more closely connected with the house, but the main idea is the same as at Kedlestone. The treatment of the staircase at the end of the hall, with its wide lower flight of steps, is more dignified and stately than in most of these examples. A remarkable plan, standing quite alone in character, is that of Buckland, by Wood, of Bath. It has, indeed, more of the character of

A KIND OF STATE VILLA

than a mansion, but it is a very fine plan for internal effect. In this case the two end octagons are the chapel and the library, representing architecturally, shall we say, the soul and the intellect; the body is cared for in the basements under them, which are respectively wine and beer cellars, like Mr. Sherrick's vaults under Lady Whittlesea's chapel, in "The Newcomes." Stanlinch, which is also by Wood, shows somewhat the same general idea, but the arrangement of the doors in the central portion of the house is such as to lose the vista from end to end; this was probably intentional, as the right hand wing is a very spaciouly planned State bedroom suite, and privacy of approach to it would probably be consulted. In

THE LEFT HAND WING

is the principal room—the dining room; in this less religious plan the chapel is wanting. The staircase, unfortunately, is very poorly treated. Lastly, Moor Park (Thornhill) is a remarkable example of a stately approach, in which the quadrant colonnades, instead of being merely connections with the wings, are extended so as to form a mask to them entirely, leaving the planning behind them rather inconvenient; but the fine effect in front may be said to atone for this. The idea was probably suggested by Bernini's colonnades at St. Peter's. There are few things, to my mind, more fascinating than the study of this collection of plans, so full of fine suggestions of effect, so uniformly stately and dignified in their variety; one cannot help thinking, again and again, what one could do with them in actual architectural treatment. It is true that our enthusiasm, in a sense, is damped on turning to the elevations, except those of Vanbrugh and one or two others. The mechanical manner of the engraving and shading does not assist them; but, apart from that, one cannot help wondering that men who had such fine ideas of the basis of architectural design in plan, should have had such lame and formal ideas of their decorative treatment. But what of that? That only shows that there is something left for us to do. Now that we have shaken off the deadening influence of architectural scholasticism and red-tape, what splendid things we could do (could we not?) if we could only get the chance of treating some such mansion plans as these with the freedom and the richness of detail which we

could impart to their treatment in the present. Surely we could make something finer of this type of plan than of the irregular and so-called "picturesque" plan? But then there is

THE QUESTION OF CONVENIENCE—

a question which will not be skirted. Mr. Blomfield remarks on this head:—"It is, of course, necessary to isolate the kitchen and servants' quarters from the big rooms of a house, but such a total disregard of convenience and economy as is shown in these eighteenth-century plans would not be tolerated for an instant in modern house planning. The point of view has shifted." True enough; but has it not shifted a little too far? Let us continue Mr. Blomfield's sentence:—"Vanbrugh and his successors were permitted to subordinate the comfort of the house to its external Architecture. They began from without and worked inwards; the entire design was handled with a view to the realisation of

A CERTAIN COMPOSITION,

without regard to convenience of arrangement; and the consequence is that there is always a distinct architectonic conception running through the whole of any one of their designs, which is necessarily absent in the heterogeneous assemblage of buildings which compose most modern country houses." I think the latter half of Mr. Blomfield's paragraph rather gives away the first half. "A distinct architectonic conception!" Is not that worth sacrificing something for, unless we are to return to the "two sticks and a mat," in principle at all events? Let us consider that for a moment. What does the inconvenience really amount to? It lies mainly in one point—the position of the kitchen. That is what you will find again and again in architectural criticisms—the kitchen was 100ft., 150ft., 200ft., from the dining room, &c. Even in

THE MODERN EXAMPLE, MENTMORE,

before referred to, the distance from the kitchen door to the dining room door, taking the line along the passages, is 147ft. (I measured it on the plan). One could hardly in such case say with Milton (referring to the meal in Paradise), "no fear lest dinner cool." That is a real inconvenience; but there is no occasion to revive that. In these days of lifts the kitchen might be in the basement, or it may even be in the attic—perhaps with greater advantage to the avoidance of possible smells. All the provisions can soar up there in the lift with the greatest ease, and when prepared, by the same means descend to the serving-room. Apart from that kitchen question, the wing system of plan may retain all its architectural attractions not only without any sacrifice of convenience, but even with a certain convenience and suitability. In most

HOUSES OF THE LARGEST CLASS

there is now a bachelors' stair and a bachelors' suite of rooms, for visitors who are of that persuasion. Why not a bachelors' wing as a separate block, with a smoking room on the ground floor and bedrooms above? And then, one might match that at the opposite angle by a young ladies' wing, with a charming drawing room or boudoir on the ground floor. Then what opportunities for a delicate and appropriate contrast in the design of detail and ornament in the two wings, suggesting their opposite characters—sturdy strength symbolised in the one, beauty and grace in the other, at the same time keeping the general mass and outline of both sufficiently alike for architectural symmetry; a kind of symmetry far more interesting and eloquent than that frigid mechanical symmetry of the Renaissance, each pilaster and each urn on one side answering to a precisely similar one on the other side. I declare one's imagination is quite stimulated by the thought of the artistic opportunities that such an arrangement would afford. Nor is there any inconvenience in the arrangement of a laundry wing, and some other offices perhaps, connected with the main house by corridors, and yet separate, and turning their backs on it; the back walls being treated, as at Mentmore, in a decorative manner. The stable wing, it

is to be feared, will hardly be accepted now, unless where, as at Blenheim, the scale is so great that it is really a long way from the house. There is no occasion, however, that we should imitate the favourite form of plan of the Renaissance architects. I would only urge that it is not necessarily inconvenient and that its architectural capabilities have not been exhausted. But let us summarise the problem from

THE PRESENT POINT OF VIEW.

In a mansion of the largest class we have to provide for two distinct departments, very different in their architectural requirements, and yet which must be in tolerably close relation with each other. We have the owners and their family and visitors on the one hand, with the rooms in which their life is to be lived; and on the other hand, the servants and the rooms in which the work and supply of the house have to be carried on. Granting the principle that the mansion should be treated architecturally in a symmetrical manner (because no other treatment is so dignified), how are we to treat these two departments? The Georgian system was to have

ONE GREAT PARALLELOGRAM

of building, and divide it up as convenient, without any reference to the exterior design, which can hardly be called an architectural method. But if you wish for one great block, it is possible to divide the two departments vertically, and not horizontally; to have a lofty two-storied basement, with a very wide sunken area for the lower windows, and place the state rooms and living rooms on the first floor, with a great staircase up to their level. That is the old system of the Italian Renaissance palaces. It has been little, if at all, tried in England, but it naturally suggests an architectural treatment which would be very fine and effective indeed, and is worth thinking of. On the same principle of vertical division

THE SERVANTS' BEDROOMS

could all be collected in the highest story, occupying what in a classical building would be called the attic; and, as before observed, in these days of lifts, there is no difficulty in such vertical division. Another method is the favourite one of the Renaissance architects, of the wings connected to the house by corridor buildings, which has the merit of making the subsidiary department subserve the general architectural effect, and the inconvenience of which, as I have ventured to suggest, is, if it is properly managed, more imaginary than real. Then we may have, what is the more favourite scheme now, the servants' quarter and offices rather more closely attached to one angle of the main building, forming a second parallelogram placed *en echelon*, or a long wing stretching away to the rear. But in this case it is difficult to make it in any way part of the

MAIN ARCHITECTURAL DESIGN,

it must be retired and planted off out of sight. A central connection of the offices with the back of the main building may sometimes be possible—it depends on the plan of the house and the direction in which the garden is laid out; but in the most stately type of house, as a general rule, it is desirable to have the garden entrance on the central axis line and opposite to the main entrance, as it is in nearly all the great Renaissance plans. In regard to the house itself, there are three main points to consider: the approach and entrance, the hall and staircase, and the entertaining rooms. A forecourt of some kind, if possible flanked by something in the way of a colonnade or cloister on each side, always adds to the dignity of the house; the conventional sweep drive up to the door or a wretched landscape-gardener's substitute. And for the access to the house there is nothing so fine as a flight of steps—still more a double flight, in two curves, provided the basement is high enough to afford opportunity for it. We have had no greater loss than that of these beautiful flights of steps up to the doors of the old mansions; for which, in our modern anxiety for comfort, we have substituted that odious excrescence called the *porte-cochère*. Certainly, were I a millionaire

and could build a mansion to suit my own tastes, I would revive the flight of steps; but people coddle themselves so now that they are quite afraid of walking up an out-door flight of steps; they must forsooth be set down under cover, and for the sake of their vile bodies they sacrifice architectural dignity.

IF YOU MUST HAVE A PORTE-COCHÉRE,

better to have a central projecting tower or pavilion and make the ground story an open arcade or colonnade; then you may have a fine effect; then it appears as part of the architectural design; while the mere *porte-cochère* never looks like anything but an excrescence. Inside the house, you must have a large central hall, lighted from above, unless it goes right through the house with a great window at each end; and you must have above all things a spacious and noble staircase, not hidden away out of sight. A flight of stairs, well designed, is one of the finest objects in Architecture; and on a reception night with a crowd of guests, it is a fine part of the show; like Jacob's ladder, angels ascend and descend upon it. Where there is a very large hall,

THE STATELIEST STAIRCASE

will probably be one which is in the hall and forms as it were part of it; one may even commence it with a flight of half a dozen steps extending right across the hall. The difficulty in such a case is to plan it so that it will not interfere, above, with the integrity of the gallery or loggia which you will certainly have round the hall on the upper level. In the case of Bridgewater House, Barry, as Professor Kerr mentions in his book, intended at first to have the stair in the midst of the cortile, where the dotted lines are shown; on second thoughts he took it out of the cortile and made it a separate staircase at the end; the cortile may have gained, but the stair lost in dignity. Delicately modelled curves of the edges of the steps, in the wide lower flights especially, add much to the beauty of a staircase; on a small scale this is very well done in the charming staircase designed by the late Mr. Cockerell for the Society of Water-Colourists' rooms, which I recommend students to look at.

THE WEAK POINT IN A STAIRCASE,

to my mind, is the raking soffit, and it is well where it can be designed so that this is hidden and only the steps themselves are visible. This is very well done in the grand staircase of the Paris *Hôtel de Ville*, where two broad flights, between marble-lined retaining walls, start right and left from the lower hall; and this kind of staircase may be also applicable to a private mansion on a large scale, where the upper plan is such as to admit of landing the staircases at two widely removed points. At the same time it may be said that the double staircase has more affinity with the idea of a public hall than of a private house. Where the general plan allows of it, a flight of stairs on a long curve is nearly always fine; not a circular stair—that

LOOKS TOO UTILITARIAN,

as if it were done to save space—and the curve is too quick; but an elliptical hall, for instance, with a stair following its curves up on each side, is a noble scheme. But there is no end to the beautiful things that may be done with stairs, where there is space enough; they are the poetry of internal Architecture. As for the entertaining rooms, the great desideratum for them is that which applies also to the whole ground-plan of the house, viz.: that they should represent an architectonic conception, in the configuration of each room and in their relation to each other. Systems and ideas in planning are endless; the great thing is that there should be an idea, and not merely a space divided into rooms by walls. Another point that will almost always be right (though there may be exceptions in special cases) is that the principal dining room should be on the opposite side of the hall from the drawing rooms. Another is that the principal rooms should be planned on an axis, and should be capable when desired of opening out a vista through the greatest length of this portion of the house; remembering, as before suggested,

that mystery is not the attribute of a great house so much as grandeur. Then as to the question of inter-communication, a corridor, of the ordinary proportion of width, is not the best suited to such a house; it is a feature more characteristic of a public building; if there is a long apartment of communication, it should be rather of such proportionate width as may remove it from the category of corridors to what is more properly called a "Gallery;"

NOT A MERE PASSAGE,

but a long room which is also a passage. And in a state suite of rooms it is a question whether some of the rooms of ordinary proportions may not quite fitly be planned to open one out of another, and one be used as the passage to another. Upstairs, of course, we must have corridors—we cannot in the present day walk through each other's bedrooms in the nonchalant manner in which the inhabitants of many Elizabethan and Stuart mansions must have done; but in a suite of entertaining rooms on a great scale there is no objection to walking out of one into another, and there is even a certain added dignity in the arrangement, as if the house were on too grand a scheme to stoop to the mere utilitarianism of corridors. In conclusion, I would encourage those who have the chance of building large houses to

ENDEAVOUR TO REVIVE

in them some of the old stately character which, as it seems to me, has been sadly lost during the present century, through a mistaken craving after what is called the picturesque; and not to be afraid of trying new and original dispositions of plan merely because they are new and original. Why is a form of plan which promises a fine effect to be shirked merely because it is unlike what people are used to? As an example of

A MODERN PLAN

of great originality and beauty we may take that of "Chesters," by Mr. Norman Shaw; also a plan with an idea, and a fine example, moreover, of the novelty and effectiveness in house-planning which is within our reach if we will give our minds to it. There is far more to be done in the way of invention and fine effect in the planning of the higher class of mansions than has yet been done; while we can emulate, in new forms, the stateliness combined with variety of the Renaissance plans, we can clothe them with detail much more free and expressive than the dead scholasticism of the Orders with which our able Renaissance predecessors were fettered. But we must begin with the plan.

A discussion followed, in which Professor Aitchison, Messrs. Halsey Ricardo, Beresford Pite, Francis Hooper, and the Chairman (Mr. G. H. Fellowes Pryne) took part.

The Largest Bell in England.

To the Editor of THE BUILDERS' JOURNAL AND ARCHITECTURAL RECORD.

DEAR SIR,—In the issue dated January 11th of your valuable paper, under the heading of "Bricks and Mortar," there is an interesting article on bell hanging and tuning, but the following paragraph is very inaccurate: "Big Ben is, of course, the largest bell in England, weighing over 13½ tons." The largest bell in the United Kingdom is the Great Bell of St. Paul's, London, which weighs 17½ tons, and was cast by Messrs. John Taylor and Sons (the world-renowned bell founders), of Loughborough, Leicestershire, in 1881.

There will be hundreds of people in the district in which it was cast, who will remember the event, as it was on public view in the foundry for some time, swung over the mould in which it was cast. It also caused considerable interest at the time, owing to the founders having to construct a special trolley for its transit to London by road, propelled by a traction engine from the foundry to its destination; it being too large to go under the railway arches.—I am, dear sir, Yours truly,
S. NEEDHAM (Arch't.).

ENLARGEMENT

OF THE

Builders' Journal

AND

Architectural Record.

For the past four years one of the most attractive features of

THE BUILDERS' JOURNAL

has been the Art Supplement which has been issued weekly as an inset sheet. From time to time this Supplement has been increased by the addition of a second Double-Page Inset Sheet.

We have now pleasure in announcing that the management have decided to make this a permanent feature. From the beginning of the next volume each issue of THE BUILDERS' JOURNAL will contain

Two Double-Page Plates as Inset Sheets.

In addition to this permanent enlargement, we shall introduce with the first number of the new volume, dated February 8th, a number of improvements and new features, which will, we think, substantially increase the value and attractiveness of THE BUILDERS' JOURNAL & ARCHITECTURAL RECORD, and cannot fail to extend its already wide popularity.

Full details of these improvements will be announced in due course; but generally we may say that our aim will be, without lessening in the slightest degree the artistic character of the Journal which has made it so popular amongst Architects, to meet the needs, even more than we have done hitherto, of Builders, Contractors, and all Craftsmen engaged in the Building Trades.

The first number of the new volume will be No. CCIX., dated February 8th

R. I. B. A.

SOANE MEDALLION AWARD.

A WIDE disapproval has been manifested at the late award by the Institute of the Soane Medallion. The subject, "Design for a Concert Hall, to seat 2500 persons," is the same that was set last year, but owing to the inferior quality of the work submitted on that occasion the Prizes Committee decided that no award should be made, and that the same subject should be set for this year also. The group of designs submitted in the present competition are, perhaps, of greater merit than those which were exhibited last January, and the question whether the award has been made to the author of the best design has not been raised, but it is felt very strongly that the motive which prompted the Prizes Committee to withhold the medallion last year should operate also in the present instance, and that no name should be added to the list of Soane medallists this year. It is supposed that the Committee, having twice imposed the same subject upon competitors, felt under a certain obligation to allot the prize on this second occasion, or were at least anxious to do so, for there seems no doubt that the design they have distinguished with first place, is unworthy to be ranked with those that have won the medallion in the past; and as it has been always the custom to withhold the prize, except when the design shows distinguished merit, the decision of the committee this year is justly held to depreciate the distinction which has been conferred upon previous recipients of the medallion, and to be unfair to those who in the past have submitted designs of greater merits than that now in question, and yet have not been considered worthy the high honour of being Soane Medallists. This prize is highly esteemed and much coveted, and we can well appreciate the jealous distrust with which any depreciation of the high status it has always maintained is regarded by the rising generation of architects. That this distrust is warranted in the instance of the present design there can be no question. The elevations show a heavy lugubrious classic building devoid of distinction or character although scholarly. The plan is simple and has breadth, and is well designed for interior effect, but these merits entirely vanish when it is observed that this has been achieved only by a wholesale neglect of the practical essentials of a concert hall, and by entire disregard of the terms of the competition, which explicitly stated that the regulations of the London County Council should be observed. In the first case, we may mention such glaring faults as that the stone columns and pilasters on the elevations, with entablature and balustrade and part of the roof, are carried on the lead flat over corridor on street floor; there are no pay boxes; the Royal party is provided with no private staircase, and with but one w.c. and no cloak room; and the artists, chorus, and orchestra, to the number of 310, have to enter and return by a staircase 2ft. 9in. wide in the clear. Some of the most notorious instances of variation from the Regulations of the London County Council are as follows: The ground floor corridor is only 4ft. 6in. wide, instead of 9ft. as it should be. Gallery stairs have only 7in. treads and less, instead of the 11in. or more required. There are nineteen closets on ground floor, six on first floor, and three in gallery all without windows, and twelve of these are not against external walls. Artistes have no independent exits, their dressing rooms are not cut off from "the place of public resort" by party wall as is required, and w.c.'s provided for them do not ventilate to the open air. None of the stone stairs used by the public are supported on both sides or enclosed by walls according as the regulations require. Some of the doors opening into landings and promenade, and from stalls, obstruct the passage ways. There are other irregularities, but these will suffice to show that the protests being made against the award of the Soane Medallion this year are of just and fair foundation. We

understand that an appeal has been formally addressed to the Committee of the Institute asking it to reconsider the award of the Prizes Committee, chiefly on the ground that the design which has won the medallion does not comply with the Regulations of the London County Council. We shall complete our notice of the various prize designs and drawings in our next issue.

THE PRESIDENT'S ADDRESS.

THE chief business at the Institute meeting on Monday evening was the delivery of an address to the students by the President, Professor Aitchison, R.A., and the presentation by him of the awards gained in the recent competitions. The meeting did not pass off without indications of the feeling that has been aroused in the matter of the Soane medallion award. During the presentation of the prizes, it was deemed expedient to interrupt the even tenor of that agreeable function with an official announcement to the effect that the Soane medallion was awarded to Mr. Mellon's design as being the best sent in, notwithstanding that it contravenes certain provisions of the London Building Acts. At the close of the meeting a student rose, and, amidst sympathetic applause, asked the President whether the conditions for future competitions for the Soane medallion were to be considered by the Institute, or should the students design as they pleased? "I have no doubt," said Professor Aitchison in reply, "you will find in the printed programme for the next year everything that you require," a diplomatic reply that was received with ironical cheers.

The following are the salient points of the President's address:—

I have remarked that all the sciences and arts seem to go in cycles. It is not very easy to trace the cause of these epochs, but we can safely say that, at the present moment, the epoch is that of the application of science, which is on the top of the wheel of fortune, while architecture is very low down. When these epochs occur, the whole atmosphere, as it were, is full of the desire for excellence in the particular art or science then coming into vogue, as a knowledge of Roman architecture was at the time of the Italian Renaissance; and at such times men of the most transcendent abilities have an ambition to succeed in the new fashion, even though it promise but little wealth, and very often nothing but the escape from starvation, even if it offer that. A great incentive to any kind of study or achievement is that of being thought well of by your contemporaries, though there is a higher stimulus in the hope of that sort of immortality which mortals can attain.

One of these inducements at the present time is impossible to be looked for—I mean the admiration of your fellow-men; for who knows or cares whether your work is good, bad, or indifferent, except perhaps a brother architect? It is questionable whether there is enough stimulant in these days to attract men who possess the intellectual faculties necessary for producing fine architecture—I mean such architecture as will be admired for two or three thousand years. I hope that my observation has been wrong as to the chances of immortality for those whose works are disregarded by their contemporaries, for, if the architect is really before his time, he should be recognised by those that come afterwards. I think I understate the case if I say that one considerable architectural genius is to be found among 100,000 of the inhabitants of any highly civilised country. To be a great architect involves a capacity for acquiring the higher branches of mathematics and being able to use them; to comprehend at least that branch of natural philosophy that is called statics, and even to advance beyond the point at which it has then arrived; to so arrange a building as not only to fit it for its purpose, but to put it in a shape that will command the admiration of skilled and cultivated beholders, and to invest the finished structure with a capability of exciting emotions that are proper to its use. Architec-

turally this is brought about by simplicity, perfection of proportion, by outline, by the proper disposition of light and shade, and by size and mass. To the former qualifications of the architect must be added the capacity of knowing what additional interest can be given to important parts by sculpture, and how colour can be properly applied to the whole structure.

Since the application to building of cast-iron, wrought-iron, and steel, the engineers have surpassed even the wildest imagination of sixty years ago. The Britannia Tubular Bridge is, as far as I recollect, 500ft. span, but Sir Benjamin Baker has made a span of the Forth Bridge over 1700ft. It is very unlikely that any architectural work would require a span of more than a tenth of that bearing, and that supposes an extension of more than double the span of the largest groined vault of the Romans, which was only about 80ft. Still we must to a certain extent look for the advancement of Architecture in a nicer adjustment of the mass to its height and to the weight to be carried, and to the form to be given to the supports for the weights and strains that come on each particular piece. In the use of iron and steel architects are very much handicapped, first on account of the slenderness of proportion which, as a rule, renders them unfit to compose with the weaker material, but mainly on account of the little resistance these materials offer to the action of fire, unless they are protected by fireclay and terra-cotta; and when they are so protected they very nearly approximate in size to the supports of old-world structures. Still, as I have so often said before, I think if the mediæval architects had possessed these materials and been able to work them as we can, they certainly would not have abstained from using them, as architects of the present day have mostly done. What visions does the use of cast-iron raise in our minds as to the possible size and height of buildings! What new forms and shapes does not cast-iron suggest when we know that it will take any form we please and any ornament that can be cast! What visions of colour does it not evoke when it may be made resplendent with enamel!

No one can say that convenience in planning is not greatly studied in the present day, but this convenience has mostly been of the purest utilitarian sort: it has been a question of how the accommodation wanted can be packed anyhow, which should not be the aim of architectural planning. The other thing to be aimed at is to give expression to the thoughts, cultivation, and aspirations of the present day, a subject that requires the deepest study and a perspicacity that is rare; for, though we are quite certain that many buildings have not got the proper expression, it is not so easy to say how the proper expression should be got. We have ransacked all the civilised Architecture of the past and made collections of it for use, but we have certainly not applied the examples with discretion. The delicate ornaments and suggestive sculpture that were applied to the embellishment of the boudoirs and pleasure-houses of Renaissance beauties are now lavished on oyster-shops, public-houses, and clothiers' warehouses, on which fluttering cupids are out of place; and the magnificence and stateliness of the palaces of great nobles now deck stores or hotels. We can at once pronounce these to be absurd, but we can hardly lay down a rule for the right expression which should be applied to the immense variety of buildings that are erected.

You know that Architecture is the most difficult of the visual fine arts, yet there is much more labour spent on learning painting and sculpture than there is on learning Architecture, and the votaries of these fine arts commonly have more natural aptitude to start with. We know the painful years students of painting and sculpture devote to getting the groundwork of their art, while from three to five years spent in an office, mostly in tracing, is thought enough for an architect.

There are two points to which I beg to draw your particular attention—first, that Architecture is a structural art, and that all an architect can do, as an architect, is to build: in

his structures he has to show his knowledge, taste, and skill, his learning, morals, cultivation, and aspirations. The Mediæval architects in their ecclesiastical buildings showed their hopes and adoration by lanterns, towers, and spires, by lofty naves, daring construction, and intricate patterns. When we have arrived at their pitch of knowledge and skill we must show our parts, inventions, and aspirations in similar ways, not as they did with almost pure geometrical figures, but in more graceful, refined, and daring work. Secondly, to point out the comparative scarcity of the use of coloured and glazed materials for external facings where the greatest beauty of colour and form may be used. It is refreshing even to think of London and other manufacturing towns presenting to us beautifully coloured fronts, that do not want painting every year, and would render such towns cheerful, if not delightful, to look on, in the place of the dingy, sooty, and depressing houses faced with stone, brick, or plaster; and this would not only raise our spirits under our leaden skies and perpetual drizzling rain, but be more healthful, for glazed pottery absorbs but little moisture, and is easily cleansed from dust and soot.

At the close of the President's address Mr. H. Beresford Pite delivered an address criticising in detail the works submitted for competition. Mr. H. H. Statham made some remarks on the designing of concert rooms, with special reference to the Soane medallion designs. The President then presented the awards, a full list of which appears in our last week's issue.

THE ARCHITECTURAL ASSOCIATION.

ANCIENT AND MODERN BUILDINGS IN PALESTINE.

By A. BERESFORD PITE, F.R.I.B.A.

A MEETING of the Architectural Association (Mr. G. H. Fellowes Prynne, President, in the chair) was held at 9, Conduit Street, Regent Street, W., on Friday evening, January 20th, at 7.30 p.m. The minutes of the previous meeting were read and confirmed, and the following gentlemen were elected members of the Association: Messrs. B. E. Crockett, L. W. Grace, E. B. S. Shepherd, E. E. Shrewsbury, Montagu White, R. E. Peach, A. Potter, and C. C. Thompson. It was then announced that the spring visit of the Association would take place on February 4th, to inspect the Carlton Hotel.

The president then called upon Mr. A. Beresford Pite, F.R.I.B.A., to give his lecture upon "Ancient and Modern Buildings in Palestine." Mr. Pite stated that he proposed to deal more especially with modern building in Palestine than with the ancient buildings, for he found it impossible to adequately go into the whole subject covered by the title of his lecture, as it covered too large a ground. The ancient objects of architectural interest in Palestine were caves, rock tombs, cisterns, oil and wine presses, and sarcophagi. In Palestine architecture, the first period appears to begin with Egyptian influence, then proceeding to Assyrian, Phœnician, Græco-Roman, and Arabian, then the Crusading period, and the Turkish, and lastly the Modern period. He was sorry to see, when on a visit to the hospital he had lately erected at Jerusalem, that the Gothic Revival had had existence even in Palestine. The best remains of antiquity appeared to exist on the east of the Jordan, where, from the time of Mahomet, the natives have not used buildings but live in tents.

Building in Palestine is influenced by the material, which is hard, coarse-grained limestone, rendering fine sculpture impossible. In modern building, the most important consideration to be observed is that of aspect. It is advisable to avoid an eastern aspect, but in Jerusalem it is always desirable to turn the buildings away from the road to avoid the penetrating dust.

Water is another important consideration.

In Jerusalem there are only two wells, and the town is therefore without efficient water supply and wholly dependent on rainfall. Rock-cut cisterns, either underground or covered over in the courtyards, are therefore provided to store the rain water. In the absence of much water mortar has to be carefully considered in building. The time to commence operations is in the early spring, just after the rainy season is over.

There is an absence of drainage which has to be considered, and no system of proper cesspit can be adopted on account of the rock, which lies everywhere near the surface. And, further, there is no depth of earth to allow of earth closets being adopted, the earth only lying in shallow pockets. For warming purposes fireplaces are not generally used, but if it is cold enough to require a fire, small closed stoves are brought inside, flues for this purpose being built into the walls. Fireplaces are generally only found in the Russian houses in Jerusalem. The carriage of materials in the country is difficult, for the transport to Jerusalem is by camels, thus only admitting of small girders and light weighted articles being used. The railway from Jaffa to Jerusalem is at present of no use for this purpose, being only a light tramway, and has all it can do to ascend the steep inclines.

The local authorities in Jerusalem are well organised, and an excellent system of land registration is adopted. Small buildings can be erected without special sanction, but for buildings of considerable size permission must be obtained. When it was proposed to erect the hospital designed by Mr. Pite, permission to build was at first refused, the Turkish officials holding that it was a beer-shop, from the use of spirits in the dispensary, and so could not be built near the tomb of a saint opposite; but, after considerable expense, it was settled that the building could be erected within 250ft. of the tomb, the saint's sanctity not being infringed at that distance.

One of the difficulties that had to be met in building this hospital at Jerusalem was that there was no contractor, but the plans were accurately carried out by Mr. Theodor Schick Sandel, a German, who had acted as a sort of clerk of works for several architects in Jerusalem, and who provided very accurate estimates. Mr. Pite wished to make his acknowledgment of the great service rendered by Mr. Sandel. Mr. Sandel had had the paying away of the money, as it was absolutely necessary that the man who gave orders to the workmen should be the one to pay, or they would not have obeyed him.

At Jerusalem there is an absence of sand, but against this there is a magnificent supply of lime. Dirt is used instead of the sand, being mixed with lime in the proportion of about half and half. Masonry walls are there built about 2ft. thick, thicker than in Europe, and stand as well as those built in this country with the ordinary kind of mortar.

In careful jointing, where some sandy material was wanted, pottery dust was used, broken pottery being obtained and ground between stones by hand labour. This dust was used for pointing, to stone roofs especially. For carefully jointing external walling putty and white lead was used. The native plaster for cisterns is usually about 2in. thick.

As the stone walls are porous, owing to the necessary use of a large quantity of the mud mortar, some kind of weather-proofing is necessary, and Mr. Pite found a brick lining satisfactory. The best method of walling is to adopt two thicknesses of stone, filled in with rubble. This method is called "Kallin." Another method is to adopt a face of wrought stones, with smaller ones behind to make up the thickness. This is called "Midmak" or "Laktah." "Misseh" is the hard facing. The bricks are obtained from Marseilles. There are, of course, native bricks but these are sun-dried and very inferior.

The natives are well accustomed to vaulting, which they do cheaply. Roof tiles are used much in modern building, but stone roofing is cheaper.

Mr. Pite then gave the following particulars and prices in Jerusalem, which he thought

might be useful. The prices were supplied by Mr. Sandel:

Lime, about one-twelfth the cost of whole building.

Lime, one-fifth the cost of the walls, including plastering.

The lime in a plain girl's school at Jerusalem, one-seventh to one-eighth cost of walls.

In a square metre of walling each side of the wall contains 11 stones, the method of measuring being to count the stones.

Inner side of a stone wall costs about 1 piastre per square metre.

Outer side, hewn, of a stone wall costs about 2 piastres per square metre.

For both sides together, 30 piastres per square metre. Add for lime 5 to 6 piastres, and for wages and hauling, 10 piastres per square metre. Wall in all costing about 50 piastres, or 12½ francs, per square metre.

For foundation walls, 10 to 11 francs per square metre.

For walls above ground, with one wrought face, 14 to 16 francs per square metre.

For partition walls, 6 metres thick, 10 francs per square metre.

For Dolma walls, i.e., wooden framework filled in with masonry, 6 francs per square metre.

For vaultings, 8 francs per square metre, including supply of all necessary centering, &c.

For façade stones, add 1½ to 1¾ francs per square metre, 100 pieces being obtained for 10 to 14 francs.

For external pointing, ½ franc per square metre.

For corner stones or quoins, 2 francs per square metre.

For lintels or cornices, 3 francs per metre run.

For door or window opening, 40 francs; size immaterial.

For plastering, 1½ to 2 francs per square metre. Cementing new cisterns, 3½ to 4 francs per square metre. Ceiling plasterings, 2½ francs per square metre.

For tile roofs, including labour, wood rafters, nails, &c., wired to battens, 12 francs per square metre. They require rewiring about every ten years. The tiles come from Marseilles and cost about 25 francs per 1000. About 30 go to a square metre super. With heavier woodwork, 14 francs per square metre.

For windows, glazed, painted, and fixed, 50 francs.

For internal doors, complete and fixed, 50 francs.

For shutters, per pair, complete and fixed, 40 francs.

For iron bars, ½ franc a kilo, fixed.

Reckon 12 francs per cubic metre for a roughly built and unplastered building, i.e., 4d. per cubic foot.

For bricks, 7 to 12 francs per 100, or £4 to £5 per 1000.

For paving tiles, 6 to 8 francs per square metre, or £1 per square.

For timber, 18 to 20 feet in length, 20 francs per cubic metre.

For building in Jerusalem the price is generally 12 francs per cubic metre, 10 francs for foundations, and 10 francs for cisterns.

Mr. Pite next went on to describe the hospitals of Jerusalem. In the Rothschild Hospital the whole of the basement of the wards is taken up by tanks. The Greek Hospital is on one floor, and has flat stone roofs. These two and the Russian Hospital are all badly planned. In the English hospital he had built at Jerusalem he had set it above the ground on a vaulted floor, thus allowing access of air underneath. He had built according to the native methods of construction. The lecturer then proceeded to show many entertaining lantern slides of modern and ancient buildings in Palestine.

Before the meeting closed the following resolution was adopted:—"That this committee, recognising and appreciating the efforts made by the London County Council for the embellishment of London, views with the utmost concern the manner in which it is proposed to rebuild Vauxhall Bridge, and desires to express its sense of the unfitness of the design for a work of such architectural importance."

Our report of the discussion which followed Mr. Pite's lecture is held over till next week.

The Architectural Association and "Specification."

THE MODEL CLAUSES.

THE recent discussion of the Architectural Association on works dealing with specifications—reported in these columns last week—has been particularly useful in two ways, for not only have architects been led to state their opinion upon the value of these works, but they have also suggested some improvements which might be made in them.

Many of these ideas had already been considered in regard to "Specification," but the necessity of employing only reliable contributors to put them into form must account for the delay in their appearance, for good men have few opportunities for taking up such work, however much their sympathies may be with us.

Confining myself, however, for the sake of brevity, to the question of the model clauses, I may state that the need of revising and extending those in "Specification" has never been overlooked. But when, some time back, the actual work was begun, it was found that revision only meant making confusion worse confounded. This is owing not to any particular fault in the clauses themselves, for they are very fair specimens of their class, but to the whole system of architectural specification writing, which, speaking generally, is lamentably defective. Briefly, the three great faults in architectural specifications are:

1. Congestion.
 2. Useless Repetition.
 3. Want of method and proper arrangement.
- The great object of the architectural specification writer seems to be the cramming into one paragraph, and, if possible, into one sentence, of everything that he wishes to say concerning the particular portion of the work he is specifying. Then follows a confused jumble of methods of execution, qualities of materials and their sizes, and the result is horribly confusing, and not infrequently entirely without meaning. In writing specifications, the architect might well take a hint from the engineer, who long ago solved the problem by dividing his specification into three parts, under the headings of "General Conditions," "Materials," and "Workmanship." This reduces the matter to one of the utmost simplicity.

Under the first heading come the general conditions governing the whole work. Under the second heading, the engineer enumerates the materials to be used in the work, their nature, quality, and (as far as possible) size. Under "Workmanship" are specified the exact methods of using the materials.

Now this system is perfectly applicable to Architectural specifications. The engineer, it is true, does not use trade headings; but this difference is by no means a fatal one, as "Materials" and "Workmanship" can be used as minor headings under each trade heading. I have also seen this arrangement reversed, and the various trade names used as minor headings under the two heads of "Materials" and "Workmanship," but on the whole, the first method is preferable.

I have detailed this system at some length, because it is the method which has been adopted in regard to the clauses in "Specification," and the rearrangement is being pushed on as rapidly as possible for the fourth number, due next July. I am sorry that space does not permit me to give examples of the system, but in the forthcoming Third Number the clauses under "Roadmaker" will be found in this order, and a complete specification for sewerage work on the same principle will be found under "Drainlayer."

Commencing with the Third Number, Specification will appear as a half-yearly publication, a change which is due to the difficulty of getting such an immense work through the press. At least, the extension of time will give us a better opportunity of giving effect to the many kind suggestions and appreciative criticisms which the Association meeting produced.

THE EDITOR, "SPECIFICATION."

KEYSTONES.

It is proposed to erect new Board Schools at Colne.

A new wing to the Aberdeen Church of Scotland Normal School has been opened.

The new School for Blind Children, in Church Road, Wavertree, has been opened.

It is intended to erect a monument to the late Sir George Grey in St. Paul's Cathedral.

A new Technical Institute is being erected at Selly Oak, the estimated cost of which is about £3300.

IMPROVEMENTS have been recently carried out in the exterior and interior of the Catholic Church of Carriganima.

A STAINED glass window has been placed in the chapel in Lathom Park in memory of the late Countess of Lathom.

PLANS have been passed for the erection of a new Roman Catholic Church at Motherwell. The building is to accommodate 1200 people.

The window placed in St. Mary Stoke Church as a memorial to the former rector, the late Canon Bulstrode, was unveiled last week.

It is proposed to add a new wing to the Corporation Hospital for infectious diseases, in Moss Lane, Southport, at a cost of about £800.

The new infirmary at Ripon was opened on Friday. The cost of the building has been about £2750. The architect is Mr. F. H. Hargrave, of Ripon.

ANOTHER memorial of the Queen's Diamond Jubilee has been completed. This is the cottage hospital at Chippenham, which was opened on January 13th.

The erection of a new high level railway bridge over the Tyne at Newcastle is contemplated by the North-Eastern Railway Company, at a cost of about £500,000.

MESSRS. CHARLES A. NICHOLSON AND HUBERT C. CORLETTE, architects, have changed their address from 28, Theobald's Road, to 2, New Square, Lincoln's Inn, W.C.

The building operations at Hertford House are fast approaching completion, and it is hoped that most of the collection bequeathed to the nation will be on view this summer.

A COLLECTION of drawings by the late Sir Edward Burne-Jones is now on view in the gallery of the Burlington Fine Arts Club. The exhibition will remain open until March 12th.

CONSIDERABLE architectural improvements have lately been made in Belfast by the widening of Upper North Street and the erection of a number of substantial buildings in that thoroughfare.

At the last meeting of the Council of the Royal Society of Painter-Etchers and Engravers, Messrs. Meyer, Milner, Newbolt, Tomkins, and Wright were elected members of the Society.

COLONEL JOHN MORGAN, the Mayor of Brecon, has signified his intention of laying down, at his own cost, plant for the electric lighting of the town. It is estimated that this will practically mean a gift of £6000.

THE work of erecting the new Technical School at Oldbury has commenced. The total estimated cost of the building (including furnishing and equipment) is £6000, towards which £4000 has been subscribed or promised.

THE members of the Leeds Association of Engineers, to the number of about sixty, at the invitation of the Leeds Steelworks Limited, paid a visit last week to that establishment, and inspected the various processes of manufacture.

A CARVED oak pulpit is being made by Messrs. Sharp and Emery, of 17, Great Brunswick Street, Dublin, for Clonfert Cathedral. It will cost £190, and is the gift of Mr. Thomas Roderick O'Connor, in memory of his mother.

A new infirmary and laundry for the Wakefield Union was opened last week. The buildings, which stand near the workhouse, have cost about £40,000. The infirmary will have accommodation for 150 patients, with residence for medical officer, lady superintendent, nursing staff, and servants. The laundry buildings comprise an extensive block, situate near the eastern boundary of the site. The architect was Mr. W. Watson.

THE Lighting Committee of the Grays Urban District Council have adopted a scheme prepared by their engineer, Mr. A. H. Preece, for the electric lighting of the town. The cost of the electric light to begin with was estimated at 6½d. per unit.

THE residents in Torquay have decided that a pavilion would be a desirable addition to the town, and would be likely to prove attractive to visitors. A committee has been appointed to consider how the proposal can best be carried out.

THE Brandon Free Methodist Church, Jacob's Wells Road, Bristol, has just been opened, and accommodates about 200 persons. It is in the early Gothic style, the front being of pennant stone with freestone dressings. The cost has been about £1950.

MR. ELLIS ROBERTS's portrait of the late Sir Henry Doulton, the "Great Potter," has just been completed, and, in a short time, it will be presented to the Wedgwood Institute at Burslem. The painting is said to be a splendid likeness of the late Sir Henry.

THE new temporary Church of the Holy Name at Upper Beachwood Avenue, Ranelagh, has been formally opened for Divine worship. The present building is an unpretentious structure, and it may be expected that before long a permanent church will take its place.

CREDITON CHURCH governors have granted permission for the completion of the restoration of the church by placing oak stalls in the chancel. The Vestry Committee has selected Mr. Tate, of Exeter, as architect, and his plans will be presented to the governors and to the parishioners.

SIR BENJAMIN BAKER, engineer, and Mr. John Aird, M.P., contractor, have left London for Egypt for the purpose of inspecting the enormous works which are now in course of construction at Assouan and Assiout for the new Nile reservoirs. Over 5000 men are employed on these works.

WORK has been begun at Verona during the past week for renovating the tomb reputed to be that of Shakespeare's Juliet. It is intended to restore the entire edifice, which will be made twice its present size. The small arches which are now seen in front will be continued at the sides, and the tomb will be set in the centre of the structure.

THE Jubilee statue of the Queen for erection in Dundee has been completed, and is ready for delivery. The site of the fountain at the Albert Institute has been proposed as the proper one for the statue; the fountain, it is suggested, should be removed a little to the north. The artist who has been entrusted with the work is Mr. Harry Bates, A.R.A.

MESSRS. J. YOUNG AND CO., builders' merchants, Kenton Works, Kennington Cross, London, S.E., inform us that owing to the rapid increase in their business they have opened new premises at 321, Kennington Road. The new building is to be devoted to the Paper-Hangings Department. They have also added extensive showrooms to the main building.

ACCORDING to an Italian newspaper a wealthy Englishman has offered Signor Baccelli, the Minister of Public Instruction, to undertake at his own expense the excavations in the Forum and the partial reconstruction of the ancient monuments. The work of reconstruction is to be made under the direction of a commission of archaeologists of different countries.

At the monthly meeting of the Bristol Society of Architects, held at the Fine Arts Academy, Bristol, on the 16th inst., the award was made in the Students Competition for measured drawings. The first prize of six guineas went to Mr. C. F. W. Denning, the second and third prizes being equally divided by Mr. H. F. Smith, and Mr. E. G. Rodway. The subjects drawn were of local and historic interest, and included Kewstoke Church and Cleve Abbey, Somerset, the Cupola of All Saints Church, City, the Mede Tomb in St. Mary's, Redcliffe, and the interesting little Georgian Church on Redland Green. After the general business of the Society had been transacted a paper of much literary and artistic interest on "Rhythm in Design" was read by Mr. F. Bligh Bond.

THE Local Government Board have held an inquiry at St. Annes for the purpose of obtaining particulars of applications for power to borrow £4000 for the erection of a fire station, slaughter-house, mortuary, and town's depot, £3500 for the erection of a refuse destructor, £1583 for a sewer in Clifton Drive South, and £350 for the purchase of a fire engine, or, in all, just over £9400.

MR. AITCHISON, President R.I.B.A., is the assessor for the plans for the rebuilding of the old Sessions House in the Old Bailey. The City Lands Committee have asked the council of the association to nominate six architects, who will be asked to compete in the preparation of plans. Each unsuccessful competitor submitting a complete set of drawings, with estimates, will receive an honorarium of 200 guineas.

Owing to the indisposition of Dr. Rentoul, Q.C., M.P., the reading of his paper upon "The Law Relating to Commission," which was to have been given before the Auctioneers' Institute on the 24th inst., has been postponed. On that date Mr. Harold Griffin will read a paper before the institute on "Some of the Acts of Parliament Specially Affecting Property in London which have to be Considered by Estate Agents."

THE preliminary arrangements for the holding of the forthcoming art loan exhibition in the Art Gallery at the Guildhall are in full progress. The exhibition, which will probably be opened about April 10th, promises to be an attractive one, as an effort will be made to represent the great painter Turner by an adequate collection of his works in oils and in water-colours, and also by a collection of plates from the Liber Studarum.

At the business meeting of the R.I.B.A. on January 16th, the following elections were made:—As Fellows, Messrs George Hornblower and Henry Hoyne Fox; as Associate, Mr. John Alfred Jones. In our report last week of the ordinary general meeting of the Association, which followed the business meeting, a mistake was made in stating that the chair was taken by Mr. W. J. Locke. The chairman was the Vice-President, Mr. E. A. Gruning.

THE ancient Church of St. Andrew, situated in the little valley of Dalton-le-Dale, near Seaham Harbour, is gradually falling into decay. The walls are crumbling, the ceiling shows signs of breaking away in places, and the bell-cote is no longer safe. Recently the building was surveyed by the Diocesan architect, who expressed opinion that repairs which will entail an expenditure of something like £700 are absolutely essential if the church is to be saved.

UNDERNEATH the fine metal screen of the Battenberg Memorial Chapel, in Whippingham Church, has been placed a brass tablet, bearing, in facsimile of the Queen's own handwriting, the following words:—"This screen is erected to the dear memory of her beloved son-in-law, Prince Henry of Battenberg, by Victoria, R.I., 1897." A beautifully worked sword has been fixed on the tomb of the late Prince Henry. These recent additions are both the work of Mr. Gilbert, R.A.

THE London County Council have given permission for a memorial tablet, which a committee of eminent engineers are desirous of erecting to the late Sir J. Bazalgette, to be placed on the wall of the Victoria Embankment at a point facing the end of Northumberland Avenue, and near the Charing Cross pier. Sir J. Bazalgette was for many years chief engineer of the late Metropolitan Board of Works, and the Thames embankments were constructed under his supervision.

THE civil engineer of San Francisco reports that the city is sinking at the average rate of 2in. a year. In a hundred years the waters of the bay would be ebbing through the first stories of buildings, and the second floors would be awash. But energetic steps are being taken to cope with this curious state of affairs, for the gaps are being filled up as they occur. The cause of this peculiar condition is ascribed to the nature of the soil, which is a mixture of alluvium washed down from the hillsides, ooze from the bay, and decayed vegetable matter, the formation of ages, upon the original bed rock.

Bricks and Mortar.

EFFINGHAM HOUSE, ARUNDEL STREET,
January 25th, 1899.

"I know what it is to live in a cottage with a deal floor and roof, and a hearth of mica slabs; and I know it to be in many respects healthier and happier than living between a Turkey carpet and a gilded ceiling, beside a steel grate and a polished fender. I do not say that such things have not their place and propriety; but I say this, emphatically, that the tenth part of the expense which is sacrificed in domestic vanities, if not absolutely and meaninglessly lost in domestic discomforts and incumbrances, would, if collectively offered and wisely employed, build a marble church for every town in England; such a church as it should be a joy and a blessing ever to pass near in our daily ways and walks, as it would bring the light into the eyes to see from afar, lifting its fair height above the purple crowd of humble roofs."—JOHN RUSKIN.

At a recent meeting of the Whitby District Council, a letter was read from the Board of Trade with respect to the suggested extension of the line of the Whitby Electric Lighting Order, 1891. The letter stated that the Board would defer consideration of the question of making the Order for twelve months, but if at the expiration of that time no steps had been taken by the undertakers to give effect to their powers, the Board would not feel justified in allowing the Order to remain in force any longer.—The Chairman said they ought to take some steps, otherwise they would lose the Order, which cost them between £400 and £500 to obtain. There were two ways of avoiding this; one was to instal the light themselves, and the other to sell their Order to a company with the object of purchasing from them in years to come.—After a brief discussion it was decided to refer the matter to a committee.

It is proposed to establish at Oxford an institution to be known as Ruskin Hall, where working men may obtain the advantages of a university education. The chief promoters of the scheme are two American gentlemen, Mr. Charles Beard and Mr. W. Vrooman, non-collegiate members of the university, and they are being assisted by various friends. At a meeting of the Oxford Labour Council Mr. Beard explained the objects of the Hall; courses of lectures had been definitely arranged, and the intention was that they should be wholly for labouring men. They wanted to give an opportunity to men who had not money to take the regular university course.—A resolution approving of the objects and aims of the promoters was carried unanimously.

In excavating a sewer at Paris some few days ago on the south side of the Seine, the workmen came upon the fragments of an old wall about 36in. thick, built of solid blocks of stone, and evidently extending on either side under the houses of this densely-populated quarter. Archaeologists, after examining the structure, came to the conclusion that it might be part of the foundations of the Romano-Merovingian fortifications enclosing the ancient "Cité," and dating from the third or fourth century of our era. Remains of a precisely similar nature have also been found on the Eastern side. In the garden of Notre Dame, too, masonry has been laid bare, but it does not quite correspond in character to the previous discoveries.

THE next General Assembly at Burlington House, the first for this year, is fixed for Tuesday, January 31st. There are two notable items in the agenda—the filling up of the vacancies in the list of the Associates, and the election of an Honorary Foreign Academician. The latter is probably the more difficult problem of the two. The honour is great, and the number from amongst whom selection may be made very large. Of the five existing members three are French and two are German. But M. Gérôme and M. Menzel alone have a wide popularity, as distinguished from appre-

ciation, amongst their brethren. Originally all six members were French, the German element was a more recent innovation. It is "in the air" that there may be yet a more surprising innovation, and that amongst the names that will be submitted for choice will be that of an eminent American sculptor. The election of an Associate is for the general body of English artists a more interesting event, and on the 31st there are three to be chosen. One will probably be a sculptor—a sculptor is wanted for the schools.

AN interesting old Scottish church has just been reopened after undergoing restoration. This is the parish church of Bothwell, which was built in 1398, and used as a church from that time till 1830, when it was closed and the present new church was built. The movement for the restoration was begun about two years ago. The first work was to clear away from 2ft. to 3ft. of earth which, from the interments of centuries, had accumulated round the walls. The floor had also, to nearly the same depth, been filled up to make it correspond with the exterior. It was lowered to its original level. When this work was completed, it was found that the foundations and walls had a solidity that had not been known for several generations. The stone mullions of the windows, which had disappeared, were renewed. The carvings above the doorway, the sedilia, and the piscina were restored. The stone roof has been carefully preserved, and put into good order. Hitherto, the main entrance to the church has been by a narrow unattractive lane. This has been closed, and a new entrance formed direct from the street. Three blocks of houses have been removed, and the ground so cleared away has been laid down for trees, shrubs, and flowers, with intersecting walks. A house has been built for the church officer, and a conservatory erected for providing flowers for the grounds. The entire operations have been carried out under the direction of Dr. Rowand Anderson.

A MONUMENT has just been erected in the grounds of Bothwell Church to the memory of Joanna Baillie, the poetess, who was born in the manse of Bothwell. The monument is 16ft. in height. It rests on polished red granite. The material of the body of it is terra-cotta, with chastely ornamented figures. The distinctive feature of the monument is the filling of the four panels with mosaics. On the side fronting the street there is a portrait of Joanna Baillie. On another side is a reproduction of Horatio McCulloch's painting of Bothwell Castle. On the third there is a representation of the children of Bothwell in the early days of the poetess; and on the fourth are depicted the apple and plum trees of the valley of the Clyde. Below each of these descriptive letterpress is given in mosaics, including a reference to Joanna Baillie from Sir Walter Scott's "Marmion," and extracts from her writings recalling her early days in Bothwell.

SPEAKING of the elections to the Royal Academy that are to be made at the end of this month, the Globe remarks that one of the chief needs of the Academy is to increase the number of sculptors among the associates, and certainly there would be no excuse for deferring any longer the recognition of the claims of the younger school of sculpture. There are several men of very real capacity available now for election; and the difficulty will, rather be to make the most appropriate choice than to find a man worthy of selection. However, from the Acad my point of view, this will, perhaps, simplify matters, for with such an array of good candidates there is a certainty that a capable artist and a useful visitor for the schools will be secured, and there will be no need to go far afield in search of someone of the right type.

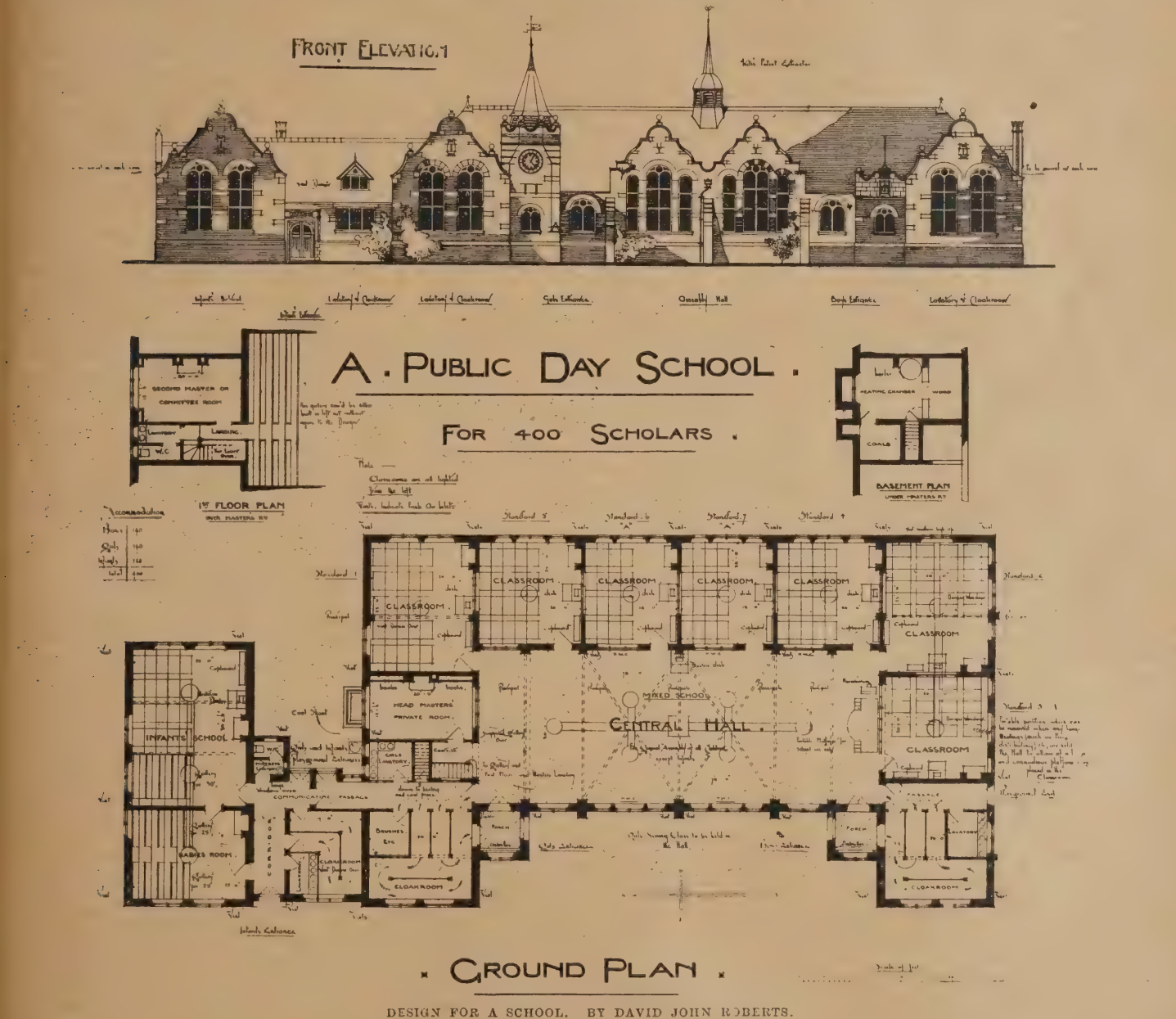
CANNOT something be done to prevent the complete disappearance of the picturesque buildings of old London? The improvement of the city inevitably demands the destruction or removal of many of these; we cannot ex-

pect that a house which has become an obstacle to the public health or convenience shall be spared simply because it presents curious architectural features or because it was the abode of a king or a highwayman. A suggestion, which has much to commend it, was recently made by a popular weekly contemporary to the effect that an old London street, formed from the actual buildings displaced by improvements, should be re-erected at the South Kensington museum or elsewhere. Another plan which would do something to preserve our ancient houses to memory if not to sight would be to adopt a similar scheme to that recently proposed to and accepted by the French Minister of Fine Arts. In future all ancient houses of note and architecturally interesting buildings in Paris, before being

limited to Architectural students under twenty-five years of age. The author proposed to use for the external walls. Ruabon best wire cut bricks, with Helsby stone dressings; and green slates 16 by 8 for roofs; bell turret to be covered with oak shingles, the windows generally to have 5in. by 3in. casement frames. The author is Mr. David John Roberts, Bangor, North Wales.

ON the subject of the smoke nuisance Dr. George Wyld makes the suggestion that the London County Council should buy up the gas companies. It would be possible for the Council, he thinks, to supply gas at about half its present price, and people could then cook their food by gas at half the cost of coals, and heat their houses, all things considered, at

artist, M. Verestchagin, illustrates Napoleon's disastrous Russian campaign. There is a grim realism about these pictures, which distinguishes them from the ordinary run of war pictures. Here there is nothing of the pomp and glory of war; you do not see the actual fighting, only the pathetic and pitiful scenes that belong to the retreat of a defeated army. The interest of these pictures is, perhaps, not chiefly artistic. Technically, they are no doubt open to serious criticisms, but they have a value that is all their own. One can well understand why Mr. W. T. Stead, who is just now devoting his energies to the crusade against war, should have chosen the Russian painter for the subject of his Character Sketch in the current number of the Review of Reviews. M. Verestchagin is one of the most



pulled down are to be carefully drawn, and ground plans taken, together with photos of the interior and exterior. We have no minister of Fine Arts, but we ought to have some public authority—the County Council perhaps—who would be willing to undertake so useful a duty.

THE design reproduced on this page was submitted in Competition at the Royal Welsh National Eisteddfod of Wales, held at Llan-dudno, North Wales, in the year 1896, and was awarded first prize by the assessor, Walter Higgingbottom, Esq., F.R.I.B.A., Manchester. The conditions were, to provide a Public Day School for 400 scholars (mixed), a proportionate number of infants included, cost not to exceed £12 per head, Competition

somewhat less than by the cost of the present wasteful use of coal. "If so," he adds, "the London County Council could enforce the use of smokeless fuel only." This seems a little inconsequent, but it is no doubt perfectly true that if this desirable result were achieved, "the value of house property would begin to rise, our health and comfort to increase, and the beauty and grandeur of our great city to be revealed. Those who have seen London from our bridges on a summer morning before the fires are lighted know what that revelation really is."

A REMARKABLE collection of pictures is now being exhibited at the Grafton Gallery. This is the series of paintings in which the Russian

powerful preachers in the cause of peace "Pictures like these," said the German Emperor on one occasion, "are our best guarantee against war."

A DEPUTATION from the Hanley School of Art Committee has waited upon the Corporation with respect to the present position and future prospects of the School of Art. The committee wished to obtain from the Council further financial assistance in carrying on the work of the School. They pointed out that the fittings in the School of Art buildings were out of date, and asked for a special grant of £100 to replace them. They also wished the annual grant from the Corporation to the School to be

largely increased. Further, the school buildings were at present too small for the work that had to be done in them, and though the committee has not decided on any scheme for providing increased accommodation, yet at no distant date they would have to ask the Council to make a further grant to enable them to extend the premises.—The Mayor promised that the matter should be brought before the proper committee.

THE Birmingham Municipal Art Gallery is to receive another gift of the late Sir Edward Burne-Jones' pictures. Mr. C. Fairfax Murray has offered four cartoons for the Lyndhurst windows—(1) Joshua, (2) Elijah's Sacrifice, (3) Peter Led from Prison, (4) The Stoning of Stephen; also (5) St. Edith Abbess and Queen, (6) Saints Cicely and Dorothy. This last is a cartoon for silk embroidery, and all six were executed by the firm of Morris and Co. And the two cartoons by William Morris, "Adoring Angels," which have been for some time in the gallery on loan.

As a tribute to the memory of Mr. C. N. Kennedy, an exhibition of his works has been organized at the Carlton Gallery in Pall Mall, where the lower room is now filled with subject pictures and the upper room with portraits. A great number of the pictures are studies of sea nymphs and other nude figures, often set against a background of blue sea; and in these the artist shows himself to be an accomplished draughtsman and gifted with a pleasant sense of form in composition as well as of colour.

PRINCESS LOUISE, Marchioness of Lorne, at Mercers' Hall made the annual distribution of prizes to the students of the Royal Female School of Art on the 17th inst. During the past year one hundred and sixteen students have received instruction in Art at the school, and in April last five hundred and seventy works were sent to South Kensington for examination and competition for awards. Two students of the school had been awarded National silver medals, while three had received National bronze medals. The Queen's Scholarship had been obtained, as also the Mercer's Scholarship and Queen's gold medal, the Clothworkers' Scholarship, the William Atkinson Scholarship, and the National Gilchrist Scholarship. The report on the Chromo-lithographic Art Studio was favourable as to work and progress.

THERE is great agitation among Italian artists owing to the formation at Venice of a corporation of Italian painters and sculptors, consisting of only fifty members, whose object is to obtain important privileges at national and international exhibitions in Italy and abroad. The chief of these claims is a demand for separate space to show collectively the works of the members of the corporation, while excluding those of other artists. By way of protest, an association of Italian painters and sculptors has been constituted for the purpose of helping young men showing a bent for Art, protecting the moral and material interests of the artists, and obtaining from the committees of the exhibitions in Italy and abroad the same privileges as are accorded to other Italian societies. The request of the Corporation for separate space in the Venice Art Exhibition of 1899 has been granted by the municipality, which, however, has reserved its decision respecting the application of the rival association. These curious claims and counter claims are causing much discussion in the artistic world.

A LARGE three-light painted memorial window has been added to St. George's Church, Perry Hill, London. It is the first of a series, each to represent three great Churchmen from different centuries. The figures represented in this first window are Archbishop Benson, of Canterbury; Bishop Patteson, the martyr Bishop of Melanesia; and Archbishop Alexander, Primate of All Ireland. The window was designed and executed by Messrs. Bacon Bros., of 11, Newman Street, London, W.

Professional Items.

CARDIFF.—A new chapel for the Bible Christian Connexion has been opened at Cardiff. The building is 60ft. by 38ft., and gives accommodation on the ground floor for 356 and in the galleries for 238 worshippers, exclusive of the choir, which will number about 30. There is a vestry and small library attached to the chapel, and behind is a schoolroom about 46ft. by 25ft. on the ground floor. There is another schoolroom of equal dimensions on the first floor. The internal arrangements are comfortable and attractive, and the chapel is well lighted with two handsome sun burners and wrought iron brackets. The contractors were Messrs. Knox and Wells, of Cardiff, who have carried out their work admirably, and in a most substantial manner, under the personal supervision of the architects, Messrs. Veall and Sant, who designed the buildings in the Early English style of Gothic architecture. The contract price for the whole was about £4100.

DERBY.—THE new Municipal Technical College was opened last Thursday. The building is a large extension of the School of Art. The work of extension was commenced two or three years ago. The building is of Gothic design, and covers an area of about 17,000 square feet. It is rectangular in plan, and has four elevations. The heating and ventilating is on the Plenum system, and has been carried out by Messrs. Ashwell and Nesbit, of Leicester. The floors are all fireproof, on the Dennett and Ingle system of concrete arches. The college will accommodate 1500. The cost of the whole building has been about £30,000. The architects are Messrs. Waller and Son, of Gloucester, and the contractor is Mr. Henry Vernon, of Derby.

DUBLIN.—The Central Hotel, Dublin, has been extended by the addition of special rooms for the exhibition of commercial travellers' stock. The structure forms a large block with a frontage of 117ft. along Dame Court, and is substantially constructed throughout. Both fronts are faced with Portmarnock red brick, having cut stone dressings. The contractors for the building work are Messrs. M. Meade and Son, of Great Brunswick Street. The building was designed and its erection superintended by the Hotel Company's architect, Mr. W. M. Mitchell, R.H.A., of 5 Leinster Street.

INVERNESS.—A new infant school is to be erected on the grounds of the High School, Inverness. The building, which presents a plain but artistic appearance, is to be one-storied. Two doors are to be provided—one for the boys and another for the girls—and these will lead into a large corridor. There will also be a corridor running up to the centre of the building, an infants' room for seating 150 children, six classrooms, a room for the headmistress, and a room for the other teachers. Every attention is to be paid to the ventilation, sanitation, and lighting of the new school. In short, the building will be erected on the most up-to-date principles. Mr. William Mackintosh, Academy Street, Inverness, is the architect, and the various contractors are: Masons, Messrs. William Alexander and Co.; carpenter, Alexander Anderson; slaters, Adam Taylor and Co.; plumber, Arthur Russell; plasterer, William McAndie; painter, Kenneth Chisholm; ironwork, Rose Street Foundry—all of Inverness.

A MONUMENT to Lafayette, the cost of which is to be defrayed by subscriptions raised among the school children of the United States, will be unveiled—if completed—at the Paris Exhibition on July 4th next year. The commission has been given to Herr Karl Bitter, an Austrian, and Mr. Paul Bartlett, for twenty-five years a resident in France; whereat American sculptors are, not unnaturally, somewhat annoyed.

Under Discussion.

JOHN RUSKIN AND HIS WORK.

The sixth of the fortnightly lectures on Art subjects in the Glasgow Art Galleries was delivered by Mr. James G. Borland, President of the Ruskin Society, who took for his subject "John Ruskin: His Personality and Influence." Dealing with the early life of Ruskin, the lecturer showed the influences hereditary and educational, which established those habits of close observation and accurate description which, when put into words, gave us the eloquent and poetic writings now so much admired. The startling evolution of the quiet student of nature into the revolutionary Art critic and passionate defender of the genius of Turner, through which he had given a fresh impulse to Art, was referred to; as also his later development from the Art critic into the social reformer and political economist, the result of a realised consciousness that no true Art was possible in a period and among a people governed by the materialistic ideals and evinced by the social conditions then prevailing. As showing the powerful influence of Ruskin upon the thought and life of this age, Mr. Borland pointed out that the economic and educational principles laid down in "Unto this Last" and other of his books, scouted and condemned at their first publication, were now shaping and dominating all that was best among the ideals of to-day. Among the practical pieces of social reform, either initiated or inspired by Ruskin, the lecturer referred to such movements as the better housing of the people, the establishment of public Art galleries and museums, the revival of village industries, the redemption of waste lands and such social missions as that of Toynbee Hall, as carrying out Ruskin's ideas of the responsibility of the well-to-do and cultured classes towards the masses of the people. The lecture was illustrated by a fine series of lantern slides of drawings by Mr. Ruskin and of the mosaics in St. Mark's, Venice.

AN INTERESTING ARCHÆOLOGICAL DISCOVERY.

Mr. W. A. Donnelly read a paper last week before the Glasgow Archæological Society on the Dumbuck Crannog or pile dwelling which was discovered by him on 31st July, 1898. The crannog, Mr. Donnelly said, was situated about 1800 yards from Dumbarton Castle, and was 50 yards from low water mark, and 250 yards from high water mark. The circle of it was 60ft. in diameter, and was bounded by 27 oaken piles, each nine to ten inches in diameter, and fixed into a blue clay bed. Among the articles found in it were a prehistoric ladder, a splendid specimen of a great war canoe, the work of stone implement, and resting in a finely constructed dock, a quern among the charred remains of what appeared to be roasted acorns, and the remains of probably the Caledonian ox and Caledonian wild boar. The structure had been pronounced a crannog by the most eminent authorities. The environment and accessories of the crannog pointed to a pre-Roman period.—In the discussion which followed Mr. Neilson expressed the opinion that this crannog was one of the most important archæological discoveries of recent years.—The Chairman, Dr. David Murray, in closing the discussion, said that there was no doubt Mr. Donnelly had discovered an ancient structure of great interest. The shale article were to him a proof of the genuineness of the discovery. As to age, he would be inclined to say that the discovery belonged to the period of the Roman occupation, or even later.

THE BACTERIAL TREATMENT OF SEWAGE

A lecture on this subject was delivered before the Society of Arts on January 16th by Dr. Samuel Rideal. After an interesting historical review of the methods adopted at various times for the disposal of sewage, Dr. Rideal explained that recent experience has shown that the chief agent in the purification of these fou

liquors is the action brought about by the minute organisms which are always present in such solutions, and which under suitable conditions thrive and multiply, and, when the filtration is not too rapid, are capable of producing an effluent which can be run direct into rivers without detriment to health. These changes are both anaerobic and aerobic. In the sewers themselves the anaerobic changes go on in the dark, the sewage being acted upon by germs which work there in the absence of oxygen, and whose life work consists in the conversion of organic nitrogen and carbon into ammonia and carbonic acid. The aerobic germs then take up the running in the presence of air, and effect the conversion of the ammonia into nitric and nitrous acids, both of these acids in combination with inorganic bases, such as lime, being absolutely harmless in water. The filtration is usually carried out in concrete-lined tanks filled with clinker or coke breeze to the depth of about three feet, the effluent after standing being then run through a second finer filter. The sewage is brought into contact with the bacteria in these beds or filters, and it is found practically that within limits the more the beds are worked the more efficient they become, when they have once got into a proper working condition.

THE PROGRESS OF ELECTRICITY.

At the monthly dinner of the London Chamber of Commerce held at the Trocadero Restaurant last evening, when the subject of discussion was "The Progress of Electricity," Mr. T. F. Blackwell, chairman of the council of the chamber, presided.—The Chairman, in introducing the subject, referred to the proposal for an all-British cable. The idea, he said, was worth serious consideration. It was evident that, in certain circumstances, it would be of the utmost importance that we should have full and entire control of our cables. It was very desirable, he thought, that the telephone should be under the control and management of the State rather than of a private company. Legislation, he thought, had very much hindered progress in the matter of electric lighting. He was glad to see that electric traction was coming rapidly to the front. Its general adoption would be an immense convenience to Londoners.—Mr. S. Morse, chairman of the Electrical Trades Section of the chamber, referred to the fact that there were now some £11,000,000 invested in supply companies or in local authorities undertaking the supply of electric lighting throughout the country. This he said, was an indication of the great progress that had been made in spite of all difficulties, and of the enormous proportions to which the enterprise had grown.—Major-General Webber argued against the idea that State control of the telephone system was a desirable thing. In all those countries, he said, where nationalisation had taken place, the progress had not been so great as in the countries where the telephone industry had been carried on and managed locally.—Mr. E. Garcke said it was no use lulling themselves into the belief that they had cause to be satisfied with the progress of electricity in this country. If they compared the history and progress of the science here with its history and progress in other countries, they had to deplore the fact that they were, even to-day, many years behind almost every civilised nation of the world. He believed the primary cause of this was the tendency towards municipalisation which had been characteristic of recent years. It was impossible for private enterprise, under these conditions, to make that headway which was absolutely necessary for the development of the industry. Almost every department of electricity had suffered from the same cause. He differed from many authorities in thinking that the telephone service in this country was quite as satisfactory as the service in America or on the Continent. As to electric traction, he believed that if they made the mistake of encouraging the municipalisation of tramways they would retard the progress of the electrical industry.

Enquiry Department.

In reply to H. F. B. (Kennington Park Road), for particulars of the examinations of the Society of Architects, application should be made to the Secretary of the Society, St. James' Hall, Piccadilly.

BOOK ON SURVEYING, AND SURVEYING INSTRUMENTS.

To the Editor of THE BUILDERS' JOURNAL.

SIR,—I shall be much obliged if you will inform me which you consider the most satisfactory and complete work on Surveying and Surveying Instruments.—Yours, &c.,
"ALPHA."

New Brompton.

We assume that your question refers to a book on surveying works connected with Architecture. In that case, either Ainslie's "Comprehensive Treatise on Land Surveying," or Castle's "Treatise on Land Surveying and Levelling," should give you what you want. A standard work on the whole subject is Johnson's "Theory and Practice of Surveying." You should not buy these books without satisfying yourself that they meet your want.

POSTS FOR PROTECTING A FOUNTAIN.

To the Editor of THE BUILDERS' JOURNAL.

SIR,—Could you kindly inform me through your Enquiry Column about the cost and method of fixing large posts to protect a fountain?—Yours truly,
E. O.

You do not say of what material the posts are to be made. If of iron or stone, any ironmonger or stonemason, as the case may be, would give an estimate. If of gun-metal, apply to Baker and Co., Westgate, Newport, Mon. Fix with a pick and shovel.

FIXING GLASS IN STONE MULLIONED WINDOWS.

To the Editor of THE BUILDERS' JOURNAL.

DEAR SIR,—On page clxx in your issue of Jan. 4th, reference is made to the "fixing of glass in stone mullioned windows by screwing oak fillets to lead plugs let into the stone."

I shall be much obliged if you will give me further details with regard to the following points:—

(1) Would ordinary lead run into the stone to form plugs, allow a screw to be driven home easily?

(2) Should not the glass be bedded in something to exclude the weather between the stone and glass; if so, what would be best?

(3) Supposing now the inside of the mullions and transoms are to be cased with wood, and the glass inserted into wood frames, what would be the best method to "secure the frames to the stonework," also the linings to same?—Yours truly,
A. L. R.

Loughborough.

In reply to A. L. R.'s first question, a lead plug will certainly allow of a screw being driven into it; this is the usual method of fixing casements to stonework. My answer to the second question is to bed the glass in white lead where it rests against the stone. As to the third query, I have never seen stone mullions cased with wood linings, and should be sorry to have to do such a thing. But if double hung sash windows with stone mullions are required, the mullions should stand in front of the cased frame with a straight joint between the two, and this might be pointed up with a mixture of cement and mortar. Such a window would have 9in. reveals, and the mullions and transoms should be not less than 9in. by 6in., and of a square or slightly bevelled section. Deep meeting rails should be arranged behind the stone transoms.

J. E. NEWBERRY.

PUBLICATIONS FOR WOOD CARVERS.

To the Editor of THE BUILDERS' JOURNAL.

DEAR SIR,—Would you kindly advise me, through your Enquiry Department, of the name and price of a paper, weekly or monthly, which treats of wood-carving? Also what

books on the subject you can recommend, to one not exactly a beginner?—Yours truly,
"A CARVER."

Glasgow.

"Work," published by Cassell and Co. at a penny weekly, frequently contains wood-carving designs. The editor of that journal would tell you the numbers in which designs appear. We do not know any periodical devoted wholly or chiefly to wood-carving. A book that would probably meet your requirements is "A Manual of Wood-Carving," by W. Bemrose, price 5s., published by Bemrose and Sons, 23, Old Bailey, E.C. "Wood-Carving for Amateurs," published by Gill, 170, Strand, London, W.C., is a shilling handbook of a more elementary character.

Correspondence.

SOME TENDENCIES IN ART AND ARCHITECTURE.

To the Editor of THE BUILDERS' JOURNAL.

SIR,—Some thoughts suggested to me by the brilliant address delivered not long ago by Mr. H. Wilson, and reported at length in your paper, may possibly seem to deserve the little space they require, and are therefore committed to paper and posted. What one speaker said was repeated by others with only some slight variations:—"They could not," said they, "put up a great building and allow every craftsman to do as he pleased with it. The result of such a way of proceeding would be the Architecture would be left out, and the building made up of a number of pieces of craftsmanship which, although of themselves interesting, would be entirely separate, bearing no relation to each other." There was more to the same effect, but we have enough here for the purpose, and it will, I think, be agreed that all such speeches as these are indicative of an entire misunderstanding, for no man in his senses could desire to see art workers and architects standing further apart than at present. It is certain that Mr. Wilson does not, and to me it appears that there was hope for the future of art in almost every word of the speaker's address.

"The architect has," said one speaker, "a commercially-minded people to deal with; if an economic building is wanted the architect has to produce it; if he refuses or fails then he is left in the lurch with his ideals in his head, and naught else." The quotation is as nearly correct as need be, and under such conditions it would indeed seem that for the body to thrive the art must be starved. But the speaker referred to things as they are at the moment, without so much as a word with regard to what may be.

The tendency of all education, unless, indeed, we are wasting our millions, is to create a demand for genuine work which in the fullness of time must effect a change in all trades whatsoever. The generations to come will owe to their forbears an instructive perception of quality whereby they will be enabled to form an opinion as to an architect's worth with as little hesitation as is shown nowadays in the selection or rejection of foods.

There was a reference in one of the speeches to William of Wyckham: the speaker could not believe that he, the said William, was ever a workman himself. Still harder would it be to believe that, being a bishop and a great many things besides, he was anything even remotely resembling the modern professional architect. If there has been anyone comparable with him in our generation, allowing for every difference, it surely was William Morris with "his splendid capacity for planning and seeing what was right in other men's work." That the like of such men as the two above-mentioned will never be seen again may be regarded perhaps as certain; but the age will be evil indeed that cannot produce a master mind, one whom it may acknowledge as a superior. The architect's place is of course in the ranks with designers and craftsmen in general, the master's mind being over all.—Yours truly,
E. RADFORD.

Views and Reviews.

THE ROMANCE OF GLASS-MAKING.

A review of a book which is in itself but a resume of as much as is known of the subject can hardly be anything more than a simple appreciation, and nothing more in this case will be offered. "This little book," says the author, "has been designed to supply such information as is likely to be useful to the general reader," and it admirably serves its purpose. The author's style, and the evident breadth of his views, make the volume most agreeable reading. The points of contact are many between the history of any one art and of the others, consequently a treatise on glass can hardly fail to interest many besides those engaged in the business. What the general reader should know of the subject will be found all ready to hand in the earlier chapters which tell of Persian, Phœnician, Egyptian, Grecian, Roman, Byzantine, and Saracenic glass and glass makers. "Venetian taste," says the writer, "seems to have run towards the bizarre; the very facility of the ware, or rather the dexterity of the artist, to have prompted an indulgence in the extravagant and grotesque, which is not always justified by the artistic result."

The necessity of using coal instead of wood for fuel led to the introduction of melting pots closed at the top, and this in turn may have led "to the large proportion of oxide of lead that came to be used as a constituent of the glass; flint-glass or crystal being the name given to this description." The invention heralded a new epoch fraught with fresh possibilities of achievement and mischief; for, as the author rather curiously expresses it, "at the commencement of this century cut-glass was rampant." Now nothing is easier to mould, we are told, than a lumpy and expensive example of cut-glass, and the manufacturer said to himself: "The great public wants to have cut-glass; it is costly and difficult to make, takes long to do, and none but a skilled hand can do it, so let a model be made of a piece with plenty of cutting upon it. Mould this; press out hundreds of pieces like it, and there you are—cut-glass, cheap and nasty!"

Particularly interesting, in view of what is now being done in England is the account of mosaic, and the distinction to which attention is drawn between the popular and the true method of conducting the work. One knows very well that the æsthetic value of the performance surpasses by far whatever value it has when regarded as a realistic representation of the particular scene depicted. The appearance of reality so easily gained by the painter would spoil the effect of the work. "Let the tessaræ be set in roughly as regards levels, so that the light sparkles from the varying facets." The old way to which Sir W. B. Richmond returns is thought to be better by far than that introduced by Dr. Salvitti of working the mosaic upside down upon paper, so that what meets the eye is hardly less smooth than a mahogany table, and comparable with nothing but painting.

"Romance of Glass Making" By Walter Gandy. London: T. W. Partridge and Co.

THE CATHEDRAL CHURCH OF SOUTHWELL.

We have reviewed from time to time several volumes of Bell's Cathedral Series, and now there comes to us yet another—Southwell. Since noticing the previous volume, the world of art has had the great misfortune to lose one of the editors of this series, the late Mr. Gleeson White. The fact that he could find time to act as co-editor of these books is yet another proof of his many-sided activity.

The chief interest of this particular volume centres, perhaps, in the pages that deal with the famous Chapter House, with its dainty sculpture. This is well illustrated by some charming photographs, although exception might be taken to the view of the entrance doorway, which shows a most unhappy effect of distorted perspective. This same effect is felt, though in a less degree, in the view of the north arcade of nave.

Another charming feature of this building is the north porch, which shows us a delightful effect obtained by the simplest means.

The hand of the restorer has been laid somewhat heavily on this church, and the author is at some pains to justify his doings. This, however, is a controversial matter, into

which we need not enter. It is preferable to turn to much that is of peculiar interest in the history of the building, and in that of the See, which is clearly and pleasantly related.

As to the general scope of this book, and the care and intelligence with which it has been prepared, we need only say that it well maintains the general standard of the series.

"The Cathedral Church of Southwell," by the Rev. Arthur Dimock, M.A. London: George Bell and Sons, 1898.

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BURNLEY, LANCASHIRE.

KEYSTONES.

A NEW patent watercooler has been fitted up by Messrs. Malcom, Ogilvie and Company at the millpond Constable Works, Dundee. The apparatus has been erected by Clie's Patent Engineering Company, Manchester. The main object of the invention is to enclose the vapour until it returns to water, and then discharge the water at such a temperature as to prevent it giving off further steam. The cooler at Constable Works has more than realised expectations. Under the most adverse conditions, only a few vapoury rings hover round the top of the cooler.

THE ruins of Inverugie Castle, near Peterhead, the ancient seat of the Earls Marischal, have been demolished by dynamite. A part of the ruins fell last Sunday week during the storm of wind and rain, and, as the remains of the castle stood in close proximity to a much frequented public road, it was thought advisable to demolish the remaining portion in case of accident to passers-by. Considering that the castle is nearly 600 years old, and that it is considerably more than a century since it was occupied, it was until recently in a fairly good state of preservation, and with a little expenditure could have been maintained, for many years to come, the prominent landmark which it was.

THE London County Council cannot find an architect to fill the place of Mr. T. Blashill, their superintending architect, who was to have retired at the end of last year. Advertisements were issued in November inviting applications for the appointment, which carries with it a salary of £1500 a year. In response twenty-seven applications were received, but the General Purposes Committee, before whom the applications came, reported that in their opinion none of the candidates possessed the qualifications necessary for so important a post. Accordingly they have persuaded Mr. Blashill to postpone his retirement until such a time as a suitable successor could be appointed.

TENDERS.

Information from accredited sources should be sent to "The Editor." No results of tenders can be accepted unless they contain the name of the Architect or Surveyor for the Work.

BECKENHAM.—For making-up Border-crescent, for the Urban District Council. Mr. J. A. Angell, surveyor, District Council Offices, Beckenham:—

T. Adams	£1,612 5 6	E. Iles	£1,271 8 0
G. Wilson	1,363 0 0	Mowlem and Co.	1,250 0 0
BRIDLINGTON. —For the erection of four houses, Horsforth-avenue, for Mr. Stager. Mr. J. Barnshaw, architect, Wellington-road, Bridlington Quay:—			
E. Corner	£1,950	W. Barnes, Bridlington	1,650
T. Blackburn	1,850	Quay*	1,650
Spink	1,665	S. Booth	1,522

* Accepted after alterations.

BROADSTAIRS.—For the erection of a house, to be called St. Peter's Lodge, at Broadstairs, Kent. Mr. John Borrowman, architect:—

Norman and Burt	£2,036	R. A. Lowe	£1,855
F. T. Chichester	1,900	W. W. Martin	1,600

CANTERBURY.—For the erection of a new wing, hall, &c., and sanatorium at the Kent Wesleyan School, Canterbury, for the Kent Schools Association, Limited. Mr. Charles Bell, architect, 3, Salters' Hall-court, Cannon-street, London, E.C. Quantities supplied by Messrs. C. Stanger and Son, surveyors, 21, Finsbury-pavement, E.C.:—

G. Castle and Son	£8,781 17 6	F. T. Gentry	£3,690 0 0
J. T. Denne	7,592 0 0	General Builders	0 0
Jackson and Co.	7,553 0 0	Ltd.	6,540 0 0
G. Wiltshire	7,060 0 0	Gann and Co.	6,450 0 0
Coulson & Loftis	7,037 0 0	W. J. Adecock	6,319 4 10
W. and H. Castle	7,015 0 0	T. L. Fearon	6,278 0 0
J. Barker & Co.	6,990 0 0	Hayward and	6,274 0 0
Ltd.	6,990 0 0	Paramor	6,274 0 0
H. Houghton and	6,750 0 0	W. Judges, Bough-	5,973 0 0
H. B. Milson	6,755 5 10	ton, Faversham*	5,973 0 0
T. H. Kingierlee	6,704 0 0		

* Accepted.

CREWE.—For sewerage, forming, &c., Lawton-street and others, for the Town Council. Mr. G. Eaton-Shore, Borough Surveyor, Earle-street, Crewe:—

Richmond-road	£1,090 13 9
Lawton-street, &c.	1,639 17 1
Lawton-street, &c.	1,521 14 6
Richmond-road.	Meicklewright & Sons,
Crewe	1,090 13 9
Lawton-street, &c.	Meicklewright and
Sons, Crewe	2,050 7 10
Richmond-road.	B. Rowland, Northwich
Lawton-street, &c.	1,643 1 6
Richmond-road.	C. H. Holmes, Crewe*
	2,706 4 2
	926 1 8

* Accepted.

DORCHESTER.—Accepted for building the new Victoria Hotel, Victoria Park, for Messrs. Eldridge, Pope, and Co., The Worcester Brewery. Mr. A. L. T. Tilley, architect, 26, South-street, Dorchester:—

W. J. Hutchings, Dorchester	£2,275
FARNHAM ROYAL. —For alterations and additions to "The Lodge," Farnham Royal, for Mr. W. Humphrey Ramsford. Mr. Walter Emden, architect:—	
H. Roffey	£2,080
Beer and Gash	1,867
Leicester and Vaughan	1,867
Cox and Sons*	1,710

* Accepted.

HORSHAM.—For additions to workhouse, for the Union Guardians. Mr. C. H. Burdow, architect, 6, West-street, Horsham. Quantities by architect:—

J. Ockendon and Son	£7,685	Rowland Bros.	£6,999
R. Cook and Son	7,628	Potter Bros., Horsham*	6,730

* Accepted.

LEEDS.—Accepted for the erection of ten houses, Tunstall-road. Mr. Fred. Mitchell, architect, 71, Albion-street, Leeds:—

Brick and Stone.—W. H. Jones and Co.	
Leighton-lane	
Joinery.—G. H. Nettleton, Tenter-lane	
Plumbing.—John Watts, Butt-court	
Plastering.—W. H. Branton, Lovell-road	
Slating.—J. Atkinson & Son, Whitehall-road	£2,007 5 7
Painting.—A. Hoyle, Burley Village	
[All of Leeds.]	

LONDON.—For the erection of granary, offices, stables, and store, at Wheatshaf Wharf, Holyport, near Fulham, for Hard and Mones Stores, Limited. Mr. J. A. J. Woodward, architect:—

Holloway Bros.	£8,400	Parker	£7,508
J. Parsons	7,693	T. Hooper and Son	7,327
Wimpey	7,600	J. Marsland	7,225

LONDON.—For an extension of the British Home for Incurables at Crown-lane, Streatham, S.W. Mr. Edwin T. Hall, architect, 67, Moorgate-street, E.C.:—

Foster and Dicksee	£8,270	Bulled and Co.	£7,594
Woodward and Co.	7,983	Johnson and Co.	7,585
Cubitt and Co.	7,917	Higgs and Hill	7,584
Lawrance and Son	7,800	Marriage and Co.*	6,950
Lovatt	7,782		

* Accepted.

NEW BARNET.—For the erection of school buildings, Victoria-road, for the East Barnet School Board. Mr. W. Pywell, architect, 40, Great James-street, Bedford-row, W.C.:—

Willmott and Sons	£12,232	General Builders Ltd.	£10,000
Goddard and Sons	10,763	Merredew and Wort	9,965
A. Porter	10,559	Coulson and Loftis,	
F. Britton	10,500	Cambridge*	9,507
W. M. Butcher	10,464		

* Provisionally accepted.

SEATON (Devon).—For erection of new bank and premises, for the Wilts and Dorset Banking Company. Mr. G. M. Selley, architect, 17, Craven-street, Strand, London:—

Stephens, Bastow and	£2,340 16
Co.	2,298 0
J. W. and H. Childs	2,505 0
Chas. Turner	2,366 3
	1,882 15

STANMORE.—For the erection a dwelling house, at Stanmore, for the Canons Park Estate Company Limited. Mr. John Waterson, architect, No. 4, College-chambers, 240, High Holborn:—

T. C. Bowden	£2,100	T. Turner, Ltd.	£1,760
Hayworth and Sons	1,878	H. Wall and Co.	1,751
F. Dupont	1,840	T. Britten	1,699
Yerbury and Sons	1,819	T. W. Dixon	1,685
R. L. Tonge	1,790	W. and H. Jones	1,650
W. Smith	1,787	General Builders Ltd.	1,620
C. Eames	1,786	W. Pearce	1,572

STANMORE.—For the erection of a dwelling-house at Stanmore, for the Canons Park Estate Company Limited. Mr. John Waterson, architect, No. 4, College Chambers, 240, High Holborn:—

T. Bowden	£1,983	T. Turner, Ltd.	£1,854
Hayworth and Sons	1,977	Yerbury and Sons	1,843
R. L. Tonge	1,950	F. Britten	1,790
F. Dupont	1,950	H. Wall and Co.	1,788
T. W. Dixon	1,898	W. and H. Jones	1,780
W. Smith	1,895	General Builders Ltd.	1,730
C. Eames	1,889	W. Pearce	1,695

TAUNTON.—For the construction of a sewer. Target Field, for the Town Council. Mr. J. H. Smith, C.E., Municipal Offices, Corporation-street, Taunton:—

Allen and Son	£9,362 9 0	R. Hitchcock	£7,882 19
R. H. B. Neal	8,470 0 0	G. Bell	7,805 0
W. Gibson	8,441 16 7	W. L. Meredith	7,700 0
Facey	8,363 0 0	B. Cook and Co.	
H. W. Pollard	7,998 0 0	Victoria-street	7,518 0

* Accepted.

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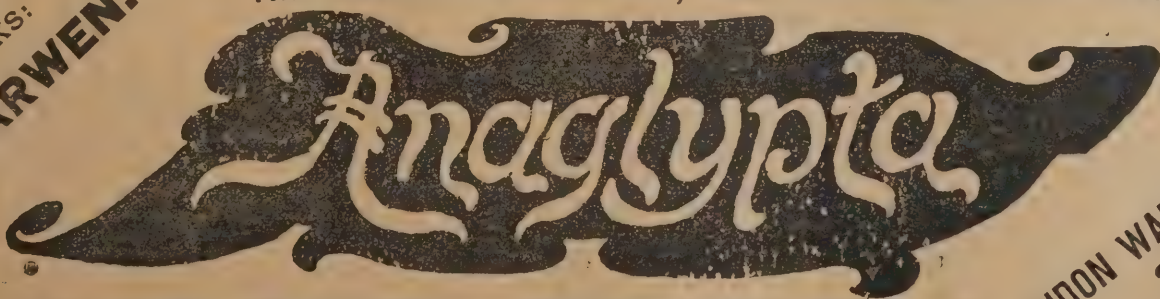
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NORFOLK COUNTY COUNCIL.

MAIN ROADS.

TENDERS are required for the SUPPLY of BROKEN GRANITE for the year ending March 31st, 1900.

Specifications, with form of Tender, may be obtained at my office, on receipt of stamped addressed envelope.

Tenders will only be accepted on the form provided, and these must be sent to the Clerk of the Council, the Shirehall, Norwich, on or before SATURDAY, FEBRUARY 4th, 1899.

T. H. B. HESLOP, M.Inst.C.E.,
County Surveyor.

Norwich,
January 16th, 1899.

HORNSEY URBAN DISTRICT COUNCIL.

TO ROAD AND SEWER CONTRACTORS.

The Hornsey Urban District Council are prepared to receive TENDERS for the following WORKS, namely:—

1. (A) The Construction of about 2100ft. run of 9in. Stoneware Pipe Sewer and Surface Water Sewer in Great North-road, Highgate, with manholes, &c.

(B) About 950ft. run of 9in. Stoneware Pipe Surface Water Sewer, with manholes, &c. in Muswell Hill-road, Highgate.

(C) Works of Widening, Kerbing, Channelling, Paving, and improvement in Church-road, Highgate.

2. The Sewering, Levelling, Paving, Metalling, Channelling, and Making Good of Prince's-avenue, Muswell Hill, situate within the District of Hornsey.

Plans and specifications may be seen, and forms of Tender and all information obtained, on application to Mr. E. J. LOVEGROVE, Engineer to the Council, at the Offices mentioned below, on any morning between the hours of TEN and TWELVE o'clock, on a sum of Two Pounds being deposited with the Clerk to the

Council for each separate Tender, which sum will be retained by the Council and deemed to be forfeited if a bona-fide Tender is not made by the depositor.

If a Tender is made which is not accepted, the sum deposited will be returned, and if a Tender is accepted such sum will be retained by the Council until the contract has been executed by the depositor, and will be forfeited in the event of his or his sureties failing or neglecting to execute such contract, or the bond accompanying same, within seven days after he or they respectively shall have been requested to execute the same.

No Tender will be considered except on the prescribed form.

Sealed and endorsed Tenders are to be deposited in the Tender box in my department not later than FOUR o'clock p.m. on Monday, JANUARY 30th.

The Council reserve to themselves the right to decline all, or any, or any portion, of the Tenders sent in.

By order,

F. D. ASKEY,

Clerk to the District Council.

Offices: Southwood-lane,
Highgate, N.
January 4th, 1899.

BOROUGH of BOOTLE.

TO BUILDERS AND CONTRACTORS.

The Corporation of Bootle are prepared to receive TENDERS for the ERECTION of a TECHNICAL SCHOOL on land in Balliol-road, according to plans and specifications prepared by Messrs. BEST and CALLON, Victoria-street, Westminster.

The plans and specifications may be seen at the Office of the Quantity Surveyor, Mr. EDWARD REID, 7, Westminster-chambers, Crosshall-street, Liverpool, and copies of the quantities may be obtained at my office on payment of Two Guineas, which will be returned on receipt of a bona-fide Tender.

The person whose Tender may be accepted will be required to enter into a contract, with sufficient security, containing clauses as to the payment of the standard rate of wages and the observance of the recog-

nised hours of labour in the trades engaged in carrying out the contract.

Tenders, sealed and endorsed "Tender for Technical School," to be addressed to the Free Library and Museum Committee, and delivered at the Town Hall not later than FIVE p.m. on WEDNESDAY, FEBRUARY 1st next.

The lowest or any Tender will not necessarily be accepted.

J. H. FARMER, Town Clerk.

Town Clerk's Office, Bootle,

January 11th, 1899.

VESTRY of ST. MARY, NEWINGTON.

TO CONTRACTORS AND OTHERS.

The Vestry of the above Parish invite TENDERS from persons willing to Contract for the SUPPLY of ROAD MATERIALS and ARTICLES hereinafter enumerated for one year, ending March 25th, 1900.

1. York Paving, Granite Pitchings, Kerbing, &c.
2. Broken Guernsey Granite.
3. Thames Ballast and Sand.
4. Lime and Cement.
5. Ironwork.
6. Ironmongery.
7. Drainpipes.
8. Timber.
9. Scavengers' Brooms.
10. Oils, &c.

Contractors will be required to sign the following declaration:—"We hereby declare that we pay to the

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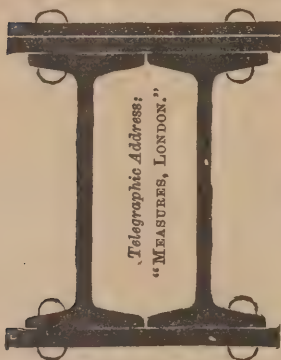
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JANUARY 25TH, 1899.

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See Large Advertisement, Back Page, Monthly.

INTRODUCTION OF NON-FLAMMABLE WOOD
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Take Orders for the supply of "NON-FLAMMABLE WOOD" in large quantities.

"NON-FLAMMABLE WOOD," as produced by the Company's process, is now in use on the following
UNITED STATES WAR VESSELS:—
BATTLESHIPS.—"IOWA" and "OREGON." MONITOR.—"MIANOT." CRUISERS.—"BROOKLYN," "CHICAGO."
GUNBOATS.—"HELENA," "WILMINGTON," "NASHVILLE," "ANNAPOLIS," "WHEELING," "MARIETTA," "NEWPORT," "VICKSBURG."
And is being used for the Battleships "KEARSAGE," "KENTUCKY," "ALABAMA," "WISCONSIN," and "ILLINOIS," now being built.
"NON-FLAMMABLE WOOD" has also been used for all the Carpentry and Joinery Work in the following well-known
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(each of which is over eighteen stories high).
"NON-FLAMMABLE WOOD" has been tested by H.M. Admiralty, and Large Orders have been given to the Company
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Quotations will be furnished on receipt of Specifications.
Address all applications to the General Manager,
BRITISH NON-FLAMMABLE WOOD CO. Limited,
2, Army and Navy Mansions, Victoria Street, London, S.W.



PARIS ABATTOIRS. FIG. 36.

PARIS ABATTOIRS.

By R. STEPHEN AYLING, A.R.I.B.A.

(Concluded from page clvi.)

ABATTOIR FOR PIGS.

THIS is the only portion at present in use, although the abattoirs for sheep and oxen are practically completed. Owing to the inequalities of the site, the portions both for pigs and horses are placed on a terrace about 16 or 17 feet above the general level, and are approached by sloping roads at S.S. The entrance is in the Rue Dantzic at T, and consists of two carriage and two side gates. To the right and left of this entrance are pavilions, V U, the former for the caretaker and the latter for the octroi. Between the large gates is a covered weighing-house. Adjoining the above pavilions are ranges of retiring and cloak rooms, W W, with sanitary conveniences. At X X X are two long ranges of porcheries (stables for pigs), Fig. 36, divided into twenty-seven pens, and capable of holding 1200 animals. The buildings are in brick and stone with tile roofs. Between the two ranges of porcheries is a large open courtyard, Y, with two sloping platforms for the animals to dismount from the carts bringing them to the stables. Connected to the above by a short passage is the bruloir, Z, the killing and burning house. This is divided into eight parts by dwarf brick walls, as at La Villette. The animals are driven into one of the divisions to the number of six or eight, are then killed, and the hair burnt off them. This building has four large ventilators in the roof for carrying off the smoke occasioned by this work. The planning of this portion is certainly not so good as that for the sheep and oxen, where each animal is killed out of sight of the others. A short covered passage, a, with "boyandiers," b (workrooms), on either side, connect the bruloir to the "pendoir," c, and the "degressoirs," d. The former is a large building used for scraping and preparing the carcasses of the pigs. The "degressoirs" (rooms for preparing intestines) are ranged on one side of the "pendoir," and are fitted with troughs and work tables. On either side of the "bruloir" are large open courts with conveniences for men and women, e and f, and a range of "boyandiers" at g. A long building for the storage of fodder and litter is placed parallel to the railway at h. An additional entrance, i, with offices for the octroi is provided at the extremity of the site, from the Rue de Dantzic, for animals coming on foot or in carts. On the lower level is a large courtyard, k, for manure, and at l an open arcade supporting reservoirs over.

Adjoining the railway at n is the disembarking stage for animals brought by train, and in connection with it is the "parc de comptage," m, or counting barriers. The

arrangement of these is similar to those at La Villette, being in wood with lozenge-shaped recesses in which the men stand to count the animals. The central portion is covered by a wooden roof.

ABATTOIR FOR HORSES.

It is proposed eventually to erect the abattoir for horses on the elevated portion of the site adjoining the railway.

The buildings will consist of—o, octroi; p, caretaker; q, sanitary inspector's office; r, condemned meat; s, echaudoirs with lofts over and court in centre; t, stables with lofts over; u, tripery; v, open court approached by sloping road.

As will be seen from the photo illustrations, the whole of the buildings are treated simply and are excellent in design. By a judicious use of the materials employed, Mons. Moreau has obtained an effect which compels admiration. It is a striking illustration of the way in which strictly utilitarian buildings can be made not only expressive of their use, but at the same time excellent examples of architecture.

At the Sanitary Congress recently held at Birmingham, Mr. E. Parkes, M.P., read a paper on "Municipal Authorities and Public Slaughter-houses," in the course of which he urged that the existence of private slaughter-houses, often in a very insanitary condition and in the midst of a dense population, constituted a great source of danger. Unfortunately, at present, Parliament is unable to cope with the evil, but it is to be hoped that the report of the Royal Commission will have the effect of the matter being given careful attention. We have recently lost one of the most enthusiastic champions of the abattoir movement in the death of Sir Benjamin Ward Richardson. It is, perhaps, not widely known that he was president of a small society known as the "London Model Abattoir Society," the object of which was not only to secure sanitary conditions in these buildings, but less cruelty and pain to the animals about to be slaughtered. Herewith I append a few extracts from a pamphlet issued by this society, in which it will be seen how greatly advanced are our Continental neighbours in the humane side of the question.

"In Germany the majority of abattoirs are built and administered by the town parishes—very few of them by the Butchers' Guilds. With very few exceptions they are presided over by a certificated veterinary surgeon, who generally has also the charge of examining the meat. In most parts of the German Empire there have been regulations issued to prevent cruelty, by stunning all animals before the bleeding. In a great many of the slaughter-houses cattle are killed by means of masks, some of them arranged for shooting, but most of them by means of the hammer or the axe."

In Paris "the inspection of meat is entrusted to veterinary doctors, appointed after severe competition. They are under the jurisdiction

of the Prefecture of Police, which sees with jealous care to the strict application of the laws and regulations. Animals intended for food are visited and inspected, without any exception, before, during, and after slaughter. No meat can be introduced into Paris without having in the first place been stamped by the inspectors of butchery."

In conclusion, one can only hope that within the next few years, the abattoir system will become as general in England as on the Continent, that trade opposition will be successfully overcome, and that the slaughtering of cattle will be conducted under humane and sanitary conditions.

PRACTICAL CARPENTRY AND JOINERY.

By GEORGE ELLIS.

XII.—SHAPED OR CURVED WORK.

(Continued from page civ.)

THE methods used in the construction of curved surfaces in joinery may be classified under five heads, viz., bending in the solid by the aid of steam or moist heat; bending veneers by dry heat; cutting out in the solid; building up in sections; bending in the solid by kerfing. Of these, undoubtedly the first method is the best in regard to appearance and strength, as to bend the piece in its

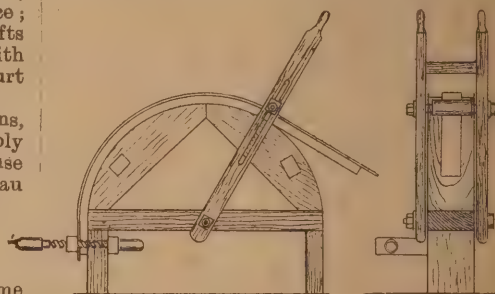


FIG. 180.

FIG. 181.

DRUM FOR BENDING STEAMED WOOD.

entirety will ensure continuity of fibre and regularity of surface. But this process, if applied to stuff of considerable substance, necessitates a somewhat more extensive plant, and consequent space than is available in the average builder's workshop. Where, however, steam is at hand, a steam chest suitable for the manipulation of stuff of small scantling, say up to 2 in. thick, may be constructed without much trouble, of $\frac{1}{2}$ in. iron plate riveted to $1\frac{1}{2}$ in. internal angle pieces; about 10 ft. long by 10 in. square will be found a useful size. The door should be at the opposite end to the supply pipe, and be easily accessible; it should be of stout iron plate, hinged at the bottom. Two ears, bolted to the sides, provide key-

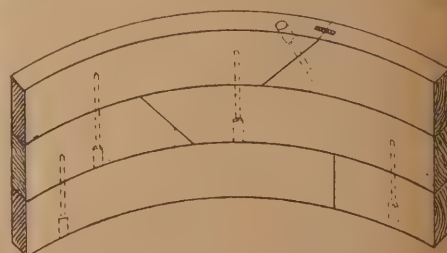


FIG. 182. A "BUILT-UP," CURVED IN LENGTH.

way for a cotter to secure it to its seating, which should be of rubber. The chest should be given a fall of 2 in., and a waste pipe should be provided at the lower end; a blow-off cock near the door and several cross bearers of deal, with waterways cut through, should be placed

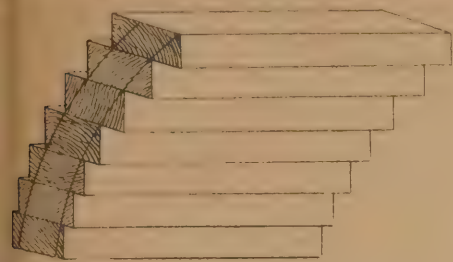


FIG. 183. A "BUILT-UP," CURVED IN WIDTH.

at the bottom to keep the material free from the water.

The wood to be bent must be placed in the chest and the steam turned on for a time, dependent upon the sectional area of the piece treated, and the initial heat of the steam. If it is merely exhaust steam, double the time will be required to that for high pressure steam; in this latter case a quarter of an hour may be allowed for each square inch of section in hard wood, and a little less for soft wood; this will give sufficient time for the wood to become thoroughly permeated with the steam and rendered very pliable; longer than this will impair its strength, by dissolving the cell walls in the softer parts. A drum similar to Figs. 180 and 181 should be prepared, of somewhat quicker sweeps than is required for the work in hand, to compensate for the slight springing open that always occurs when the stuff is released; this drum is provided with a saddle lever working on the centre of the curve, and carrying a small adjustable roller between its arms, arranged to keep the work pressed tightly to the periphery of the drum. The piece to be treated is taken quickly from the steam chest, one end is secured by a handscrew to the drum, as shewn in the sketch, a length of galvanised hoop iron is then introduced between the material and the roller, and the lever is brought round steadily, and not too rapidly; for if the fibres are stretched suddenly they will rupture. When the end of the piece has been reached, the lever should be secured in position with a handscrew, and left for several hours for the piece to get set to the shape; and this may be further assisted by filling the pores on the convex side with hot glue. Any moulding, such as a bead, that does not differ greatly in the thickness of its parts, may be worked in the straight, and then bent;

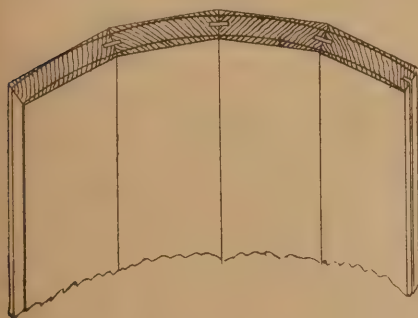


FIG. 184. A "BUILT-UP," CURVED IN WIDTH.

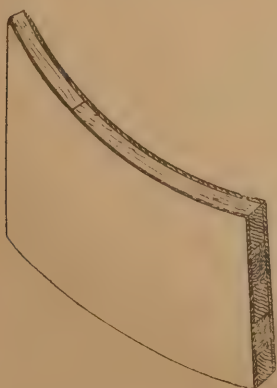


FIG. 185. SOFTWOOD "CORE," VENEERED.

but otherwise, the safer plan is to bend first and work afterwards.

The next best and most economical method of obtaining curves of complex flexure or where the desired piece is of considerable width is by the "building up" process. This consists of the cutting of comparatively narrow pieces, to the required curve, or portions thereof, and fastening them together, over each other by means of glue and screws as shewn in Fig. 182. The heading joints may be made either butt or bevelled; the latter makes the stronger work, but in either case they should be ploughed and cross tongued. So far as possible, the grain of the rings should be crossed in direction, but the pieces composing each ring should run in the same direction, more especially at the butt joints where shrinkage will be most apparent. Two methods of building up work curved in the direction of its width are given in Figs. 183 and 184. The former is the more likely to keep its true shape after working, but the numerous joints are a possible source of weakness. Some of the material might be saved by cutting the planks down the middle with a bevel cut approximating to the curve.

In such work that has to be polished or varnished, the many joints, and crosscut grain, inseparable from these methods, prove serious blemishes in its finished appearance, and in these cases the *veneer* method is usually adopted. This is illustrated in Fig. 185. It consists of a core of non-resinous wood, such as American pine or Basswood, thoroughly dried, built up accurately to the curve, gauged to a suitable thickness, then sized, toothed, and veneered. If the veneer is of the "knife-cut" description, which is about $\frac{1}{16}$ in. thick, and is confined to the more valuable woods, it will be laid with the veneering hammer. This tool, of which a sketch is given in Fig. 186A, consists of a stout piece of steel with a rounded edge about 5 in. long by 3 in. wide, mounted in a deal headstock, with a short stout handle, set at an angle with the head of about 98 deg. It is used as follows: The veneer having been cut a trifle larger all round than the core, is toothed on the back, then wetted on the face with hot water, to counteract the swelling caused by the application of the glue to the back. The face of the core and the back of the veneer are then rapidly covered with boiling glue, the veneer is placed in position, and the superfluous glue squeezed out with the hammer. This is accomplished by rapid and heavy scraping strokes, from the centre towards the outsides of the veneer, the blade of the hammer being kept well soaked in hot soapy water during the operation.

"Saw-cut" veneers vary from $\frac{1}{16}$ in. to $\frac{1}{4}$ in. in thickness, and are much to be preferred to "knife-cut" as giving more substance for working and wear. These are laid by first steaming, or well wetting them in boiling water, then floating in glue, and fixing in position with handscrews, placed as closely together as possible. If the contours of the piece do not lend themselves to the application of handscrews, a caul, or reverse of the curve is made, and heated by gas or fire; its surface is then oiled and applied to the veneer, where it is firmly fixed with cramps or wedges, whichever proves more convenient, until the glue is dry.

Another method of forming a veneered curved surface has been referred to in the article upon Stairs in a previous number; that of *Staving* which may be briefly described as the backing of a veneer previously bent upon a "cylinder" with narrow staves in a cross direction; its application to a Soft lining is shewn in Fig. 186.

Kerfing is a very inferior method of obtaining a curved surface, and should only be used for unimportant work, that has to be painted; it consists in running a number of saw cuts nearly through the piece to be bent, on its concave side, filling the cuts with glue, and then bending the stuff to the sweep, and nailing it in position. Of course the curve is formed very crudely by a series of short facets, which are brought to something like a regular curve with glass-paper; but the marks of the cuts can seldom be entirely obliterated. A method of bending a bead or similar moulding, used by

the writer, may be found of service; a piece of stuff of the required width is cut in the direction of its length into a number of thin strips about an eighth of an inch in thickness; these are bradded or screwed together from the back, the edge is worked to the desired section, the pieces are then separated, and glued singly in position, and when dry any slight irregularity is removed with glass-paper.

(To be concluded.)

THE London United Tramways Company seek power to work their tramways in Surrey by mechanical power over the whole of their

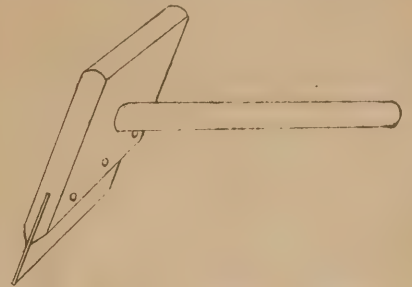


FIG. 186A. A VENEERING HAMMER.

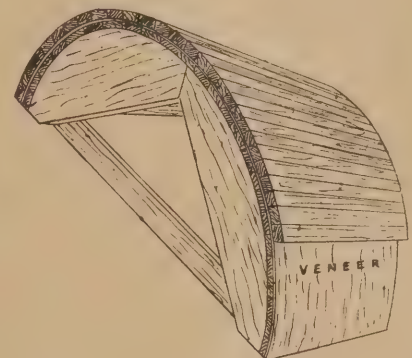


FIG. 186. METHOD OF STAVING A VENEER.

existing or authorised system, including the tramways of the Company in the County of London.

HAVANA is already starting on the work of improvement. The Municipal Council has approved the expenditure of £2,400,000 for sewage and paving, the contract having been given to a former chairman of the Republican Campaign Committee of Brooklyn.

THE Local Government Board, in reference to the application by Truro Rural District Council for sanction to borrow £5000, since increased to £5150, for works of water supply at St. Agnes, have informed that authority that the side wall of the two service tanks must not rest on the concrete floors as proposed, but must have independent foundations carried below the floor level. The Board also require that the pumping machinery be provided in duplicate. An amended plan is to be submitted with the necessary alterations.

A LOCAL GOVERNMENT BOARD inquiry took place at Manchester respecting the application of the Corporation for power to borrow £160,000 for purposes of sewerage and sewage disposal. The sewage of the city amounts to about twenty-three millions of gallons a day, and at the present time it is treated chemically and the effluent runs into the Ship Canal. Of late, experiments have been conducted for the Corporation by sanitary experts with a view to discovering a more effective system, and they advise bacterial purification by means of contact beds. The Corporation desire to establish that system, and the money sought to be borrowed is to construct the necessary works for carrying it out. After the hearing of expert evidence, the enquiry was adjourned for three months to allow of plans and sections being prepared and further experiments being made.

THE PLASTERERS' STRIKE.

SERIOUS CRISIS IN THE BUILDING TRADE.

A TRIFLING dispute which has arisen between a few London plasterers and their employers threatens to have very serious consequences for the building trade generally. On January 9th about 140 plasterers struck against the employment of non-union foremen. The firms involved are Messrs. Higgs and Hill, Messrs. Bywater, and Veronese Limited. These are not particularly bad firms from the workman's point of view; on the contrary, the Labour correspondent of the Daily Chronicle declares that they are noted as the three best shops in London, where the men have always received the best treatment and where the conditions of work have always been the fairest. Their only offence is that they employ foremen who are not members of the Plasterers' Union. What makes the demands of the men the more unreasonable is that by the rules of their society foremen are not allowed to take any part in the business of their branch.

All the men who left their work (with the exception of ten engaged as pickets) at once obtained employment elsewhere. But the serious element in the situation lies in the fear that the masters may retaliate by instituting a general lock-out, unless the men withdraw their demands. There have been rumours for some time past of the existence of a gigantic federation of employers having for its object the smashing of trade unions, and it is further stated that the boiler makers and the plasterers are the two unions specially marked out for attack. On the other hand, Mr. T. Costigan, the Secretary of the Master Builders' Association, said recently in the course of a press interview: "We have no desire to fight. We would gladly avoid it. The contest is being thrust upon us. In fact, we have already offered, some time ago, to form a joint conciliation board. The plasterers' union simply laugh at us. They will have nothing to do with it. They do not even come to discuss disputed points. In a word, their conduct has become so outrageous and intolerable that there is nothing for us but to take action. We are reluctant to do so, but there is really no help for it. The fight is being thrust upon us whether we like it or not." We hope this represents the real mind of the majority of employers, and that there will be no attempt to meet the ill-advised action of a few hot-headed and irresponsible members of local branches by an act of aggression against thousands of trade unionists, who have no part nor lot in the foolish action of their fellow workmen. For nothing is clearer in connection with this strike than that it is brought about by the action of a few, and that it meets with the strongest disapproval, not only of employers and their organs, but of the great bulk of trade unionists, including a large number in the Plasterers' Union itself.

The opinion of Mr. John Burns, M.P., may be quoted as an example of the way the strike is condemned even by the friends of the workmen:—"If they won, he told the men, it would be worse for them in the long run. The best thing that could happen would be for them to withdraw from the dispute, as he was certain it did not command the support of the majority of the plasterers themselves, and from all he could gather it was not likely to receive the recognition of the kindred building trades. It was the opinion of many trade unionists that foremen ought not to be subject to the same rules as men. Given that the foreman question was worth fighting for, it was certain they ought not to go the length of a strike that would probably involve all the building trades in London in a long and bitter conflict.

There is not likely to be any fresh development until after the employers' meeting, which takes place this week. Meanwhile there is hope that the wiser members of the Plasterers' Union, who disapprove of the present course of action, may take steps to make their objections effective.

Surveying and Sanitary Notes.

At a recent meeting of the Linlithgow Commissioners a discussion took place on the proposed drainage scheme for the town. A deputation was appointed to see the agents for the trustees of the late Duke of Hamilton, on whose land it is proposed to construct sewage works. A difference of opinion has arisen as to whether the international system or the septic principle should be adopted in the treatment of the sewage.

An infectious diseases hospital is to be erected at Vineyard Hill, Over, near Gloucester. The site was some time ago purchased by the Council. The cost of the hospital building (a contract for which has been provisionally accepted) will be £9588; roads and improvements to the estate bring the amount up to £13,634. It was estimated that the furniture, &c., would cost £1182; fencing round site, £112; re-erecting old fence, £72; total, £15,000.

READERS interested in the examinations of the Surveyors' Institution would do well to obtain the pamphlet issued by the Institution on the Rules of Examination; this contains a great deal of information likely to be of use to intending candidates. The temporary address of the Surveyors' Institution is Savoy Street, Victoria Embankment, W.C.

REFERENCE was made in this column a fortnight ago to the present position of the work in connection with the Panama Canal. A few particulars concerning the rival scheme—the Nicaragua Canal—will probably be of interest. The proposed route is from Greytown on the Atlantic to Brito on the Pacific, a total distance of about 170 miles. Twenty-seven miles will be excavated canal. Lake Nicaragua will be connected with the Pacific by two sections of canal and by the Tola basin. With the Atlantic it will be united by slack-water navigation through the valley of the river San Juan and a series of basins in the valleys of the San Francisco and Desealo, connected by short sections of canal. The sea-level on each side is reached by three locks, which have been located as near as possible to the extremities of the Canal, thereby giving a clear summit level of 154 miles in extent out of the total length. The advocates of this scheme maintain that it presents fewer difficulties than the alternative route via Panama. The Nicaragua Canal has an admirable natural reservoir in the lake. It passes through a region capable of great development, and offering none of the unhealthy features of the Panama route. There is, moreover, no Chagres river problem to solve. On the other hand, it is not without difficulties of its own, but these are said to be easily surmountable, and it is thought that the time allowed for completion, six years, is amply sufficient.

THE opposition on the part of Welsh farmers and land owners to the London County Council's Welsh water scheme seems to be not quite so spontaneous as at first appeared, but to have been diligently worked up by the London water companies. A number of witnesses from Wales who have come to London to give evidence at the hearing of the allegations of non-compliance with the Standing Orders in respect of the London County Council's Bill are having all their expenses (and something beyond) paid by the water companies. One of these witnesses, in reply to a Daily Chronicle interviewer, said that he and his friends "would not have made any objection to coming to London to give evidence for the County Council if they had been paid for it. All they wanted was proper notice, and when they had got that they would readily sell out to the County Council at a reasonable price. There was plenty of

water in Wales, and if London wanted it, she could have it for all they cared, so long as they got proper compensation." Another of the Welsh witnesses, in reply to a question, said that he would be perfectly willing to sell his land if he got his price. "London wants water," he said, "and may have it. We have plenty for ourselves and for London too." If these gentlemen may be regarded as expressing the general views of the Welsh farmers, it would seem that they are not anxious to prevent the carrying out of the proposed scheme, but merely to secure reasonable compensation for themselves.

SIR WILLIAM CROOKES and Professor Dewar have been giving their views on bacteria and filtration to the members of Lord Llandaff's commission on the water supply of London. According to Sir William Crookes, the chemical character of the Thames water has improved very much of late years. At times when the water was low in the river, microbes in the filtered water increased. In the raw water there were more microbes in the water when in flood than when not in flood, but whatever the number of microbes might be in the unfiltered water, it was got rid of by filtration. Proper filters turned the water out practically pure. It was much better to have water in an exposed reservoir than in an enclosed aqueduct. He found that water taken from standpipes contained more bacteria than the water in the reservoirs of the Companies, and this generation of microbes took place to a much larger extent where water had to be taken for hundreds of miles through aqueducts. There were more bacteria in the water of Manchester and Birmingham after it had passed through the aqueducts than when it left the lakes. In Sir William's opinion the whole question of microbes was sentimental rather than practical, and for his own part he would have no objection to drinking Thames water unfiltered. The microbes that were to be found in Thames water were perfectly harmless. Professor Dewar went a step further and asserted that microbes were not only harmless but, in some cases, useful. We had a great many in our bodies, all doing beneficent work. He did not approve of private filtration. In fact, he said, private filters were utterly useless, and were often the means of introducing deleterious material into the water, especially charcoal filters. Of course, the microbes were destroyed by boiling the water.

THE Committee of the Birmingham Drainage Board, charged with the duty of considering the question of the disposal of the sewage, has presented its report. The main feature of it has reference to the report of Mr. Hawksley and Professor Dewar, together with their recommendations on the question of the Board's sewage works. Briefly, the recommendations were that the farming interests should be a secondary consideration, and nothing should be allowed to stand in the way of making the best use of the land from a sewage-disposal point of view, such crops only being cultivated as were found to be compatible with that object; that the sewage should be distributed at regular and short intervals over the whole farm, the area under irrigation being changed daily; that such portions of the existing farm as were in such a boggy state from the excessive application of sewage should be deep-ploughed and have a liberal dressing of lime; that the tank connections should be rearranged so as to allow of the systematic use of both sets to the best advantage; that a more liberal allowance of lime should be added to the sewage before it enters the tanks; that the supervision of the farm should be entrusted to the engineer so far as regarded the distribution of the sewerage, &c., the farm manager having charge of the farming operations; and that simple experimental artificial filters should be constructed, in order that the Board might be in a position to form an opinion as to the expediency of adopting, if circumstances required it, artificial filtration as a supplementary or relief process, or as an aid to land treatment.—The report was adopted.

Builders' Notes.

Trade and Craft.

THE process of glazing bricks with the use of lead has been declared by a Home Office order, dated December 17th, 1898, to be a process dangerous or injurious to health within the meaning of Section 8 of the Factory and Workshop Act, 1891.

FROM April 1st, 1899, the painters of Edinburgh and Leith will receive an advance in wages from 8d. to 8½d. per hour, with an increase from 10d. to 10½d. for overtime. In Glasgow, Greenock and Paisley, the current rate since the beginning of the year has been 9d. per hour.

IN the National Telephone Company's extensive new premises at Belfast, after special consideration, the system of "Combined Warming and Ventilation," of John King, Limited, Liverpool, has been decided on, the Rajah ventilating radiators and Rex electric air propellers being employed for removing foul air, and supplying fresh air, warmed in winter, cooled in summer.

THE new Temporary Fever Hospital, Knutsford, is being warmed and ventilated by means of Shorland's patent Manchester stoves, supplied by Messrs. E. H. Shorland and Brother, of Manchester.

THE report issued by the Labour Department of the Board of Trade on the state of trade in December, 1898, shows that the building trades generally were in a flourishing condition, though painters and decorators and plumbers were not so busy as a little while ago. The percentage of unemployed members of trade unions which make reports to the Department was 1·8 as compared with 2·8 in December, 1897. This is a much lower percentage than that in many other trades, and it may be taken as a fairly reliable indication of a brisk state of trade. Taking the year 1898 as a whole, the building trades may be said to have been in a satisfactory condition. The number of men affected by changes of wages during the year was 72,000, or about nine per cent. of the whole number employed. The changes were equivalent to an increase of 1s. 11½d. per week in the wages of all the workmen affected.

THE report presented at the annual meeting of the Bristol Master Builders' Association on the 18th, states that the work performed by the association during the past year alone has

been sufficient to justify its existence. It was only too certain that whilst the builders of this country had been content to remain unorganised for the purpose of protecting themselves and their trade interests, others, whose interests were unfortunately somewhat opposed to them, had been attacking, with ever-increasing vigour, many branches of the trade which legitimately belonged to the builders of this country; but it was gratifying to know that the trade generally was at last arousing itself to the importance of establishing local associations, and being affiliated to federations in the various districts. During the past year there had been increased prosperity in the building trade of Bristol, though there had been greater competition. Reference is made to the demand made by the men in March for an advance of wages and sundry alterations in the working rules and to the arbitration proceedings which followed. The effects of the Workmen's Compensation Act upon the trades are also passed in review, and it is maintained that the members of the association, after investigation and consultation, were enabled to secure very favourable rates and policies to cover not only the Workmen's Compensation Act, but also Employers' Liability and Common Law. In opposing the Plumbers' Registration Bill the committee was of opinion it had acted in the interests of the public and the building trade generally, and it intended to persevere in its efforts in that direction. Numerous trivial disputes as to the interpretation of rules and other points were continually receiving consideration at the hands of the Conciliation Board, but it was satisfactory to know that invariably the true spirit of conciliation prevailed, and that the points at issue were disposed of in a most amicable manner.

THE Tiverton Town Council have decided to apply for permission to borrow £6750, for Westex sewer (£4050) and sewage disposal works (£2700). The essence of the scheme was to carry on the present system of irrigation assisted by lifters.

THE English Delaval Steam Turbino Company Limited, which was registered a few weeks ago with a nominal capital of £100,000, intend to start business in Leeds. A site has been secured in Armley Road, New Wortley, upon which it is intended at once to erect large works for the manufacture of the Company's speciality. It is anticipated that employment will be found for several hundreds of hands, and as the business develops other engineers will be engaged.

GRAHAM, MORTON AND CO. LTD.

We have received from Messrs. Graham, Morton and Co. Ltd., Black Bull Street, Leeds, their illustrated catalogue of Labour Saving Appliances. The appliances illustrated cover a very wide range, and exhibit astonishing ingenuity in the application of mechanical principles to the lessening of manual labour in many directions. Loading and unloading ships; carrying coal, sand, gravel, &c.; elevating ashes from cellar to cart or van; conveying broken stone, &c. to the opposite side of a river; carrying small packages and boxes at fancy box, tin plate or bottling works; raising casks, pottery, pipes, blocks of ice, flour, grain, &c.; these are but a few of the purposes to which Messrs. Graham, Morton and Co.'s machinery is applicable. There are many alternative appliances so as to suit all manner of circumstances, and in many cases the work is done almost automatically and with extraordinary rapidity. The firm also manufacture in great variety appliances for breaking ores, stones, coal, &c., screening plant, disintegrators, weighing machines, wire ropes, gas and steam engines, lubricators, boilers, &c.

W. DUNCAN TUCKER.

Little attention is now generally devoted by architects to the subject of gardening and the relation of the garden to the house, and a lamentable want of knowledge is shown in building for horticultural purposes. We suppose that in these days of town buildings, or, as we heard it expressed recently, days of which the chief features are the building of public-houses and underground conveniences, it is thought unnecessary to consider the garden of a dwelling. Mr. W. Duncan Tucker is a fellow of the Royal Horticultural Society, and is a specialist in this matter. In his most recent catalogues various horticultural buildings in the most improved system of construction are enumerated, strength and lightness appearing to be the principles aimed at, the old-fashioned heavy timbers being entirely dispensed with and superseded by principal rafters and intermediate roof-bars; the former are strengthened at mullions by ornamental cast-iron spandrels to eaves and ridge. The principal rafters in the longer lengths are trussed with round iron rods, and roof bars are supported by the rods, with king and queen post to roofs. By this system the greatest amount of light is procured. Mr. Tucker uses the improved new system of glazing on bottom putty only. His address is Lawrence Road, Tottenham, N.

COMPLETE LIST OF CONTRACTS OPEN.

DATE OF DELIVERY.	WORK TO BE EXECUTED.	FOR WHOM.	FROM WHOM FORMS OF TENDER MAY BE OBTAINED.
BUILDINGS—			
Jan. 27	Pontyeats, Wales—Repairing, &c., Chapel...	...	D. Beynon, Nazareth Congregational Chapel, Pontyeats,
" 28	Aston Manor, Birmingham—Baths, &c. ...	Urban District Council ...	H. Richardson, Engineer, Council House, Aston Manor.
" 28	Ikley—Four Houses ...	...	E. B. Johnson, Architect, Ikley.
" 28	Manchester—Technical Institute and Public Library...	Stretford Urban District Council ...	J. Bowden, 14, Ridgefield, Manchester.
" 28	Leeds—Alterations to Bank Premises, &c. ...	...	T. Winn, 92, Albion-street, Leeds.
" 28	Greasborough, near Rotherham—Laying out Burial Ground, &c. ...	Burial Board ...	J. Platts, Architect, Old Bank-bldgs., High-st., Rotherham.
" 28	Bakewell—Infirmary, Tramp Wards, &c. ...	Union Guardians ...	E. M. Longsdon, Town Hall, Bakewell.
" 28	Wingate—Erection of Shop ...	Co-operative Society ...	Secretary, Station Town Co-operative Society, Wingate.
" 30	Manchester—Government Offices ...	Commissioners of H.M. Works ...	Offices, Storey's-gate, Westminster.
" 30	Birmingham—Nurses' Messroom, &c., at Infirmary ...	Guardians ...	R. H. Ward, Architect, Paradise-street, Birmingham.
" 30	Glasgow—Electricity Generating Station ...	Corporation ...	A. Myles, 143, West Regent-st, Glasgow.
" 30	Grauton, Edinburgh—Residual Products Works, &c. ...	Gas Commissioners ...	W. R. Herring, Manager, Gasworks, Edinburgh.
" 30	Halifax—Villa Residences ...	...	A. G. Dalzell, 15, Commercial-street, Halifax.
" 30	Trinant, near Crumlin, Mon.—Classroom ...	Mynyddislwyn School Board ...	Rosser and Roberts, Architects, Abercarn.
" 30	Ulverston—Erection of Villa ...	W. Holmes ...	Settle and Farmers, Architects, Ulverston.
" 30	Ynysyddu Mon.—Erection of Classroom ...	Mynyddislwyn School Board ...	Rosser and Roberts, Architects, Abercarn.
" 31	Cardiff—Extension to Electric Lighting Station ...	Corporation ...	W. Harpur, Borough Engineer, Town Hall, Cardiff.
" 31	Prndhoe-on-Tyne—Rebuilding Hotel ...	Workhouse Guardians ...	E. B. Dick, 55, Northumberland-street, Newcastle.
" 31	Northallerton—Bathroom, and Water supply, &c. ...	Commercial Co. Ltd. ...	Fairbank and Son, 13, Lendal, York.
" 31	Ripponden, Yorks—Fireproof Mill ...	Camberwell Vestry ...	R. Horsfall and Son, 22a, Commercial-street, Halifax
" 31	London, S.E.—Underground Convenience ...	Town Council ...	Surveyor, Vestry Hall, Peckham-road, S.E.
" 31	Berwick-upon-Tweed—Lock-up and Police Station ...	East Sussex County Council ...	R. B. Dick, 55, Northumberland-st., Newcastle-upon-Tyne.
" 31	Hellingly, Sussex—Making Bricks ...	Corporation ...	F. J. Wood, County Surveyor, County Hall, Lewes.
" 31	Burton-upon-Trent—Widening Bridge ...	Corporation ...	G. T. Lynam, Borough Engineer, Burton-upon-Trent.
Feb. 1	Bootle—Technical School ...	Equitable Industrial Co-operative Soc.Ltd. ...	J. H. Farmer, Town Clerk, Bootle.
" 1	Burnley—Extension of Stores ...	Guardians ...	T. Bell, 14, Gorimshawe-street, Burnley.
" 2	York—Extension to Workhouse ...	Cockermouth Rural District Council ...	Penty and Penty, Architects, Lendal-chambers, York.
" 3	Brackenthwaite—Erection of Two Bridges ...	...	J. B. Wilson, Engineer, Court-buildings, Cockermouth.
" 3	Luddenden Foot, near Halifax—Stabling, &c. ...	Mrs G. Kenshole ...	J. F. Walsh, Architect, Lanes, Yorks Bank-chbrs., Halifax.
" 3	Mountain Ash, Wales—Rebuilding Public House ...	Aske's Haberdashers' School Managers ...	G. Kenshole, Duffryn House, Ystrad Mynach.
" 4	West Hampstead—School ...	...	Widnell and Troilope, 20, Tothill-street, S.W.
" 6	Benllech, Anglesey—Chapel Extension ...	...	J. Owen, Architect and Surveyor, Menai Bridge.

COMPLETE LIST OF CONTRACTS OPEN—continued.

DATE OF DELIVERY.	WORK TO BE EXECUTED.	FOR WHOM.	FROM WHOM FORMS OF TENDER MAY BE OBTAINED.
BUILDINGS—Continued.			
Feb. 6	Newcastle-on-Tyne—School Alterations, &c.	School Board	W. L. Newcombe, 89, Pilgrim-street, Newcastle-upon-Tyne
" 6	Normanton-by-Derby—School Alterations, &c.	School Board	Naylor and Sale, Architects, Iron-gate, Derby.
" 11	Swindon—Rebuilding Inn	T. and J. Askell	W. Draw, 22, Victoria-street, Swindon.
" 13	Wimbledon—Isolation Hospital	Urban District Council	C. H. Cooper, Council Offices, Broadway, Wimbledon.
" 14	Leeds—Church Works	Urban District Council	H. Walker, 8, Upper Fountain-street, Leeds.
" 15	Rugby—Public Offices	Urban District Council	D. G. Macdonald, Council-Surveyor, Windmill-lane, Rugby.
No date.	Hull—Additions, &c., to Church Institute	Todd and Wardell	Brodrick, Lowther, and Walker, 77, Lowgate, Hull.
"	Hull—Erection of Printing Works	School Board	Brodrick, Lowther, and Walker, 77, Lowgate, Hull.
"	Leeds—Erection of Higher-Grade School	School Board	J. M. Bottomley, City and County Bank-chambers, Leeds.
"	Morecambe—Erection of Warehouse, &c.		Rayner and Sager, Alfred-street, Blackpool.
"	Rogerstone, Mon.—Fourteen Semi-detached Houses		Swalwell & Crockett, Steam Packet-chambers, Dock-st. Newport
"	Steele, Yorks.—Erection of Institute		J. Judson and Moore, Architects, Keighley.
"	Whitehead, co. Antrim, Belfast—Lecture Hall	Trustees of Methodist Church	H. Sykes, Whitehall-buildings, Ann-street, Belfast.
"	Witham, Hull—Erection of Bank Premises	London and Yorkshire Bank	Brodrick, Lowther, and Walker, 77, Lowgate, Hull.
"	Stone—Alterations to School	School Board	F. W. Kirby, Galley Hill, Greenhithe.
ENGINEERING—			
Jan. 27	Newhaven and Seaford, Sussex—Sea Wall, &c.	Defence Scheme Commissioners	Engineer, L.B. and S.C. Railway, London Bridge, S.E.
" 28	Southampton—Superstructure, &c., of Bridge	County Council	W. J. Taylor, County Surveyor, The Castle, Winchester.
" 28	Cropton, Pickering—Water Supply	Rural District Council	R. Kitching, Clerk, East Gate, Pickering.
" 28	Sheffield—Condensers	United Gaslight Company	F. W. Stevenson, The Engineer, Commercial-st. Sheffield.
" 30	Belfast—Tipping Crane, &c.	Harbour Commissioners	G. F. L. Giles, Engineer, Harbour Office, Belfast.
" 30	Midhurst, Sussex—Reservoir, Mains, &c.	Rural District Council	J. Taylor, Sons, & Santo Crimp, 27, George-st. Westminster
" 30	London, W.—Steam Dynamo Alterations, &c.	Ealing Urban District Council	J. D. Knight, Engineer, Electricity Works, Sth. Ealing, W.
" 31	London—Dynamos, Switchboards, &c.	London County Council	Engineer's Department, County Hall, Spring-gardens, S.W.
" 31	London—Four Gas Engines	County Council	Engineer's Department, County Hall, Spring-gardens, S.W.
" 31	London, E.C.—Ferry Paddle Steamers	Bengal-Nagpur Railway Co. Ltd.	Company's Office, 132, Gresham House, Old Broad-st., E.C.
Feb. 1	Townsville, North Queensland—Supply of Crane	Harbour Board	Chairman, Townsville Harbour Board, Townsville.
" 1	Bradford—Electric Lighting Installation	Corporation	Electricity Department, Town Hall, Bradford.
" 2	Belfast—Electric Lighting Requisites	Electric Committee	V. A. H. M. Cowen, City Electrical Engineer, Belfast.
" 3	Brigham, Cumberland—Laying Water Main	Cockermouth Rural District Council	J. B. Wilson, Engineer, Court-buildings, Cockermouth.
" 6	Newton, Scotland—Widening Railway	Caledonian Railway Company	G. Graham, C.E., Buchanan-street, Glasgow.
" 6	Belfast—Steel Barges	Harbour Commissioners	G. F. L. Giles, Harbour Engineer, Belfast.
" 6	Lowestoft—Electric Lighting Plant	Corporation	W. C. C. Hawtayne, 9, Queen-street place, E.C.
" 8	Kames, Scotland—Reservoir, Filters, &c.	Argyleshire County Council	J. A. Leslie and Reid, 72a, George-street, Edinburgh.
" 10	Birmingham—5½ miles of Aqueduct	Corporation	J. Mansergh, 5, Victoria-street, S.W.
" 16	Alexandria, Egypt—Two Swing Bridges	Inspector of Irrigation	Inspector of Irrigation, Third Circle, Alexandria.
" 16	Christiana—Porcelain Telegraph, &c., Insulators	Norwegian State Telegraph Administration	Commercial Department, Foreign Office, S.W.
March 2	Cairo—Iron Canal Bridge	Public Works Department	The Inspector, Second Circle of Irrigation, Cairo.
No date.	Castleford—Boring Artesian Borehole		J. Hartley and Co., Brick Works, Castleford.
IRON AND STEEL—			
Jan. 28	Tipton, Staffs.—Iron Fencing	Urban District Council	W. H. Jukes, Council Surveyor, Owen-street, Tipton.
" 28	Taunton Iron Fencing	Town Council	Borough Surveyor, Corporation-street, Taunton.
" 28	St. Anne's-on-Sea, Lancs.—Supply of Pipes	Urban District Council	H. Bancroft, 88, Mosley-street, Manchester.
" 31	Edinburgh—Supply of Pipes	Gas Commissioners	W. R. Herring, Manager, Gasworks, Edinburgh.
PAINTING AND PLUMBING—			
Jan. 30	London, W.C.—Supply of Oils, Varnishes, &c.	Metropolitan Asylums Board	T. D. Mann, Norfolk House, Norfolk-street, Strand, W.C.
Feb. 3	Dublin—Supply of Paints, &c.	Commissioners of Irish Lights	O. Armstrong, Secretary, Irish Lights Office, Dublin.
" 6	Manchester—Painting—(12 Contracts)	Lancashire and Yorkshire Railway Co.	Engineer, Hunt's Bank, Manchester.
ROADS AND CARTAGE—			
Jan. 27	Sunderland—Road Works	Corporation	J. F. C. Snell, Engineer, Town Hall, Sunderland.
" 23	Sleaford, Lincs.—Supply of Granite and Slag	Rural District Council	E. Clements, 24, Southgate, Sleaford.
" 28	Thornton, Yorks.—Road Works	Urban District Council	J. Drake and Son, Winterbank, Queensbury, near Bradford.
" 31	Huddersfield—Team Work	Corporation	Borough Surveyor, Town Hall, Huddersfield.
" 31	London, N.—Road and Sewer Works	Hornsey Urban District Council	E. J. Lovegrove, Surveyor, Southwood-lane, Highgate, N.
" 31	London, S.W.—Works and Materials	Wandsworth Board of Works	Offices, East Hill, Wandsworth, S.W.
Feb. 1	London, S.W.—Road-making	Lewisham Board of Works	Surveyor's Department, Town Hall, Catford.
" 1	St. Thomas, near Exeter—Road Materials	Rural District Council	J. Bray, Surveyor, Alington.
" 1	Mexborough, Yorks.—Street Works	Urban District Council	G. F. Carter, Surveyor, Council Offices, Mexborough.
" 1	Enfield—Road Works	Urban District Council	R. Collins, Surveyor, Court House, Enfield.
" 2	Greenwich—Paving Works	Board of Works	Offices, 141, Greenwich-road, Greenwich.
" 2	Burgess Hill, Sussex—Construction of Footpath	Urban District Council	Council Offices, Church-road, Burgess Hill.
" 4	London, N.W.—Wood Paving	St. John's Vestry, Hampstead	Surveyor, Vestry Hall, Hampstead.
" 4	Norwich—Broken Granite	Norfolk County Council	T. H. B. Heslop, County Surveyor, Norwich.
" 4	London, W.—Works and Materials	Marylebone Vestry	The Clerk, Court House, St. Marylebone, W.
" 6	Aberfeldy—Cartage, &c.		W. Bell, Road Surveyor, Aberfeldy.
" 6	Midhurst, Essex—Materials	Rural District Council	A. G. Gibbs, Surveyor, Council Offices, Midhurst.
" 8	London, S.E.—Materials	Newington Vestry	L. J. Denham, Vestry Hall, Walworth, S.E.
" 8	Swindon—Road Works	Urban District Council	E. T. Jones, 42, Cricklade-street, Swindon.
" 9	London, S.E.—Services and Materials	Lambeth Vestry	H. Edwards, Vestry Hall, Kennington, S.E.
" 28	Selby—Asphalte or Tar Macadam	National Schools Managers	Rev. A. G. Tweedale, The Vicarage, Selby.
No date.	Farnworth—Supply of 3000 tons of Setts	District Council	W. Crossley, Clerk, Council Offices, Farnworth, E.S.O., Lancs.
SANITARY—			
Jan. 27	Hartley Wintney, Hants.—Pipe Sewers	Rural District Council	F. L. Wetherall, Clerk to Parish Council, Hartley Wintney.
" 28	Glasgow—Outfall Sewer	Corporation	City Engineer, 64, Cochrane-street, Glasgow.
" 28	Castleton, Derbyshire—Drainage Works	Rural District Council	Sterling & Swann, Engineers, Town Hall, Chapel-en-le-Frith.
" 28	Adlington, Lancs.—Laying-out Sewage Works	Urban District Council	T. S. McCallum, 4, Chapel-walks, Manchester.
" 23	Surbiton—Construction of Sewers, &c.	Urban District Council	S. Mather, Engineer, Victoria rd, Surbiton.
" 30	Whickham, Durham—Construction of Sewer, &c.	Urban District Council	J. R. Spencer, 13, Grainger-st., West, Newcastle-on-Tyne.
" 30	London, N.—Sewering Work	Hornsey Urban District Council	E. J. Lovegrove, Offices, Southwood Lane, Highgate, N.
" 30	Amptill—Sewerage Works	Urban District Council	T. Hennell, 6, Delahay-street, Westminster.
" 31	Chipping Norton—Drainage Works	Town Council	N. Lailey, 16, Great George-street, Westminster.
Feb. 1	Handsworth, Staffs.—Drain Pipes, &c.	Urban District Council	E. Kenworthy, Surveyor, Council House, Handsworth.
" 1	Chester-le-Street, Durham—Scavenging	Rural District Council	H. Webb, Sanitary Inspector, Chester-le-Street.
" 2	Llandudno—Sewers, &c.	Urban District Council	E. P. Stephenson, Surveyor, Church-walk, Llandudno.
" 3	Wellingborough—Sewage Works	Rural District Council	J. B. Everard, 6, Millstone-lane, Leicester.
" 14	Cirencester—Drainage Works	Urban District Council	T. Hibbert, Surveyor, Cirencester.

COMPETITIONS.

DATE DESIGNS TO BE SENT IN.	DESIGNS REQUIRED.	AMOUNT OF PREMIUM.	BY WHOM ADVERTISED.
Feb. 1	Bradford—Central Fire Brigade Station	£100, £50, £30	City Surveyor.
" 7	Tottenham—Refuge Destructor	£25, £15, £10	Urban District Council Tottenham.
" 10	Dartford—Three New Schools	£31 10s., £10 10s.	Dartford School Board, Kent.
" 24	Northwich—Two Storey Dwelling House	£20, £10, £5	Northwich Salt Compensation Board, Wimmington-street.
" 28	Knutsford—Laying-out Cemetery, &c.	£20, £10	W. J. Downes, Surveyor, Urban District Council, Knutsford.
" 28	London, S.W.—Covered Sanitary Dust-cart	£25	Clerk, London County Council, Spring Gardens, S.W.
March 1	Northwich—Dwelling-house on Land Liable to Subsidence	£20, £10, £5	Salt Compensation Board, Northwich.
" 4	School Buildings	£25, £10	Beverley Grammar School.
" 31	Forfar—Isolation Hospital	£31 10s., £21, £15 15s.	Dundee and Forfar District Committee.
April 14	Bradford—Cartwright Memorial Hall and Art Gallery	£150, £100, £50	City Surveyor, Bradford.
No date.	Gosport & Alverstoke—Technical Institute and Library	£100, £25, £10	Urban District Council, Gosport and Alverstoke.

Property and Land Sales.

PERIODICAL SALES.

ESTABLISHED 1843.

MESSRS. H. E. FOSTER & CRANFIELD
(successors to Marsh, Miller, and Co.) conduct
PERIODICAL SALES of

REVERSIONS (Absolute and Contingent),
LIFE INTERESTS and ANNUITIES,
LIFE POLICIES,
Shares and Debentures,
Mortgage Debts and Bonds, and
Kindred Interests,

on the **FIRST and THIRD THURSDAYS** in each
month throughout the year, at the **MART**, Tokenhouse-
yard, E.C.

The following are the appointments fixed for 1899:—

February 2nd	June 1st	September 21st
February 16th	June 15th	October 5th
March 2nd	July 6th	October 19th
March 16th	July 20th	November 2nd
April 6th	August 3rd	November 16th
April 20th	August 17th	December 7th
May 4th	September 7th	December 21st
May 18th		

Offices, 6, Poultry, London, E.C. Telephone No. 999
Bank.

SURREY.—Choice BUILDING ESTATE.

—In a charming district, two miles from Horley
station (L.B. and S.C. Ry.) under one hour from
London and adjoining a village where are church, shops,
and post-office; two miles from Roman Catholic Church.

FOR SALE, a compact and valuable **FREEHOLD**
PROPERTY of 53 acres, with a frontage to the main
Brighton road of 2000ft., and perfectly ripe for develop-
ment, with residences of a good class. Prettily timbered.
Gas and water mains along the frontage. Would be
divided.

Plans and full particulars of the owner's agents,
Messrs. GREEN and SIMES, Auctioneers and Estate
Agents, Blenheim Mansions, Queen Anne's-gate,
London, S.W.; or Mr. W. M. LEACH, Auctioneer and
Estate Agent, Crawley, Sussex.

FAIRMILE PARK, near Cobham, Surrey.—A **FREE-
HOLD BUILDING ESTATE** of about 40 acres, with
possession.

MESSRS. DRIVER and CO. have received
instructions to offer to **AUCTION** at the **MART**,
Tokenhouse-yard, Lothbury, **NEXT SPRING** (unless
previously sold by private contract), the above property,
situate in a favourite residential district, about a
quarter of an hour's walk from the Oxshott and Fair-
mile Station, and about a mile and a half from Cobham
Station. The estate comprises Building Land, ripe for
development, the higher portion (sloping to the south)
possessing charming views over the intervening country
to Epsom Downs; and a Residence known as "South
Lodge," with stabling and garden; Eight small Villas,
some Cottages, and the "Griffin" Beerhouse. On a
portion of the estate brickearth is being worked, and
will be included in the sale as a "going concern."

Particulars and plans, when ready, can be obtained of
CHARLES JUPP, Esq., Solicitor, 43, Lime-street, E.C.;
and of Messrs. DRIVER and Co., 23, Pall Mall, S.W.

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ALL HALLOWS, SOUTHWARK: Ground Plan—Interior—The East End—From the South-West.

An Interesting Article on the above, written by WALTER J. N. MILLARD, appears in the January Number of "THE ARCHITECTURAL REVIEW."

CONTENTS ALSO INCLUDE:

The Castles of "The Three Musketeers": Part II.

Porhos: His Chateau of Pierrefonds: Written by "KHEPR."

ILLUSTRATIONS BY PATTEN WILSON: View of the Entrance Bridge, Pierrefonds—Plan of Pierrefonds—Draw-bridges and Archers' Steps—The Outer Gate—The Great Tower—Beasts on the Escalier d'Honneur.

Art in Ancient Cyprus. By H. B. WALTERS, M.A., F.S.A.

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Romance in Sculpture: North Germany.

LETTERPRESS AND ILLUSTRATIONS BY THOMAS R. MACQUOID, R.I.: A Chandelier in the Rathhaus, Goslar—Carving in Rathhaus, Bremen—House of the Cæsars, Hildesheim—A Stall End, Marienkirche, Lubeck—Balcony of a House, Goslar—The Kaiserworth in the Market Place, Goslar—Hunting Scene in the Cathedral, Munster—Fountain in the Great Square, Lubeck—In the Chapter House of the Cathedral, Munster—Carving on Pilaster, Rathstube, Luneburg—St. George and the Dragon, Lubeck.

The Architecture of Michael Angelo: Part III.

Written by BERESFORD PITE.

WITH ILLUSTRATIONS OF: Detail of Niche, San Lorenzo, Florence—The New Sacristy, San Lorenzo—Detail of Window, San Lorenzo—Tomb of Giuliano de Medici, San Lorenzo—The Conservatori Palace, Rome—The Duomo, Florence, Brunelleschi's Dome—St. Peter's, Rome (Interior)—The Statue of Marcus Aurelius (showing Bay of the Conservatori Palace, Rome)—Interior of the Dome, St. Peter's—St. Peter's, from the West.

The Arts in Ancient Egypt. Written by the Rev. W. J. LOFTIE, B.A.

ILLUSTRATED WITH FIGURES OF: Scarab of Semen-Ptah (First Dynasty)—Khafrā (Cast of Statue at Gizeh—Statue of Nefert—Statue of Rahetep—Head of Nefert—Shery and His Wife—Scarabs of Ka-neb, Cheops, (Khu-fu), and Sesuser, of the Third and Fourth Dynasties—Coffin Khufu-anch—Wooden Statue of Ra-em-ka—Scarab of Khu-neb—Portrait Statue in the Gizeh Museum—Entrance to Pyramid of Khufu—Thy, Fishing from Tomb at Sakkarah—Pyramid at Sakkarah.

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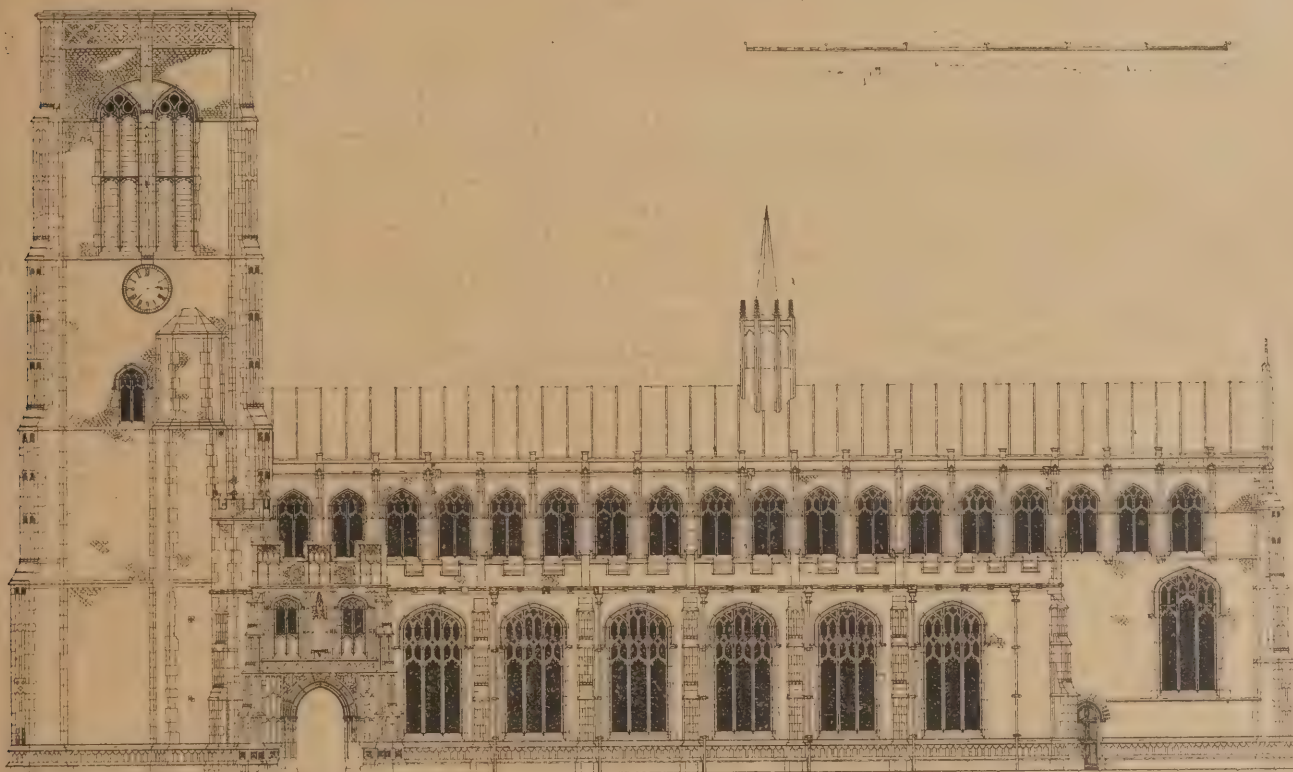
WITH SURVEYING AND SANITARY SUPPLEMENTS

An Architectural Causerie.

The Soane Medallion Award. THE award of the Soane Medallion at the R.I.B.A. has given rise to much justifiable complaint. The subject set was a large concert hall, and one of the conditions was that the designs must conform to the regulations of the L.C.C. applying to buildings of this class. The Council has awarded the prize to a design which ignores this condition.

tions to the promoters of competitions, and has a standing committee to deal with the subject. What should be the attitude of that committee towards this case? And with what influence or authority can the Institute intervene, in the interests of its members, in an outside competition, while its own competitions are conducted on the same lines? It is not necessary to enlarge on the injustice to the other competitors involved in such an award. The L.C.C. regulations are a great restriction on the designer, and possibly many of the other competitors could have produced designs even more admirable in the eyes of the Council, if they had felt themselves at liberty to ignore these regulations. And this prompts the obvious question—Why did the Council include this condition, that the L.C.C. regulations should be adhered to? The L.C.C. is no authority on Architecture, its regulations are not founded on the immutable principles of Art. They are merely strictly local and temporary rules, forming a rough-and-ready way of guarding against the worst results of the possible blunders of the ignorant. There is nothing final about them; there is no need to treat them with such an exaggerated respect, or to exalt them into a fetish.

site has been improved, but the building has been crippled by the L.C.C. regulations. Would it be too much to hope that next year the Council will wipe away temporary and local restrictions of all kinds, and give the students a chance to show—just for once—what a concert hall should be like. It is probably no small part of the secret of the success of Continental architects with their public monuments that, from their earliest days, they are taught what such buildings should be like, and how they should be treated. When they come to deal with practical affairs they know how the building should be done, and are able to bring it as near perfection as the particular circumstances will allow, and even in the worst cases to give at least a suggestion of a fine building. With our method of education the mind gets accustomed to meanness and distortion, and the imagination is dwarfed, so that when we do get a chance to do something fine we are unable to rise to the occasion. And, apart from this, the fact remains that to confront the enthusiastic student with the regulations of the L.C.C. is cruel; it destroys his youthful illusions and makes him old before his time. A.R.J.



R.I.B.A. PRIZE AWARDS: INSTITUTE MEDAL AND £5 5s. SOUTHWOLD CHURCH: SOUTH ELEVATION. DRAWN BY E. F. KNIGHT.

Apart from the requirements of the L.C.C., this design has some grave faults, both of construction and arrangement, but it is beside the point to take exception to these, as the Council is the judge, and it has set the seal of its approval upon them. But such faults tend to show that the Council was hardly led away by a momentary enthusiasm for a design of superlative architectural merit into forgetting the condition it had itself laid down. It is possible that on its merits—and it has merits, disregarding the L.C.C. regulations—this design may, in the opinion of the Council, be the best, but this is not the point. The point is, that all the designs should have complied with these regulations, and that none of those which did not do so should have been admitted to the competition. We are continually hearing complaints of the way in which municipalities and local authorities conduct competitions, and but lately two or three glaring instances have arisen in which the conditions have been ignored. The Institute has framed sugges-

While many of these regulations are sensible enough, more of them are quite the reverse, and place unnecessary and unreasonable difficulties in the architect's path. In fact, the more practical experience we have of them, the more we are inclined to the opinion that it is rapidly becoming impossible to produce Architecture (distinct from building) in any district where these rules are in force. From this point of view, then, it does seem unnecessary for the Council to needlessly complicate the programme by the introduction of restrictions, few of which are necessary to a good building, most of which are fatal. To design a building such as a large concert hall is sufficient of itself to tax the ability of the student, even when free from restrictions of all kinds. To do so under the L.C.C. regulations, and still to produce Architecture, is a problem for a master. It will be remembered that this same subject was set last year, only in that case the site was deformed, against which site a protest was entered in these columns. This year the

On Reflection.

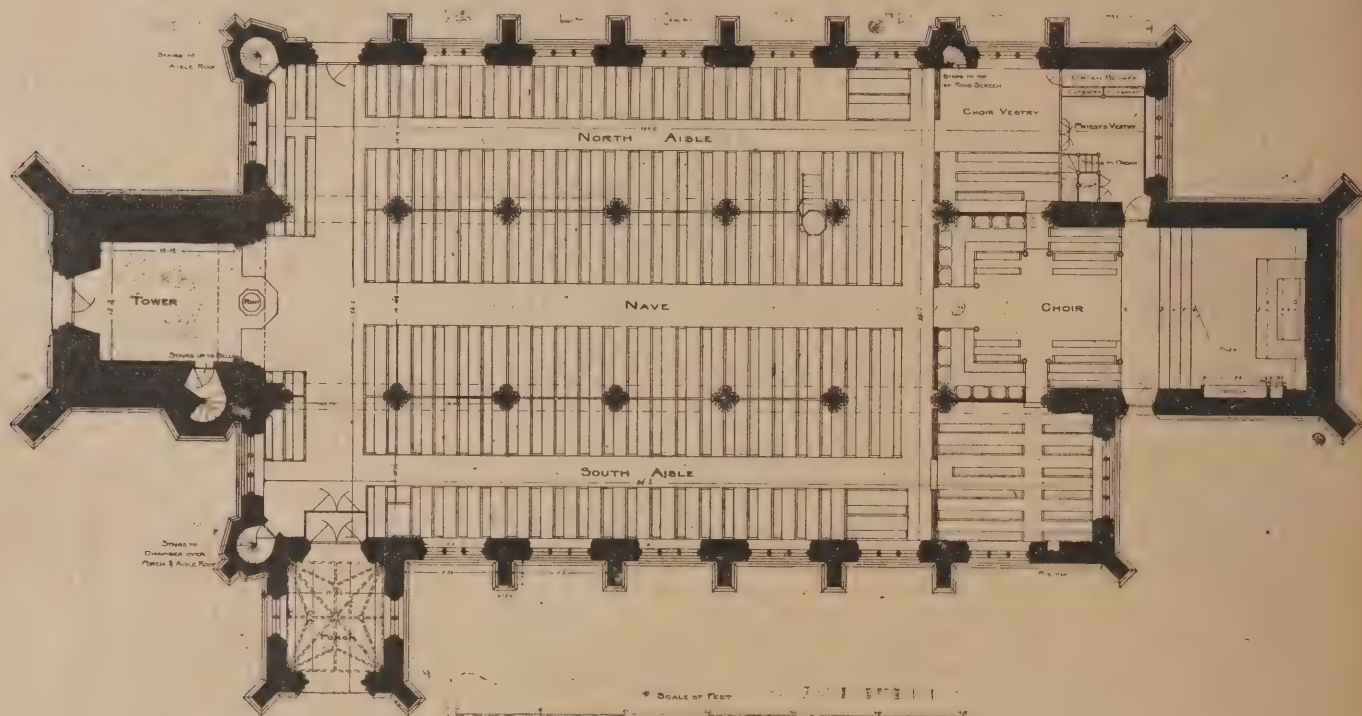
A School Board Competition. PROTEST against the conduct of competitions has become almost a staple item in our weekly commentary upon Architectural affairs. A correspondent, referring to the remarks on the Dartford Board School competition which appeared in this column in our issue of the 18th inst., sends us the conditions of a competition, organised by the Middlesbrough School Board, for proposed new schools in Parliament Road. Although the competition assumes to be public, we believe that no advertisement of it has appeared in the professional journals, nor anywhere but in the local daily press. The Board undertakes to appoint an architect of "recognised position" to assist it "in judging the merits of the plans"; but although it is clearly implied that the members of the Board will act at their

own descretion, and not by the advice of the professional Assessor, they frankly admit that they offer *no premium*, and the inducement to compete is simply their promise to employ the successful competitor to execute the work at a commission of 4 per cent. The value of the proposed building, which will be about £13,500, would not justify such a reduction in any case, and this unreasonable demand is made the more intolerable by the preliminary gratuitous labour, and risky investment of time and money which are demanded of the architect before the commission is placed with him. Moreover, although in about 15 per cent. of public competitions special and extraordinary services are included in the 5 per cent. commission, it is quite exceptional for the amount of this commission to be reduced. We suggest, with confidence, that the Board named 4 per cent. because it was 1 per cent. less than architects are entitled to ask and usually receive for their

like an accessory instead of an essential part of the building. Besides this the Abbey, so far as its exterior is concerned, is vastly more estimable as a relic of antiquity and for its intimate associations with the history of our race, than for any primal beauty in its design. To build a spire now, to commemorate only the progressivist policy of the London County Council, would be an intolerable desecration which nothing could excuse. But if there should be any real fear of popular insensibility reaching to such an extreme as would sanction the building of a spire at Westminster, the impracticability of the act would settle the question. Six hundred years have not passed without leaving their mark upon the Purbeck piers, and though the Clerk of Works of the Abbey proudly told us some years ago, that if the building was neglected and allowed to fall to natural decay it would yet stand for a thousand years, some of the arches near the

perpetrated a delicious irony on the subject of his erudition and his accomplishments in Architecture which he was concerned to demonstrate and establish. An article had appeared in a professional journal criticising some late work of his at St. Albans with special regard to some panels he had introduced. The noble lord replied, with that inimitable bad taste which we have learned to expect from him, by abuse and recriminations of architects in general, and a pompous justification of his panels in detail. Unfortunately, however, he spelled the word "panel" with two n's throughout.

Plumbers' Registration. WE have reason to believe that the Worshipful Company of Plumbers are about to approach the President of the Local Government Board with a view to inducing him to move the Government to take some step towards enforcing the registration of plumbers.



R.I.B.A. PRIZE AWARDS: INSTITUTE MEDAL AND £5 5s. SOUTHWOLD CHURCH: PLAN. DRAWN BY E. F. KNIGHT.

work. We can only say we commend the sturdy business instinct developed by the Middlesbrough School Board, but regret that it has not been applied to a more profitable end than to depreciate and impoverish the art of Architecture. The just and proper course, both for the credit of the Profession and the welfare of the practitioner, is for architects to abstain in such cases as these. This was lately done by the architects of Plymouth on the occasion of just such another imposition by the Plymouth Corporation.

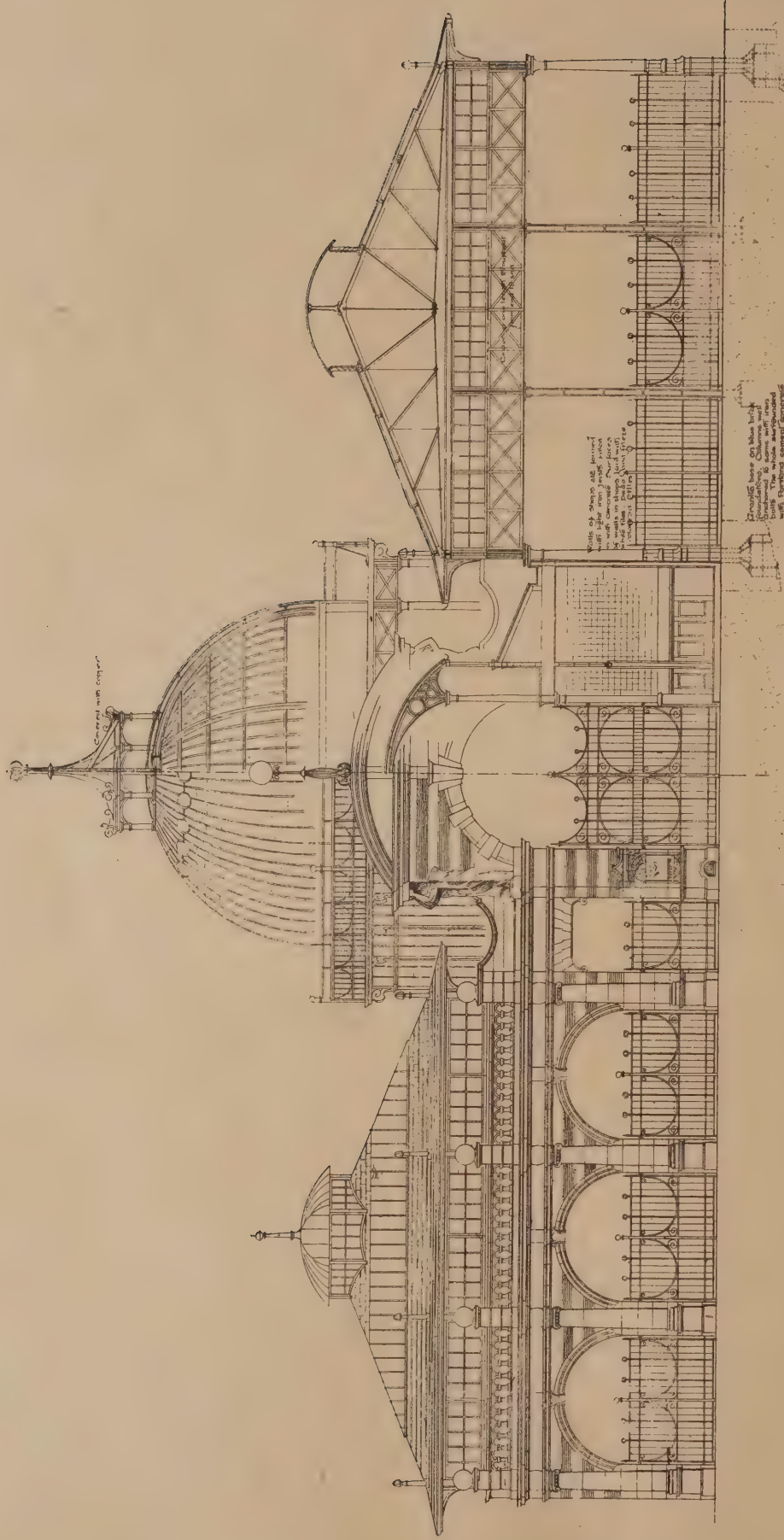
Why Not! "WHY NOT?" exclaims the Daily Mail in large ornamental head lines. "Why not finish the Abbey now?" and the enterprising paper accompanies the enquiry with an accurately finished drawing showing the Victoria Tower of the Houses of Parliament upon the left hand, and upon the right our well-loved Abbey tittivated up and tricked out with a central tower and spire, which confess, with brazen candour, to a near kinship with that of Salisbury Cathedral. Personally and upon the question of the design alone, we do not at all like our Abbey in the guise imposed upon it by the Daily Mail. The central spire of a Gothic church must predominate the whole or it becomes weak and foolish, and the spire here drawn merely looks

crossing have shown signs of spreading, and have been braced with iron ties, and it is evident the church could not support the weight of a completed tower and a spire of adequate dimensions without partial reconstruction.

In the Pillory. LORD GRIMTHORPE has alienated himself so effectually from all lovers and students of architecture by the ignorance and pomposity with which he set about his gratuitous "Restorations" at St. Albans, that we confess it to be with a somewhat unfriendly glee that we find him pilloried in the pages of Punch in his rôle of writer of letters to the newspapers. The Times, which is always willing to lend itself to the expression of ponderous commonplaces above the signature of hereditary greatness, has been of late beset with Lord Grimthorpe's performances on the big drum. This noble letter-writer's inanity, his confusion of ideas, his illiterate methods, his rambling relative clauses and parentheses, and his school-boy disregard for punctuation are most happily and wittily travestied by Punch in a letter on "The Weather." Lord Grimthorpe, however, has a happy knack of discrediting himself, and we remember an instance, on the occasion of one of his last effusions on the subject of his work at St. Albans, when he

The scheme of registration and certificates which was inaugurated by the Plumbers' Company ten or more years ago, has for a long time been favourably regarded by the Local Government Board, no doubt on its merits as a contributory safeguard to the public health. It is, of course, unreasonable to regard the company as having any special care for the public health, or any other serious motive than to raise the status of the trade. Nor does the fact that plumbers have widely availed themselves of the theoretic and practical test examinations which the Company has instituted in London and other centres show that the scheme is popular or beneficial to the plumbers as a whole. The struggle for existence assures that any opportunity, just or unjust, which enables one man to become privileged above his fellow will be sought after. It is, of course, true that a very small flaw in plumbers' work may occasion a great evil, and that much harm is occasioned by incompetent workmen; but it is also true that the careless or lazy workman is a commoner and a far more dangerous enemy to sound sanitation, and legislation is a measure which is only justified by the extremest need. We should like to hear from any of our readers who have special opportunities of knowing what is the feeling among the plumbers themselves.

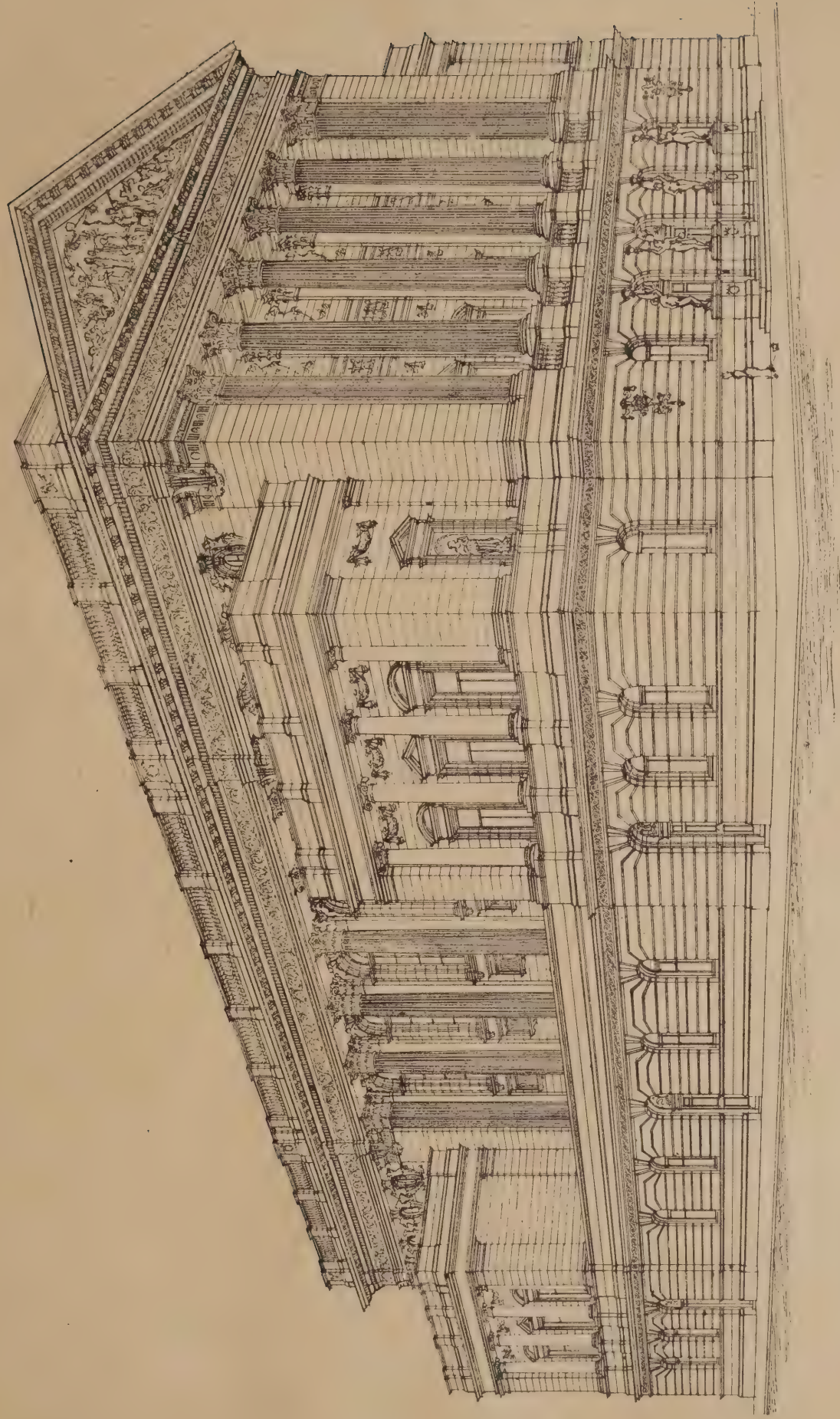
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R.I.B.A. PRIZE AWARDS: THE SOANE MEDALLION. DESIGN FOR A CONCERT HALL. BY W. A. MELLON.

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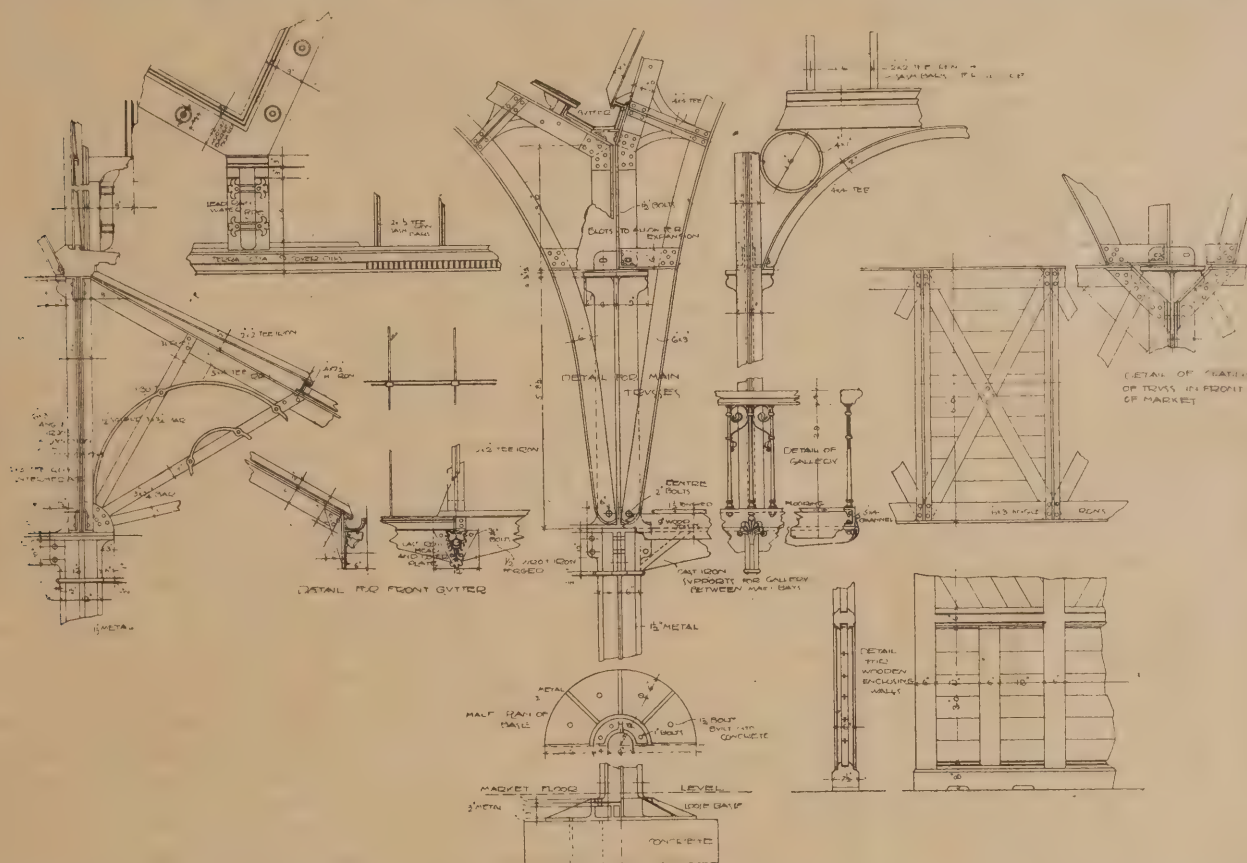
THE PRIZE DESIGNS AND DRAWINGS.

IN our last issue we dealt with Mr. Mellon's design for which he was awarded the Soane Medallion, and of the work of the other ten competitors there is little to be said. The subject demanding at once qualities of utility and a monumental expression in the design, and involving complicated questions of acoustics upon which little is definitely known, and beset in all directions by the minute and often tiresome and unnecessary restrictions of the London County Council, seems, in spite of the number of competitors who submitted designs, to have been a difficult one to handle, and altogether beyond the scope of the young architects under the age of thirty

the way he has expressed the dome within the building, and the exterior design, although deformed by certain affectations, and despite the fact that the five leaded ogee domes are not well knit and combined with the bulk of the edifice, yet harmonises well with the idea of a palace of music, if it does not actually suggest it. "Itinerant Architect's" design, on the other hand, which is also of the "Romantic" order, and is more simply and less ostentatiously composed than the last described, does not associate itself readily with the idea of a concert hall.

The designs and drawings submitted in the other competitions are unusually numerous and in some instances of extraordinary merit; but it is rather in drawing than in design that special excellence is to be noticed. Anyone who viewed the late exhibition must have remarked how much more attention, both in the list of prizes and the contributions of competitors, was bestowed upon the subject of

Royal mausoleum were submitted, the award—a certificate and £30—being made to Mr. James B. Fulton, a special medal and five guineas being allotted to Mr. Alexander M. Gardiner, and a certificate of honourable mention to Mr. Ernest Jago. Mr. Fulton's design has not quite such an imposing air as one would expect to find in a Royal mausoleum; it is, in point of fact, considerably the smallest of the whole group. This lack of grandeur is particularly noticeable as Mr. Fulton's beautifully drawn perspective shows only the building itself, and not the approach and flight of steps upon which it stands. The design has considerable merit. It expresses, as far as its exterior is concerned, exactly what its author meant. It says one thing in a finished and complete way. Within it is less successful. The building is too lofty in relation to the dimensions of the plan for the dome to be entirely satisfactory, and the whole has a stilted look. Mr. Fulton's internal perspective



R. I. B. A. PRIZE AWARDS. THE GRISSELL COMPETITION. HON. MENTION. DESIGN FOR FRUIT, FLOWER AND VEGETABLE MARKET: CONSTRUCTIONAL DETAILS. BY CHARLES A. DAUBNEY.

years, to whom the prize is confined. In most cases the opportunities for a plan that should lend itself to impressive internal treatment had been frittered away by the practical needs of the subject, and in point of external design the whole group was disappointing. As presenting some points of exception from these general remarks we may mention "Civitali," "Swan," and in particular "Lohengrin" and "Itinerant Architect." These last two have affected a style, or rather a method, of design now growing yearly in popularity, which may in the future possibly be known as "early twentieth century," but which for want of a better name may now be called "Romantic." It consists in giving expression to a building not in accordance with the rules and forms of the traditional styles, but merely in recognition of those subtle rules of proportion, texture, superimposition, colour, light, and shadow, which constitute the primal elements of beauty in all styles and dates of architecture. "Lohengrin's" plan, which indicates rather a theatre than a concert hall, seems to have been laid out very scientifically on some one of the many theories of acoustics, and in other particulars appears to have been suggested by the Wagnerian Theatre at Bayreuth. We like

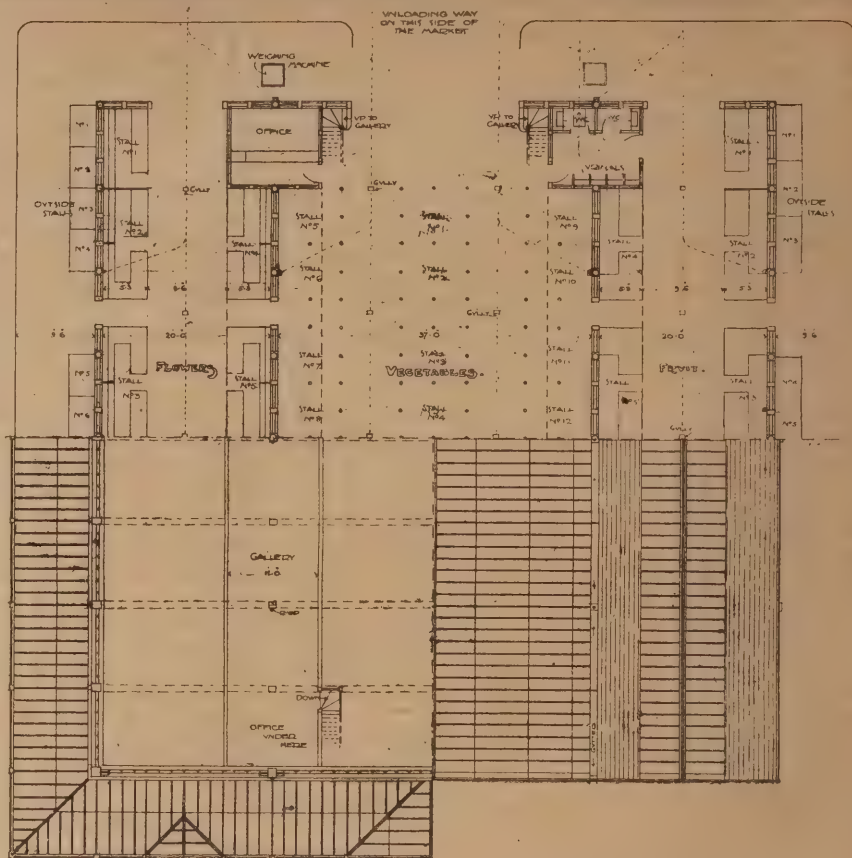
drawing than that of design. The drawing at these exhibitions becomes year by year more marvellous—there is no other word—and the Pugin Studentship this year has, in the opinion of the prizes committee, produced a larger competition and better work than has been shown in any previous year, in spite of the remarkable excellence of the work submitted for this prize during the past ten years. It cannot, however, be said that the quality of the designs of the rising generation of our architects bears any comparison in point of excellence with that of their drawings, and it is to be regretted that so much attention should be given to drawing by the aspirants to fame in an art which demands scientific knowledge, imagination, and original thought, but in no case an extraordinary skill in draughtsmanship. The group submitted by aspirants to the prize endowed by Sir William Tite, to promote the study in England of Italian architecture, is only one of many instances which may have been remarked of late years, in which the merits of the design are entirely subservient to the remarkable ability of the draughtsmanship. The Tite Prize this year has, however, produced a better competition than usual. Eight sets of designs for a

is, however, one of the most able and forcible line drawings, sketchy though it is, that we have ever seen, though in point of style this design can hardly be considered Italian—free Renaissance, or late Renaissance best describes it. All competitors for the prize have introduced one form or another of dome into their compositions, except "Endeavour," who has reverted to a classic order of design, consisting in a pseudo-peryteral rectangular building, with a pediment at either end, surmounted by a pyramidal scheme of receding courses suggested by the famous Mausoleum at Halicarnassus, which is supported on the colonnade within the building. The Grissell Prize, for the encouragement of the study of construction, produced four designs for the fruit, flower, and vegetable market which was the subject set. Mr. G. Gardner Wallace won this prize—a gold medal and ten guineas—with a market consisting of two rectangular wings with a central dome over the intersection of the two axes of the building. All competitors used glass and iron roofing supported on iron columns, which was one of the conditions of competition. Both the winner of the award and "Artichoke" succeeded in producing designs of architectural

merit with a difficult and rather uninteresting subject.

Of the prizes for Studies and Drawings, the Owen Jones Studentship, as usual, was not distinguished by a numerous entry; in spite of the value of the prize, which is £100, only three sets of drawings were submitted. Those handed in by Mr. John Stewart are studies made strictly in accordance with the object of the founder of the prize, who established it to promote the study of colour decoration. Too often the drawings do not fulfil the intention of the donor; and students are apt to forget that a study of a sunset, for instance, is not a study in the decorative value of colour. Mr. E. T. A. Wigram has somewhat fallen into this error, and many of his beautiful drawings and water-colour sketches belong too nearly to the domain of the mere water-colour artist to recommend them to the prizes committee. Mr. John Stewart has made excellent studies of painted mosaic, majolica, marble, and stained-glass decorations, chiefly from the towns of Northern Italy. The only fault we find are that his colour lacks brilliancy and is muddy, and that he has been too accurate in exactly reproducing the accidental blemishes, and the stains of time, which occur upon the originals of his various subjects.

The ever-popular Pugin Prize we have already alluded to. Mr. J. Hervey Rutherford has won this prize with a large number of accurate, vigorous coloured drawings and sketches. He includes some admirable studies of coloured glass from King's College Chapel, Cambridge. Mr. E. H. Bennett has been awarded a special medal and five guineas for some wonderful studies of the west and north porches of Chartres Cathedral. He has more than one study of each subject, and has drawn a detail of one jamb of the west porch both in sepia and in line. These are such works as Mr. Ruskin would admire. They are most valuable records, besides being drawings of very remarkable merit. We hope that their author will be able to dispose of them to some public gallery



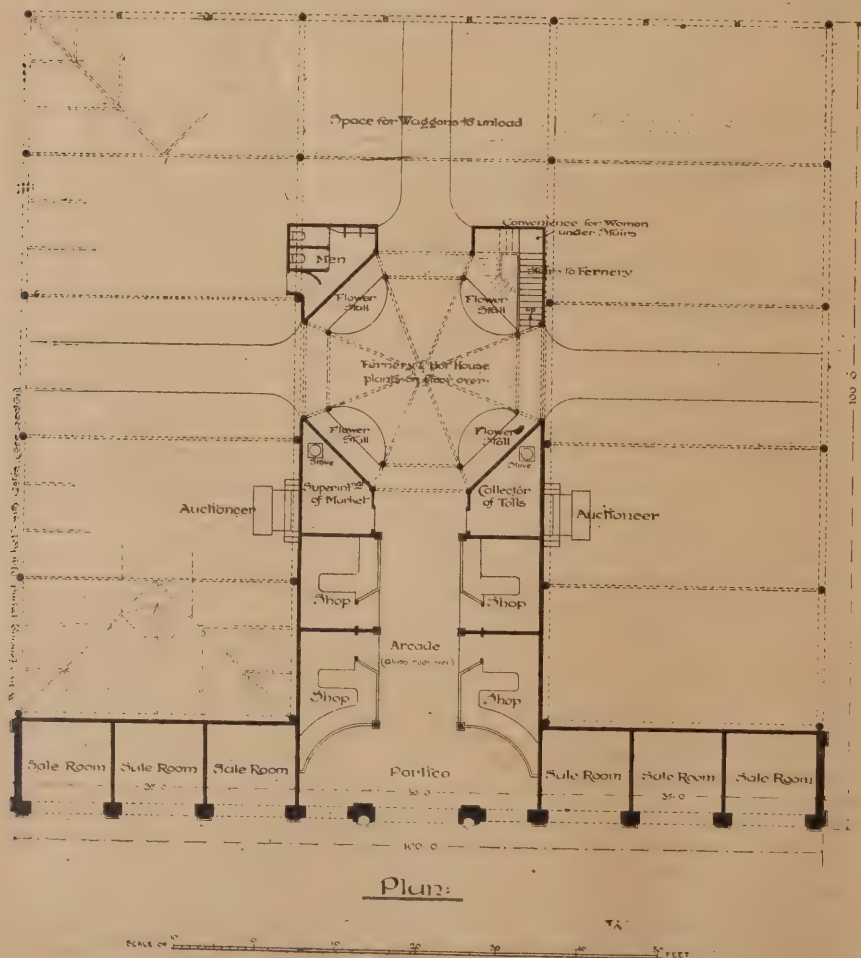
R.I.B.A. PRIZE AWARDS: THE GRISSELL COMPETITION, HON. MENTION. PLAN OF FRUIT, FLOWER, AND VEGETABLE MARKET. BY CHARLES A. DAUBNEY.

or museum, for they are a great deal too good to be relegated to the great limbo of students' drawings. The whole set of contributions to the Pugin competition is, as has been said, of

extraordinary merit, but we particularly notice the pencil studies of Mr. Albert Herbert, who has won with them a certificate of honourable mention. He gets a wonderful softness and variety of light and shadow and of texture into his pencil work. We think he would have won a higher recognition if he had submitted some good measured drawings, and not confined himself to sketching bits and corners of buildings.

The measured drawing prize has produced a remarkably fine example of architectural draughtsmanship, in the drawing of the north porch of St. Paul's. The subject is not a large one, but Mr. H. E. Kirby has made a lot of it. We never saw better architectural drawing in point of mechanical accuracy, and equality and precision of line. Mr. Heaton Comyn, who, with Mr. E. F. Knight, has won a special prize with his drawing of St. Catherine's, Cambridge, has rather spoiled his set by back-lining—a vicious accomplishment at the best. His drawing, however, is strong and bold, and it is perhaps a pity that his subject was not one of greater architectural interest. In contradistinction to him, Mr. Knight errs somewhat in the extreme minuteness of his methods. In his one-eighth inch scale drawing of Southwold Church he has shown as much as most draughtsmen would attempt in a quarter-inch scale drawing. This extreme minuteness is a mistake; small ornament cannot be properly or clearly shown to so small a scale, and for architectural purposes a few details to a larger scale are of greater value.

Among these prize drawings was exhibited the work done by the Pugin and Aldwinkle students, Mr. De Gruchy and Mr. Fulton, on their studentship tour. We notice the Pugin student is developing a freer style and a personal and characteristic touch in which we have hitherto found his drawing sadly lacking. Mr. Fulton has added to the reputation he won with his drawings submitted for the Pugin Prize last year. Whatever he draws is presented in his own quaint individual style. He includes among his studies some drawings of plants after the manner of those which will be remembered in last year's exhibition. They are of their kind as good as anything we have ever seen.



R.I.B.A. PRIZE AWARDS: THE GRISSELL GOLD MEDAL. PLAN OF FRUIT, FLOWER, AND VEGETABLE MARKET. BY G. GARDNER WALLACE.

Mr. H. H. Statham on the Planning of Concert Halls.

AT the meeting of the Royal Institute of British Architects on January 23rd, Mr. H. H. Statham made some remarks, as stated in our report of the meeting in last week's issue, on the planning of concert halls, with special reference to the Soane Medallion designs. In view of the extraordinary interest excited by the Institute's award in this competition, an extended report of Mr. Statham's speech will probably be read with interest.

With regard to the designing of concert rooms in general, Mr. Statham remarked that unless it was stated in the conditions that the hall was to be used also for other purposes, such as dancing, it was desirable to have the floor slightly rising from front to back. A large expanse of smooth wall was generally a danger in the case of echo. The object was for the sound to get to the ears of the hearers, but not to be brought back to them again; a large expanse of wall became a reflecting surface which required to be broken up. It was more difficult to extinguish echo

always required and were always placed in that position, so as to be just opposite the conductor and therefore directly under his control. The reason being that if the drums were the least bit out of time the effect would be disastrous. Wherever possible it was best to have the passage from the green-room to the orchestra on a level; at all events there should be no

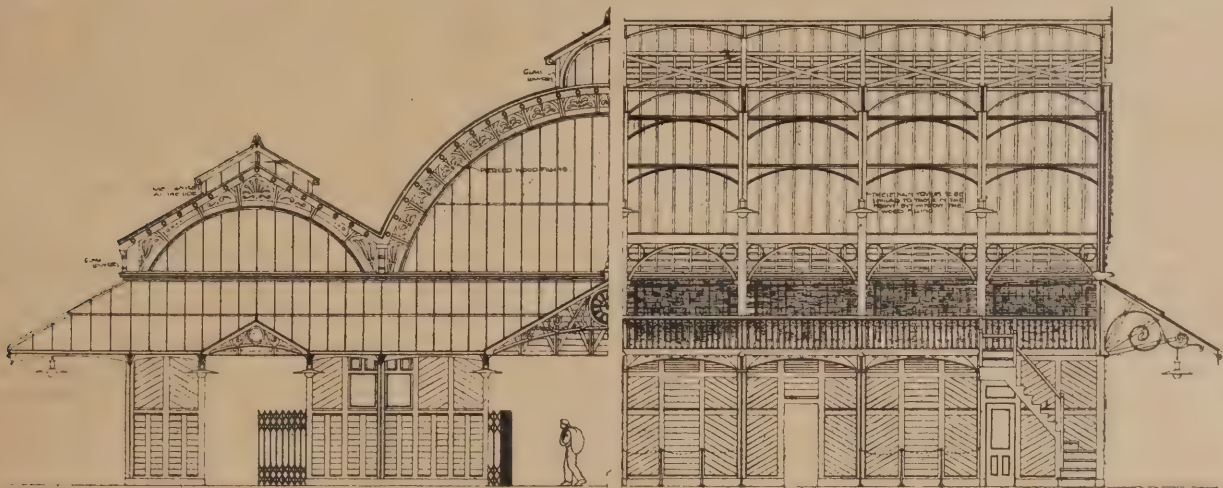
STEPS IN UNEXPECTED PLACES.

To trip up while making his way to the platform was very disconcerting to a singer. Speaking of the arrangement of the organ Mr. Statham said that most of the competitors seemed to have no idea of the size of a modern concert-organ, of which an average specimen would require about 300 square feet of area, and the pipes and soundboards would weigh over twenty tons. An organ was not, therefore, a thing that could be hung up on the wall where they pleased. For a first-class concert-organ height was required for a 32ft. pipe, which meant 3ft. or 4ft. in addition to the 32ft. The system of carrying the organ on girders over the heads of the chorus got it out of the way, no doubt, but it was a very bad position for the effect of the instrument; it

ANCIENT & MODERN BUILDINGS IN PALESTINE.

(Continued from page 394.)

MR. A. C. DICKIE opened the discussion, which followed Mr. Pite's lecture, reported in our last issue, and proposed a vote of thanks to the lecturer. Mr. Dickie stated that the modern part of Jerusalem is interesting only in the way that it illustrated the great increase of Jewish population there. Outside the walls a new city had sprung up, and seemed to have arranged itself in a irregular and wriggling manner. Most of the modern building was uninteresting, and it was a pleasure to come upon Mr. Pite's hospital. When he was last at Jerusalem some of the finest buildings had been painted a sickly pink in honour of the German Emperor's visit, and the beautiful grille in the Mosque of Omar had been painted yellow. The report that the streets and walls had been cleaned was only partly true, for the filth had been removed from the main streets and deposited in the side alleys, and had doubtless been



HALF FRONT ELEVATION.

HALF SECTION.

R.I.B.A. PRIZE AWARDS. THE GRISSELL COMPETITION. HON. MENTION. FRUIT, FLOWER, AND VEGETABLE MARKET. BY CHARLES A. DAUBNEY.

in the case of curved walls than of smooth ones. With reference to the

POSITION OF THE ORCHESTRA,

Mr. Statham remarked that he had noticed on one, if not more, of the competition designs the chorus seats were put straight across. That was bad. The seats for chorus and band were always placed on a curve for practical reasons. It was desirable that the chorus, when standing, should turn as much as they could towards the conductor, so that they could the more easily follow his directions, while at the same time attending to their music. A still more important point was that the two sides of the chorus should be able to hear each other; if they were put partially facing each other they were able to do so, and that was a great assistance in

KEEPING TIME.

It did not do, however, to arrange the seats in a horseshoe form, because then the audience could not hear so well. In more than one of the designs the orchestra was placed to stand on a flat floor at the base of the chorus. That was a bad arrangement, because those behind would be shut out from view of the conductor. The orchestra should be placed on steps which should follow the same curve as the chorus. The chorus could do with 2ft. 6in. steps, the band required broader ones, say about 3ft. 2in., because room must be allowed for the players of bow instruments to move their arms backwards and forwards. Mr. Statham proceeded to explain, with the aid of a diagram, the best positions for the different instrumentalists. The centre portion of the top tier, for a width of about 6ft., should be projected outward to form a platform for the kettledrums, which were

should be brought down as low as possible. If the organ were built on the floor so as to project into the chorus seats, that was a good position for the instrument itself, but bad for the chorus, as a certain proportion of them were isolated in a bay on each side of the organ. He considered the best

POSITION FOR THE ORGAN

was at the back of the chorus, utilising the space not required at each side for the chorus stairs. Above the ceiling of the staircase the sides of the organ would stand free. The bellows for a large organ ought to be provided for in the vaults. In recent times the management of long movements (electric or pneumatic) between keyboard and organ had become so easy that there was no excuse for placing the organist near the organ. His position should be near the front of the orchestra and facing the conductor. The player could then hear the effect of the organ in combination with band and chorus, which he could not do when sitting close under it. There should be a definite line of demarcation between the chorus and band; this was seldom done (he had never seen it except at the Albert Hall), but it was a great deal better to divide them up than to let instrumentalists get mixed up with the chorus singers.

GRANITE columns, in memory of the late Prince Bismarck, are to be erected in 200 cities and towns of Germany. An urn or brazier will be placed on top, and from this fire will burn every first of April. Such, at any rate, is the scheme of commemoration which the University students hope to see carried out, and they are inviting designs for a column,

distributed again. The Jaffa Gate was thought scarcely the sort of entry for the Kaiser, on account of its crooked nature, so a breach was made for him to the left of it. He considered, with Mr. Pite, that St. Mark's was nowhere in comparison with the Mosque of Omar. The toughness of the natives to encounter infectious stench had been strikingly evidenced at the Pool of Siloam, when they begged the Palestine Exploration Fund to stop throwing down carbolic acid, which it had been thought would relieve the natives, as it had such a nasty smell. The method of constructing a dome was as follows: After the four walls had risen to a certain height the centering of the roof was modelled in brushwood; on this brushwood a layer of lime and earth was put, with another similar layer on top. The dome was made above this, and consisted of muddy lime and stones, the lime concrete being rapidly conveyed up gangways, and the whole of the dome was built in such a short time that the construction settled naturally, so that after weeks of rain the domes were not found to let the water through.

Mr. Alex. Payne, in seconding the vote of thanks, said that Mr. Pite had resisted a great temptation in not dealing more fully with ancient buildings, for the country was covered with them. Mr. Pite had done them a great service in giving them his experience, and it would be a benefit to any architect who might have to carry out work there. The speaker had given the whole of his time to the old building, and had not troubled about the hideous modern German buildings in Jerusalem. He said that Palestine was a very expensive country to travel in. One could only make twenty miles a day, and could only travel in the interior of the country on horseback. An immense retinue had to be engaged,

MOSAICS AND MOSAIC WORK.

BY mosaics, in the widest sense of the word, is to be understood the art of producing a design or painting by the joining together of small pieces of hard substances, either naturally or artificially coloured, and hard stones, marbles, and glass are the materials most frequently used in this description of work. Two subdivisions may be made, according to the nature of the process. One, mosaics, properly so called, the combination of many pieces by which a decorative surface is constructed; the other, inlays, in which various figures or spaces are cut out of a ground, and filled in with another substance, or with different tints of the same material. There are almost endless varieties of both kinds.

Descriptions.—A very learned Italian writer has divided Roman mosaics into four classes, namely, *tesselated* and *sectile*, applied to pavements generally; and *ficile* and *verminulated*, or pictorial, applied to walls and vaults. Of

ments, and pictures, the entire subject being portrayed in its true shades and colours, by a judicious arrangement of small cubes of different coloured marbles, and where extreme brilliancy was required by the aid of gems and pieces of *ficile* work. This kind of mosaic may be divided into three sub-divisions, not of difference of work, but of scale. The largest kind was generally employed for large pavements or ceilings, and represented figures of gods or curtains and the like. In this work, though the stones used are not always of a regular shape, they more nearly approach the square than in any of the smaller styles. The *medium* or middle was a much finer kind of work, and such subjects were generally executed in it as demanded greater delicacy in the treatment and softness in the shades and tints—cupids and children, flowers and festoons. This medium mosaic was employed chiefly for the decoration of walls, and it is this method which has virtually come down to our own times.

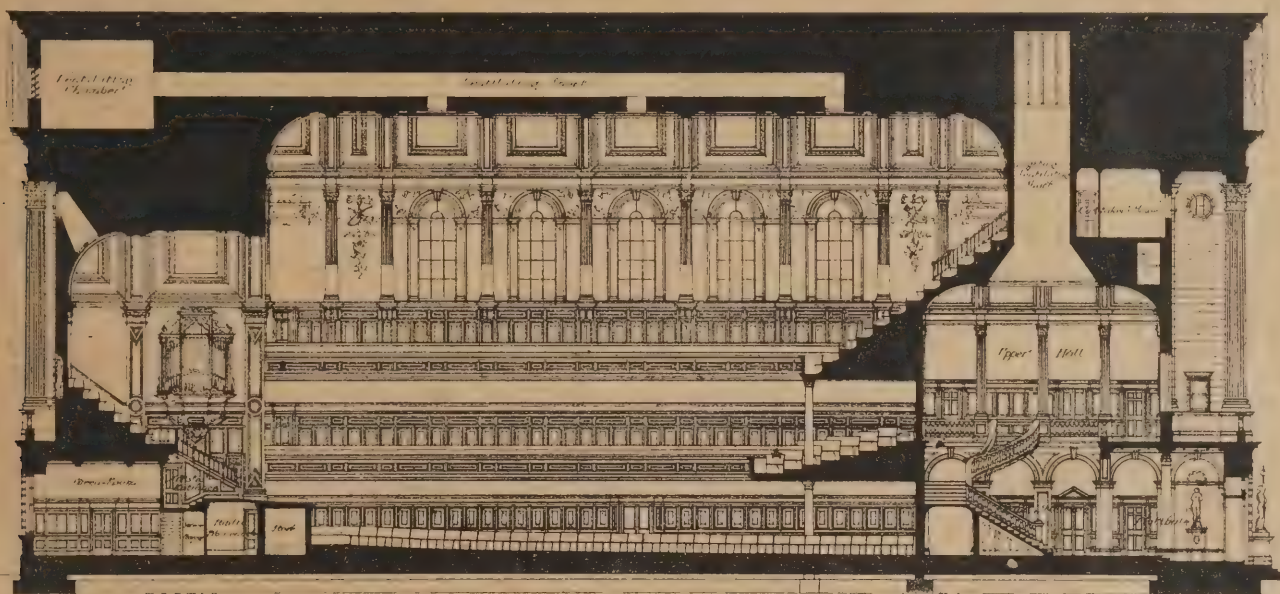
The modern process of making mosaics commonly employed at Rome is this: A plate,

CENTRAL PUBLIC LIBRARY
COMPETITION.

KINGSTON-UPON-HULL.

THE competition instituted by the Hull Public Libraries Committee has just been brought to a conclusion. Their assessor, Mr. Sydney R. J. Smith, who adjudicated on the designs, has awarded the first premium of £50 to Mr. James S. Gibson, 11, Gray's Inn Square, London; the second premium to Mr. Henry F. Williams, 149, Fleet Street, E.C.; the third to Mr. Edwin J. Sadgrove and Alfred A. Webbe, joint architects, 22, Surrey Street, Strand, W.C.

Fifty-one sets of drawings were submitted, out of which number only two or three were from local architects. Considerable skill and ingenuity was displayed in dealing with the subject on a somewhat inconvenient site. The site has frontages to two streets—Albion Street and Baker Street—and it was suggested in the conditions issued that no room should,



R.I.B.A. PRIZE AWARDS: SOANE MEDALLION. DESIGN FOR CONCERT HALL: SECTION. BY W. A. MELLON.

these the *tesselated* is probably the most ancient, and consisted of small cubes of marble, seldom averaging more than three quarters of an inch square, worked by hand into such simple geometrical figures as, when combined, would best compose a large figure equally geometrical, but, of course, more complex. The first contrasts employed were black and white. The *sectile*, or sliced work, was formed of the different slices of marble of which figures and ornaments were made, and the most notable example is to be found in the splendid pavement of the Pantheon at Rome, where the principal marbles are arranged in alternate round and square slabs. The *ficile* work was composed of small portions of mixed silice and alumina, coloured by the addition of one of the metallic oxides. The principal advantages offered by this material were that it could be obtained of any variety of colour, from the most delicate to the most intense; that it could be easily reduced to any given form; that it was far less costly than the precious marbles; and, lastly, that it could be covered with an untarnishable gilding. The following was the process for producing this gold ground *tesserae* existing at Pompeii. On a piece of vitreous compound—in shape and size a thin tile and unburnt—a sheet of glass was laid, and over that a piece of gold leaf covered by another sheet of very fine glass; the whole being then placed in a kiln was burnt to such a point as to render the union of the parts perfect, and to make the whole tile homogeneous in substance. It was then broken up into the required sizes. The *verminulated* work, the most elaborate of the four varieties was supplied to the direct imitation of figures, orna-

generally of metal of the required size, is first surrounded by a margin rising about three quarters of an inch from the surface. A mastic cement, composed of powdered lime, stone, and linseed oil, is then spread over as a coating a quarter of an inch in thickness. When set this is again covered with plaster of Paris to the level of the margin; upon this is traced a very careful outline of the picture to be copied and just so much as will admit of the insertion of the small pieces of *Smalto* glass is removed from time to time by a fine chisel. The workman then selects from the trays, in which are kept thousands of varieties of colour, a piece of the tint which he wants, and carefully brings it to the necessary shape. This piece is then moistened with a little cement, and embedded in its proper situation, the process being repeated till the picture is finished, when the whole being ground down to an even face and polished, becomes an imperishable work of art. The Florentine mosaic, which is chiefly employed for altars, tombs, and coffers, is composed of materials in veneers, the expense and the labour being both very great. None but the hardest stones are employed, every separate piece must be backed by thicker slices of slate or marble to obtain additional strength, and every minute portion must be found till it exactly corresponds with the pattern previously cut.

W. N. B.

PLANS for the erection of sixty-three houses and a higher grade Board School were passed at last week's meeting of the Ilford Urban District Council.

if possible, be a passage way to any other room; and this appears to have been the crux of the whole problem, whether to carry a corridor right through from one street to the other, and, if so, whether to put it on the side of the Church Institute or the opposite side.

In the first premiated design the corridor has been placed upon the opposite side, and carried through to Albion Street, forming a central entrance. The news and magazine rooms are placed on the Baker Street portion of the site, the lending library occupying a central position. Next the Church Institute, the ladies' room and dining room, entered therefrom by the staff, are placed on the Albion Street front. On the other side of the corridor, which is 13ft. 3in. wide, are the librarian's office on Albion Street front, the work room, and public stairs to reference room.

The reference room, 30ft. 6in. by 44ft. 9in., occupies the Albion Street front, with book store attached next Church Institute. No staff entrance is provided, and the two w.c.'s on either side of the principal entrance does not seem a happy arrangement. The design has, however, been carefully thought out; the plan is simple and compact; all the public rooms are well arranged, and under the control and supervision of the staff.

The exterior is treated in a somewhat severe manner, and may be called a free adaptation of Georgian. The centre portion is stone with pilasters at the angles and columns with deeply recessed arch in the centre. The wings are of brick, with stone window dressings. A turret occupies the angle next Hull Church Institute, which, however, does not appear to group very happily with the rest of the elevation. The

composition of Albion Street front does not appear to have been so well considered as other features of the design, and we fear, with tall buildings on either side of it, the new library will look rather in a hole.

The second premiated design places the corridor next Church Institute, and the whole of the accommodation on the opposite side, with Lending Library on Albion Street. The ladies' room placed on Baker Street front appears very ill-considered, in respect of supervision and service. This design has a very ordinary rusticated elevation.

The third premiated design has a peculiar Renaissance front, three arches on the ground floor, with columns and groups of three windows above each, and a large tower which appears somewhat inappropriate. The iron cresting on the roof is not a success. On the plan the hall and corridor occupy too

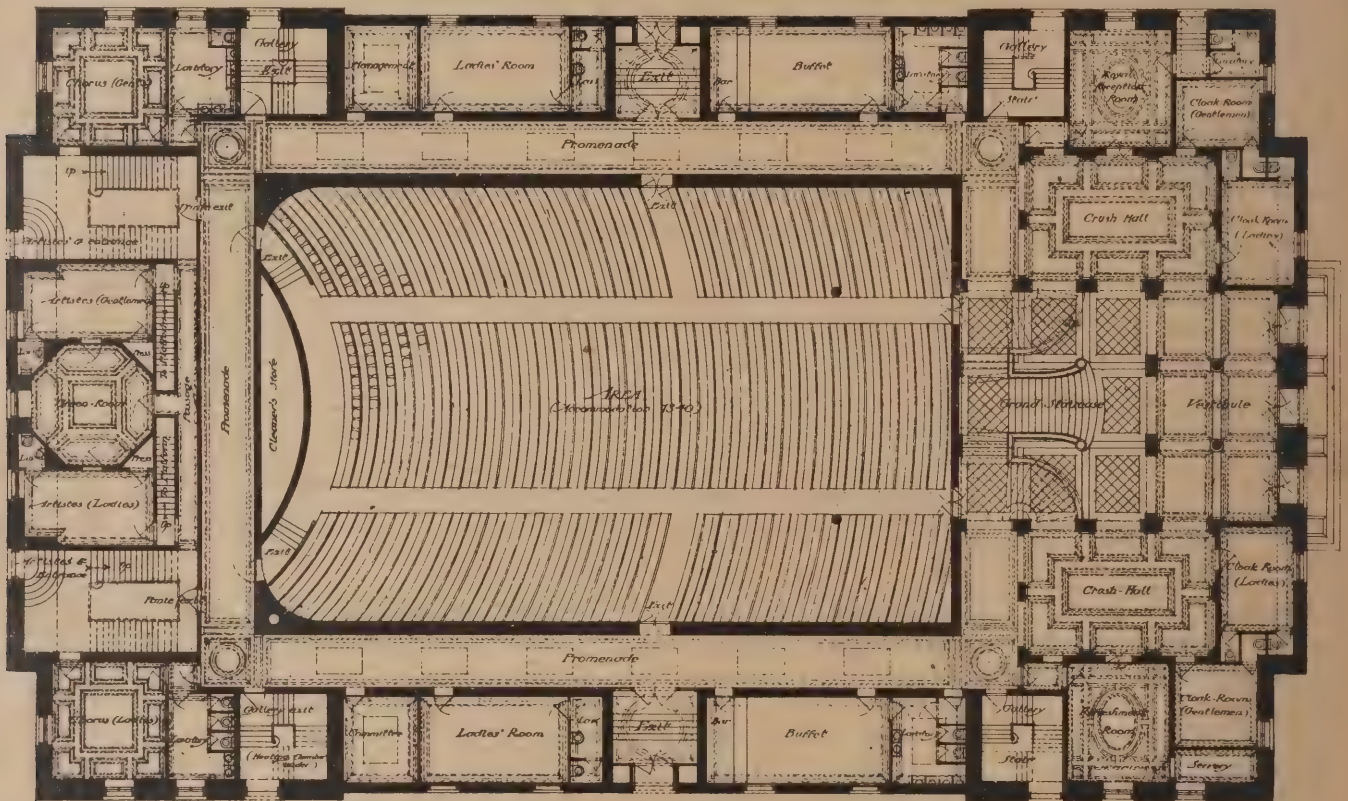
conditions of the competition, is not to exceed £7500, which includes warming, ventilating, lighting, sanitary work, and fire appliances.

All the drawings were on exhibition in the banqueting room of the Town Hall on Friday, the 20th, and Saturday, the 21st of January, when a considerable number of those interested inspected the designs.

LEEDS HOUSING SCHEME.

LEEDS Corporation has a large housing scheme on hand which is giving it a good deal of trouble. An insanitary area has been cleared and the people displaced have to be rehoused. One of the reasons why the area in question—the York Street area—was con-

the local enactments during a transitional period, in the confidence that the Corporation would carry out the general sanitary law as rapidly as possible. The Board do not regard the decision of the Committee as expressing or implying any approval of the principle of back-to-back houses." The letter from the Local Government concludes thus:—"Under these circumstances, and having regard to the fact that this proposal would be altogether in contravention of principles which, after mature consideration, have been adopted and maintained by the Board for many years, the Board are not prepared to accede to the proposals which were submitted on behalf of the Town Council." The Sanitary Committee of the Corporation have received this communication with a good deal of dissatisfaction. It is contended that the type of building condemned was very



PLAN OF STREET FLOOR

R.I.B.A. PRIZE AWARDS THE SOANE MEDALLION. DESIGN FOR CONCERT HALL: PLAN. BY W. A. MELLON.

much valuable space; indeed, the whole scheme requires a good deal of pulling together.

It has undoubtedly been a very keen competition, as six out of the fifty-one designs sent in show a very high standard of excellence both in plan and elevation. We understand that some were thrown out on account of expensive fronts, others on account of the size of the perspective drawings.

A very beautiful design shows a columnar treatment carrying an eaves cornice on the first floor, with gables at either end, and a turret next Church Institute. The plan is distinctly good, but fails in not giving the passage through to Baker Street; it, however, provides a fine lending library and good scheme for future extension. A fine perspective drawing, one of the best in the room, shows the design to advantage.

The materials proposed for carrying out the successful design are local pressed brick and white Ancaster stone, the main roof to be covered with green Westmoreland slates. The ground floor public rooms will have wood block floors, and entrance hall and vestibules laid in mosaic. The walls internally of corridors and hall will have dadoes of glazed bricks or tiles.

The cost of the building, according to the

demned as insanitary was that the houses were chiefly of the kind known as "back to back" houses. Yet, strange as it may seem, the Corporation has proposed to re-erect dwellings of the same class. But the Local Government Board has put its foot down on the proposal. It was contended by the Corporation that Parliament specially recognised the erection of back-to-back houses; but to this the Local Government Board replies:—"The Board do not consider that the practice of erecting back-to-back houses was approved by Parliament in 1893. It will be seen from the evidence of the proceedings before the Police and Sanitary Committee on the Leeds Improvement Bill of 1893 that the Committee were asked to sanction the clause—now Section 7 of the Act—as the effect of it would be to prevent or supersede the worst forms of back-to-back houses which the then local legislation of Leeds allowed or tolerated, and because in the event of that legislation being repealed without the substitution of the new clause it would be necessary to make temporary arrangements until building by-laws could be obtained under the general law; and the Board regard the Committee's decision—which will be found at page 218 of the evidence—as being directed to mitigate the evils existing and allowable under

different from that which it is proposed to erect. In the words of one member, a back-to-back house of the improved type is far superior to any tenement dwelling. However, the Committee has now no option but to amend its scheme.

THE rising generation ought to grow up with an appreciation of beauty in form and colour to which their parents in many instances are strangers. For the past two years an interesting experiment in the development of artistic taste and love of colour in elementary school children has been in progress in the boys' department of the Alma Board School, Bermondsey. Instead of the children being taught the old freehand system of drawing, beginning with lines, angles, and parallels, they are supplied—in accordance with the alternative syllabus of drawing issued by the Education Department—with watercolours and brushes, and trained to make original designs in colours. Many of the boys even in the lowest class—children seven and eight years old—produce with their brushes and watercolours, without any model to copy from, pretty designs, which show a real sense of form and colour.

KEYSTONES.

A NEW Wesleyan Chapel was opened last week at Horfield. The total cost of the building is about £3000.

THE Essex County Council has resolved to oppose the London County Council's Water Bills in the coming session.

HANDSOME new premises are being built in Glasgow for Messrs. Stewart and McDonald. The entire front is to be built fire-resisting.

THERE is great need for a new infirmary in County Tyrone, and strong efforts are being made to obtain the necessary funds. The cost of the proposed building will be about £10,000.

THE result of the first two weeks' working of the London County Council's tramway showed an increase in the takings of £176 as compared with those of the two corresponding weeks last year.

THE group of Vienna artists known as Secessionists have opened their third exhibition in that city. Only foreign works are on view; these include a number of watercolour drawings by Mr. Walter Crane.

MANCHESTER CORPORATION has been summoned by the Mersey and Irwell Joint Committee for polluting the Ship Canal and the river Mersey. The hearing was, at the county police court last Wednesday, adjourned for three months.

A SYNDICATE has acquired for 1,472,000 dollars the entire street railway system and street railway concessions in Havana, Cuba. The city will have, it is said, one of the finest street railway systems in the world. Work is expected to be commenced in the spring.

A MEMORIAL window to the late Captain Trotter, a popular Worcestershire huntsman, has been unveiled in the Church of Martin Hussingtree. The window, which is of bold design and rich colouring, depicts St. Michael and the Dragon, and is placed on the west side of the church.

MR. T. BUTLER WILSON informs us that he has taken into partnership Mr. Robert P. Oglesby, who has been associated with him for the past fifteen years. The style of the firm will in future be T. Butler Wilson and Oglesby, architects, 72, New Bond Street W., and at Harrogate.

THE Building Act Committee of the London County Council has rejected the plans submitted on behalf of the Industrial Dwellings Company for erecting a block of working-class dwellings in New Church Road, Camberwell. The reason for the refusal was not stated in the committee's resolution.

THE Natural History Museum at South Kensington is to be lighted by electricity. The electric light will be gradually introduced into the various parts of the large building—first of all into the offices and studies of the staff and the workshops in the basement, then into the various public galleries.

THE Parish Church of St. Nicholas, Strood, which recently sustained serious damage by fire, has met with another misfortune. During a gale, a portion of the tower has been blown down. A heavy piece of masonry crashed through the roof and fell on the floor of the church, narrowly missing the font.

IN connection with the Edinburgh Architectural Society, prizes of £3 3s. and £2 2s. are offered for competition amongst members. The subject for the first prize is a set of working drawings for a small hotel at a Scottish summer resort on the coast, and for the second a design for the treatment of a classic room after the style of Wren or Gibbs.

A SERIES of lectures on matters connected with building is being delivered on Monday evenings at the Carpenters' Hall, London Wall, E.C. On Monday evening Professor Banister Fletcher is to lecture on "Ornament;" and he will be followed on February 13th by Mr. Basil Mott on "Building an Underground Railway," on the 20th by Professor Roger Smith on "Terra-cotta," and on the 27th by Mr. William Poll, on "English Playhouses in the Sixteenth, Seventeenth, and Eighteenth Centuries." The lectures will be illustrated with photographs, specimens, and lantern slides. Admission is free.

SOME discussion took place at last Thursday's meeting of the Corporation of the City of London on the subject of the bridge which Messrs. Faudel-Phillips have thrown across Queen's Head Passage to connect their two warehouses. The legality of the proceeding was questioned, but it was decided that the bridge should be allowed to remain during the pleasure of the Corporation.

AN interesting find is reported to have been made in Norwich Cathedral. While excavations were being made in the neighbourhood of the Lyhart screen the grave was discovered of the bishop who, it was stated, caused the present organ to be placed in the church. Several indications were found in the soil and upon the masonry of the fire which wrought such dire havoc in the Cathedral.

A CORRESPONDENT of the Municipal Journal suggests that in view of the high price of bricks municipalities should undertake brick-making for themselves. If the London County Council adopted this course it would, he says, by using the best modern appliances, save much in the cost of house construction, for bricks now are being retailed at enormous profits by the makers, and at a price far above their real cost of production.

EVERY freight-carrying wagon on every Russian railway is to be equipped with the Westinghouse brake. No other country in Europe has taken such a step or contemplates it. In the United States, however, all freight trains are being equipped with these automatic air-pressure brakes. The Russian Government has insisted that the brakes shall be made in Russia, and an important factory is now being erected in St. Petersburg.

DURING the ten years 1889-98, over 1200 students have attended the Building Construction Classes at the City of London College under Prof. Henry Adams, and nearly one half have sat for the Science and Art Department Examination, with a resulting success averaging 50.28 per cent. in the elementary stage, 91.32 per cent. in the advanced stage, and 28.57 per cent. in the honours stage. This is believed to be a record achievement.

THE Hungarian Government has expressed a wish to purchase three works of the students of the Glasgow School of Art. These works are among a selection of gold, silver, and bronze medal drawings, recently on view at Buda-Pesth, and now on exhibition at Vienna. The works indicated are:—Gold medal design for wall paper by James Grimstone, silver medal design for a printed silk by Archibald Gibson, and silver medal design for a wall paper by Emmet Brady.

A DISCUSSION at the last meeting of the Poplar District Board elicited some remarkable facts. One of the insanitary courts consists of ten so-called houses, which were recently bought for £65. The new landlord at once raised the rents from 2s. 6d. each house to 5s. Within thirty years the property has changed hands no less than twenty-two times. In another case the Sanitary Committee had to light matches when they went into the rooms, although it was broad daylight.

MESSRS. LANCHESTER, STEWART, AND RICKARDS, the architects for the new Town Hall at Cardiff, have amended the plans they originally submitted. The amended design shows an increase of 6ft. in the height of the building. The front has also been extended by something like 21ft., and this allows of additional accommodation, but it also means that the expenditure will be increased by £30,000. Several internal alterations have been made on recommendations submitted to the architects by the committee.

LAST Saturday afternoon over forty students of the High School Building Construction classes visited the Glasgow Art Galleries, Kelvin Grove. The buildings are now well advanced; the steel roofing in many parts is being proceeded with; the sculptors are also busy, so that every effort is being made to enhance the appearance of the building. The interior is especially good, and when the shields of the various counties are represented on the spandrels of the arches, the effect should be magnificent. Messrs. Simpson and Milner Allen are the architects. Mr. George Monteith Fry kindly conducted the students over the huge edifice.

ENLARGEMENT

OF THE

Builders' Journal

AND

Architectural Record.

For the past four years one of the most attractive features of

THE BUILDERS' JOURNAL

has been the Art Supplement which has been issued weekly as an inset sheet. From time to time this Supplement has been increased by the addition of a second Double-Page Inset Sheet.

We have now pleasure in announcing that, in consequence of the continuous increase in circulation, the management have decided to make this a permanent feature. From the beginning of the new volume, which starts with next week's number, each issue of THE BUILDERS' JOURNAL will contain

Two Double-Page Plates as Inset Sheets.

In addition to this permanent enlargement, we shall introduce with next week's issue, dated February 8th, a number of improvements and new features, which will, we think, substantially increase the value and attractiveness of THE BUILDERS' JOURNAL and ARCHITECTURAL RECORD, and cannot fail to extend its already wide popularity.

Readers having friends amongst Architects, Builders, Contractors, or Craftsmen engaged in the Building Trades, who are not already subscribers to THE BUILDERS' JOURNAL and ARCHITECTURAL RECORD, may be doing them a service, as well as advancing the interests of the Journal, by introducing to their notice

NEXT WEEK'S ISSUE,

No. CCIX., dated February 8th, the first number of the enlarged and improved series, and of a new volume.

Bricks and Mortar.

EFFINGHAM HOUSE, ARUNDEL STREET,
February 1st, 1899.

"I know what it is to live in a cottage with a deal floor and roof, and a hearth of mica slats; and I know it to be in many respects healthier and happier than living between a Turkey carpet and a gilded ceiling, beside a steel grate and a polished fender. I do not say that such things have not their place and propriety; but I say this, emphatically, that the tenth part of the expense which is sacrificed in domestic vanities, if not absolutely and meaninglessly lost in domestic discomforts and incumbrances, would, if collectively offered and wisely employed, build a marble church for every town in England; such a church as it should be a joy and a blessing ever to pass near in our daily ways and walks, as it would bring the light into the eyes to see from afar, lifting its fair height above the purple crowd of humble roofs."—JOHN RUSKIN.

IN our report of last week's meeting at the R.I.B.A., reference was made to the way in which the dissatisfaction caused by the Soane medallion award was treated by the authorities. It appears that a more formal protest than that made at the meeting had already been presented. This took the form of a written document addressed to the Council. The method adopted by the sixty-five dissentients who sign the document is that known as the "deadly parallel" and certainly it proves very deadly in this case; by setting forth in parallel columns the requirements of the London Building Acts and the ways in which these requirements were treated in the winning design, the memorial shows them to have been contravened in no less than eighteen instances. No direct reference was made to this memorial at the meeting last week, the authorities having apparently decided that a hushing-up policy was the most prudent to adopt.

WHILE we agree with the criticisms passed on the action of the judges in the matter of this award, we gladly recognise that the prize design is a work of great promise and full of interesting points. We make no apology, therefore, for reproducing this much discussed design in our pages this week. We deal with the subject from another point of view in our leading columns, and we would call attention also to a letter in our correspondence columns referring to the conditions laid down in the case of last year's competition for the Soane Medallion. We shall give in our next two issues a further selection from the more interesting of the prize-winning drawings.

THE old Bargate at Southampton, which was threatened with destruction, is to be preserved after all. This is matter for sincere congratulation, for the structure is one of great historic interest, besides being a picturesque feature of the town. The Daily Chronicle of last Saturday contained a very fine drawing of the gate by Mr. Hedley Pitton, together with some interesting historical particulars. From these it appears that the Bargate is supposed to have been erected soon after the Conquest, and was added to in various reigns, until it was completed by Edward III. It apparently formed one of the principal fortifications of the old town wall, of which there are still many curious remains tucked away out of sight. The dingy rooms over the arches are now used for the holding of the Quarter Sessions, but in the Middle Ages they were used as the meeting place of the all important guilds of the town. As one might suppose, it was also the headquarters of the old Southampton municipal fathers, and is still used for the safe keeping of a number of quaint and interesting records, in which Southampton is rich.

THE reason for the proposed demolition of the Bargate was that—like the old Temple Bar in London—it obstructed the traffic. It stands on the route of a projected electric tramway, and is too narrow to allow of more than one tram passing through at the same time. One way out of the difficulty that has been suggested is that the Corporation should buy property on either side of the gate and create a circus for the tramway. Whether or not this plan is adopted, the Corporation—yielding to strong pressure both from the citizens of Southampton and from artists, architects, and archaeologists throughout the country—has definitely decided that this fine old relic shall still adorn its ancient site.

THE students of the Royal Academy have had the privilege of listening to "a straight talk" by Sir William Richmond. Lecturing last Thursday on "Character in Portrait Painting," he remarked that he saw signs that vicious principles of workmanship were getting hold of them, which, if not arrested, would deter their growth as artists and diminish their final chances of success. It was strange that, while the sculptor students steadily advanced, gained in style, in design, and technique, the painters' work deteriorated. They were going the wrong way to attain excellence, and if they persisted in the manner of their going they would make it difficult for themselves, when they wished to do so, to recover lost ground. When they desired to gain restraint and dignity of workmanship it would be too late. Slovenly habits were not easily eradicated, and to slovenly habits it was only too easy to arrive. If the student of painting was ever to become a master he must learn his trade, and it was a very difficult one; a carpenter had to learn his, a bootmaker his, and they must learn theirs. To the elastic and rather flighty mind of the modern student severe training was apt to be a dull operation, but to learn a difficult trade, and one which combined so many qualities, a severe training was necessary. Great art was always highly finished, always complete, always workmanlike; never ephemeral or hasty. The real artist was modest and searching, not self-assertive or vain; he hated tricks; he feared the peril of facility; he cultivated patience and yearned more and more deeply to learn ever more and more of Nature's mysteries. Let them study the great masters, give up trying to be clever, learn to draw and paint well, and not smear.

THE Richmond Town Council has issued a very useful report on the Housing of the Working Classes. It has been prepared by Alderman Thompson, the originator of the Richmond housing schemes. In addition to a full description of the Richmond Municipal Cottages, it gives particulars as to cost of site and buildings in other similar cottages, and it deals fully with the questions of rents, repairs, working expenses, losses of rent, and other financial aspects of municipal housing. Suggestions are given on rural housing, standard rentals, grants in aid of cottage rates, utilisation of surplus middle-class houses for workmen's dwellings, and the provision of old-age pensions from the rents of municipal cottages. There are also plans and illustrations of municipal dwellings at Hornsey, Birmingham, Liverpool, West Ham, and Salford. The Richmond housing scheme seems to have been singularly successful, for we are told that a large number of the working classes are getting better and healthier and cheaper accommodation than they used to have. At the same time the scheme has not, and will not, cost the ratepayers a single penny.

IN view of the resolution with respect to the design for the new Vauxhall Bridge, passed at the last meeting of the Architectural Association, and recorded in our columns last week, a statement by the president of the Association, Mr. G. H. Fellowes Prynne, as to the grounds on which the design is objected to will be of interest. "The original design," said Mr. Prynne, in reply to an interviewer, "was

prepared by Mr. Ernest George, but the County Council decided to accept the design of their engineer-in-chief, Sir Alexander Binnie. We do not in the least find fault with the structural features of the bridge, but there is a unanimous feeling among artistic men that the design is inappropriate. It is not ornamental, and what we desire is to see beauty combined with strength and stability. The ornamentation of the bridge, as at present designed, is vulgar and altogether out of character, and we strongly suggest that the County Council should consult with the members of the Institute of Engineers and the Institute of Architects in order to obtain a combination which will be at least happy in its results. The bridges over the Thames have been so badly cared for in the past that it seems a great pity that the grand opportunity which now presents itself of building a bridge worthy of London should be thrown away. Of course, we have no personal feeling in the matter at all, as we fully appreciate the great engineering skill of Sir Alexander Binnie. But it is perfectly possible to combine the artistic features of Mr. George's design with the structural features in Sir Alexander Binnie's."

SOME interesting finds have been made during the excavation of Tell Zakariya, which there are reasons for supposing is to be identified with Gath of the Old Testament, the City of Goliath the Philistine. The finds include stone implements, such as corn-grinders, hammer-stones, pestles, and mortars; iron and bronze arrows, chisels, and needles; a jar containing a number of beads and scarabs; also a few coins. The work of excavation is described in detail in the quarterly statement of the Palestine Exploration Fund; the operations now in hand include a contoured survey of the Tell, and the excavation of a large building on its summit.

SOME slight alterations are in progress at the Tower of London. The building which stands on the right-hand side of the way just before one reaches the steps leading to the Tower green is being demolished. The structure is not part of the ancient castle; it was only put up eighty years ago, and has been used as a guard room. It has become almost dangerous, and when it was last occupied, for the purposes of a treat to the children of the garrison, the floor had to be strongly propped for fear of a disaster. The Royal Engineers are superintending the work, and it has been found necessary to dig the new foundations much deeper, and make changes in the drainage. All the soil removed is being carefully sifted for discoveries of antiquarian interest. The new building, which will be erected on the site of this old guardroom, will be in the fullest harmony with the rest of the fortress, but will afford greater accommodation and comfort to those who will occupy it.

AT last week's meeting of the London County Council the Works Department was again under discussion. As one explanation of the fact that on certain jobs undertaken by the Department, the expenses exceeded the estimate, Mr. John Burns put forward the theory that these men who are paid good salaries harass the workmen by their excessive interference. A correspondent of the Municipal Journal writing over the signature "A Twenty-two Years Foreman" endorses this view:—"The consequence, he says, is that the men get blamed for delay which is not their fault. He adds: "Works are done better now than ever they were, and workmen also are better." We are afraid this is not quite a universal truth, though we are quite prepared to believe that many of the charges made against workmen of laziness and incompetence are greatly exaggerated.

BATH ABBEY is the latest of our great churches to pass into the hands of the restorer. There is every probability, however, that the restoration will be carried out in a careful and conservative spirit. It is the famous west front which is chiefly in need of restoration.

An influential meeting, presided over by the Bishop of Bath and Wells was held last week at the Guildhall, Bath, to consider the question. A resolution authorising the Rector and Churchwardens to take the necessary steps was passed, and committees were appointed. The Bishop said they aimed more at the repair of what already existed than restoration with a free hand.

AFTER much discussion the Town Council of Aberdeen has decided to remove Greyfriars' Church from the quadrangle of Marischal College in order to facilitate the extension of the University buildings. This decision is to be deplored on more grounds than one. As was pointed out by Dr. Ferguson in a paper read before the Aberdeen Ecclesiological Society, Greyfriars' Church is a unique specimen of Gothic pre-Reformation Architecture, and is in fact the only remaining relic left in Aberdeen of a style of Architecture that seems to have become an unknown art. Dr. Ferguson thought the retention of this venerable and beautiful church would add immensely to the interest of the extended University buildings; and he expressed a hope that even yet the sacrilegious act might be prevented, and the city spared the disgrace of destroying so old and so interesting a building. Another reason which makes the "removal"—which probably means destruction—of the old church a matter for sincere regret is that it is the only remaining part of the buildings that originally belonged to the University.

THE extensive repairs to Winchester Cathedral which were commenced in April, 1896, are approaching completion, but the funds subscribed for the work fall short by about £4400 of the £12,000 required. The Dean of Winchester has written to the Times appealing for further contributions. The work at present completed, says the Dean, includes the whole of the main roof of the nave, and the stone vaulting which was in a critical and dangerous condition, the north transept and its aisles, the choir and the south aisle of the same, together with some repairs to the timber of the central tower. The further repairs not yet begun include the roof of the south aisle of the nave, the large flat roof of the retrochoir and its aisle, and the roof of the eastern aisle of the south transept. When these are finished the whole of the main fabric of this vast cathedral will have been put into a state of such sound and solid repair as will, it is hoped, secure its stability for many generations to come.

At the annual meeting and distribution of Prizes of the Glasgow School of Art, held last week in the Corporation Art Galleries, the fifty-sixth annual report was submitted. The work of the School during the session has been very satisfactory. For the second year in succession the school has taken the first place in national competition, having been awarded the greatest number of medals—thirty-two in all—given to any School of Art in the kingdom. In addition, a great number of other distinctions have been gained. The number of students enrolled was 618, an increase of twenty-four on the enrolments of the previous session. A new Art school is now being built, and when this is completed the School will be able to develop its operations in several directions, and will, it is hoped, accomplish even better work than it has done hitherto.

A MEMORIAL window of stained glass has been placed in the gable of the western transept of West St. Giles', Meadows, Edinburgh. The window is one of three lights, with tracery openings above, and the bulk of the space thus afforded for decorative treatment is occupied by a subject, "Christ blessing little children," which fills the main portion of the three lights. The principal panels in the tracery contain small figures of angels in attitudes of prayer and praise. The composition, containing upwards of twenty figures, is well balanced both as regards colour and design. The scheme of colouring adopted is one which will not darken the church too much.

Professional Items.

BRADFORD.—The new Empire Theatre at Bradford was opened for the first time last Monday week. The whole work has been carried out from the plans of Mr. W. G. R. Sprague, of London. The general style of decoration used throughout is Arabesque, and the colours employed are a delicate light blue, red, and gold. The vestibule is handsomely ornamented on this principle, and with the vestibule is connected a foyer or crush-room, 40ft. square, in which there are ninety arches, supported by thirty-two pillars; in numerous places appear the Arabic words "Behold the Temple of the Gods;" the illumination is by twenty Oriental electric lamps. Leading out of the foyer are various retiring-rooms and the entrances to nearly all parts of the music-hall. From the side opposite to the vestibule a marble staircase, with ferneries, ascends to the grand circle. The design of the auditorium is one more familiar to London than to provincial theatre-goers. There are no pillars in the building, and the grand circle and balcony come forward so as to completely cover the pit and part of the stalls. The total sitting accommodation is for 2000 persons. The stage is 60ft. wide and 40ft. deep, with a proscenium of 30ft. There is a fireproof curtain, and throughout the building the amplest provision is made to secure the safety of the public and of the artistes in case of fire. The contractors who have been engaged are—builders, Messrs. Howe, West Hartlepool; plastic decoration and artists' work, Messrs. De Jong, London; furnishing and upholstery, Messrs. Cranston and Elliott, Edinburgh; steel construction, Messrs. Bladen and Co., Glasgow; electric lighting, Messrs. Sax Slatter, London; gas arrangements and heating, Messrs. Vaughan and Brown, London; fire curtain, hydrants, &c., Messrs. Shand and Mason, London; and stage, Mr. Wood, London; while Mr. Swain has acted throughout as clerk of works.

DERBY.—A new Board school was opened last week by Sir Henry Bemrose, M.P. The building forms part of a scheme which, when completed, will accommodate 1800 children, and will eventually cover an area of about three acres. It will include a school for manual instruction and a cookery school. The block now built is two stories in height, with heating chamber in the basement, and is arranged to accommodate 720 children. It is planned with a large hall on each floor in the centre, with classrooms opening directly out of it, and is a combination of the central hall and corridor systems. Externally, the whole of the buildings are of brick, with terra-cotta dressings, and with Hopton stone sills and steps. The architects were Messrs. Naylor and Sale, Irongate, Derby. The builder was Mr. Alfred Smith, of Gordon Road, Derby. The lighting and wrought ironwork was done by Mr. E. Haslam, St. Helen's Street, Derby; the heating by Messrs. Jerram and Co., Babington Lane; and the ventilation by Messrs. Cousland and Mackay, of Glasgow. The cost of the present building, with the furniture, is £11,500.

EBBW VALE.—The foundation stone of St. Mary's Church, Victoria, in the parish of Ebbw Vale, was laid last week by the Bishop of Llandaff. The church will consist of a nave, chancel, and south porch, with small vestry on the north side of chancel. The style is a simple one of Early English character; lancet windows with red brick arches and quoins, the general walling being of local grey stone. The roof is of deal, open timbered and covered with green slates, finished by a red terra-cotta ridge, crest, and gabled crosses. The interior affords accommodation for 256 persons, and is furnished with deal open seats, stalls, and pulpit. The heating is effected by hot air apparatus. The church has been designed with the greatest simplicity of detail and economy of cost consistent with sound construction and correct ecclesiastical character. Mr. Bruce Vaughan, F.R.I.B.A., of Cardiff, is the architect, and the

contract has been taken by Mr. S. D. Davies, builder, Ebbw Vale.

LEITH.—Leith Hospital is to be enlarged in commemoration of the Queen's Diamond Jubilee. The elevation of the new building shows a frontage to King's Street on the lines of the existing elevation to that street, but it is treated in a less severe style, and terminates with an ornamental gable and oriel window, with balustrading. Besides providing further accommodation for patients, the additions will include a new kitchen, laundry, and nurses' home. Plant for steam power will be put down for the kitchen and laundry, and it is intended to provide an installation of the electric light and motive power for lifts. The total cost of the new buildings, including machinery and plant, is estimated at between £17,000 and £20,000. The plans have been prepared by Mr. W. N. Thomson, architect, Leith.

NOTTINGHAM.—The Nottingham and County Constitutional Club was formally opened on January 25th by the Duke and Duchess of Portland. The building has been about two years in course of erection. The competitive design has been practically carried out in its entirety, and includes the following accommodation:—On the ground floor: Ladies' room, entered from the first vestibule and divided from the club proper by an entrance screen overlooked by the porters' room, smoke room, and billiard room for three tables, with large lantern light over, and bar serving room. On the first floor: Dining room, with large circular Oriel window and balconies, which occupies the whole of the Market Street frontage, private dining room, committee room, writing room, reading room, and two card rooms, with serving room and butler's pantry. On the second floor: Five members' bedrooms, stewards' rooms, secretary's office, kitchen, scullery, and servants' hall. Servants' bed and bath rooms occupy the third floor. Connected with the club, but divided from it by two doors, is a large assembly hall which has a special entrance and emergency exit into the street at the back, and will accommodate about 250 people. The main entrance hall measures 26ft. by 25ft., and is well lighted with a large lantern (15ft. square) of stained glass. The main staircase, 6ft. wide, is built of yellow Mansfield stone with York stone steps; a circular Oriel balcony, with carved panels and Royal Arms over an elliptical arch carried on Fuglevik granite columns and pedestals with Ionic caps, is a feature of the hall. Three large sets of lavatories and conveniences are provided, and a skittle alley, 50ft. long, under the entrance hall is reached by a staircase under the main stairs. The front entrance porch is panelled with black Kilkenny and Languedoc marbles. The frontage is built of Derbyshire stone from Darley Dale in the Renaissance style, treated with one bold and massive gable, which rises to a height of about 70ft. The principal entrance has a carved hood, supported on massive corbels; a special feature has been made with a large circular Oriel window on the first floor, with balconies on each side, commanding an excellent view up and down the thoroughfare. The contractor for foundations was Mr. W. Woodsend, and for the upper portion, Mr. J. Hutchinson. The architect is W. A. R. Calvert, F.S.I., of Nottingham, who won the work in competition, assisted by Mr. W. R. Gleave, A.R.I.B.A., who has also acted as the Clerk of Works.

MR. C. D. RUDD'S Ardnamurchan Estate in Argyleshire is being extensively improved. Sheilbridge Lodge—a somewhat antiquated building—has been pulled down, and is being replaced by a much more commodious and slightly structure. Glenborrodale Castle, erected about forty years ago, has been razed to the ground, and the contracts have been placed for a splendid mansion-house on its site, at a cost of something like £37,000. Certain additions and alterations are also to be carried out in connection with Kilchoan shooting lodge. A rich stratum of iron ore has been found on the estate, and mining work will begin in a few weeks.

Views and Reviews.

CABINET-MAKING FOR AMATEURS.

This is the latest addition to the extensive series of "Handbooks for Amateur Mechanics," emanating from the well-known offices of The Bazaar, Exchange, and Mart. This house has long made a speciality of catering for that numerous body of people, drawn from all classes of society who seek to dabble in the mysteries of trades, callings, and crafts widely differing from their ordinary occupations. Strange indeed must be the requirements of the "hobbyist" that Mr. Upcott Gill cannot meet—from stamp collecting to stud farming, from conjuring to cucumber culture—all tastes are duly considered. The editor of the work with which we have to deal takes the embryo cabinet-maker figuratively speaking by the ear, and initiates him into the secrets of furniture making—fancy, and otherwise. We must confess, however, that the manipulations and material described approximate more nearly to the productions of Curtain Road than to those of our Gillows, Hamptons, and Waring's. The ways and means to the conversion of egg-boxes into fashionable wardrobes, washstands and what-nots, may possibly afford a welcome distraction to the struggling young architect anxiously awaiting, with that sickness of heart, that comes of hope long deferred, the decision of the "Competition Committee" relative to his last Set: or if he be already the happy possessor of abundant commissions, he may obtain some mental relief and bodily exercise in the attempt to transform an empty beer or soda barrel into a cosy arm chair! How this, and some sixty other pieces of house furniture, can be manufactured at home, by persons of ordinary intelligence and some little leisure, may be discovered in these pages; the explanations are comprehensive and lucid, and are copiously illustrated. The chapter on "Tools and their Selection" is much above the average in point of quality, and is evidently the work of an expert; much useful information is set down, and the amateur woodworker will do well to make himself master of its contents before making his purchases. The article on glue is also worthy of careful attention, and whilst we cordially agree with the writer's remarks upon the ill results of using unseasoned wood, we think his instance of the drawer bottom scarcely a happy one; for the front edge of a drawer bottom should most certainly be fixed; it is the sides and back edge that it is requisite to leave with freedom of movement. We may also remark that, in these days of universal elementary education, it should not be possible, even in a work intended for amateurs, to confound pine with spruce.

"Cabinet Making for Amateurs," by J. P. Arkwright & L. Upcott Gill, 170, Strand. Price 2s. 6d.

PERSPECTIVE DRAWING.

This book deals exhaustively with the methods of perspective, as it is understood and practised in schools of art. The author states that the design of the work is to provide information on perspective to every class; to those who require the rudiments of the subject, as well as to those who desire a complete course of instruction. For this purpose the book has been divided up, so that those wishing to obtain a general knowledge of the subject, without going deeply into detail, may find what they want without working through the whole book. At the end we find chapters dealing with Aerial Perspective, Perspective Hints to Artists (i.e., Painters), Perspective for Architects and Engineers, Photographic Perspective. It also contains the necessary information for the Science and Art examinations, the Oxford and Cambridge examinations, and for those of the College of Preceptors.

We must say that, so far as we know, this book does give most complete information for these examinations; but, as a complete work on Perspective, it seems to fall short in this essential point, that a student might have the

contents of this book at his fingers' ends, might even know it all by heart, and yet might have no true conception of what perspective is, or where it begins and ends, or under what conditions these methods are true, or how very limited is their practical application.

For instance, we find numerous little problems in which a single object, such as a cube, is shown so many feet to the left or right of the centre of vision, or so much above or below, but the author does not explain that when the average man—not being a professor of perspective—wants to know what a thing looks like, he looks straight at it, not so many feet to left or right, or above, or below, but straight at it; and that although it is most ingenious to be able to explain what a thing is like when you carefully avoid to look at it, yet this is of no particular use to anyone. What you want to know is what a thing looks like when you *are* looking at it.

By-the-way, the author demonstrates that a sphere is not a sphere, but an ellipse, when you do not look at it, which is interesting but not very helpful.

In the chapter on Perspective for Architects we notice that the author has observed the ordinary architect's curious habit of looking straight at anything he wishes to see, and rebukes it. The effect is more pleasing, he considers, when you look at it obliquely. Fix your eye, for instance, on the nearest angle of a long façade, if you want a pleasing general view, do not look at the centre.

Again, "bird's-eye views, we are told, are simply perspective views drawn with a very high horizon line," and to illustrate this a view is given of a track of country with a church, from a height of 500ft., with a centre of vision on a distinct horizon line. Now if anyone takes the trouble to get to a height like this—by balloon or otherwise—to obtain a general view of a group of buildings with their surroundings, he does not proceed to fix his eye on the distant horizon in order to see what the buildings look like, he does something much simpler, he just looks down, regardless of the methods of Science and Art perspective, and totally unconscious of the fact that by doing so he is taking unwarrantable liberties with his horizon line, and making the tower of the church look bigger at the top than at the bottom. As the author remarks elsewhere, *apropos* of towers, "these misconceptions are great stumbling-blocks to the proper appreciation of perspective," and the author might have given them more attention. In short, we find this system of perspective well developed, but not sufficient explanation of its value or its limitations.

While it is necessary to practical success that students should pass such examinations as those of the Science and Art Department and the Oxford and Cambridge Local Boards, and while this subject continues to be handled in the way it now is for the purposes of these examinations, those desiring to pass them will find this book of great value and assistance, but the architect must approach it from a different point of view. A. R. J.

"Complete Perspective Course," By J. Humphrey Spanton. Macmillan and Co. Limited, 1898.

TWO CATHEDRALS.

Here we have two of Messrs. Bell's "Cathedral Handbooks," some of which have already been reviewed in these pages from time to time. While, of course, the series is written for the general public, rather than for the architect, the illustrations and the industrious compilation evident throughout render the pages interesting even to members of the profession who may almost be said to know our English cathedrals by heart; while in the condensed form in which the story of the various minsters is presented, a general view of their career may be readily gained—a thing not to be done in the reading of the more ponderous works of Professor Willis, Rickman, and others who have set out to treat of each individual cathedral *in extenso*.

While we can say thus much for the convenient and portable form of these handbooks, we cannot say that the architect, glancing over their pages, will find much that is new,

nor will he discover in the architectural pronouncements the voice of an authority on the art of Architecture.

Mr. Sergeant's work in the book on Winchester now before us exemplifies these remarks to the full. His 132 pages are a maze of quotations from the many persons who, from Willis and Britton downwards, have written on this magnificent fane. The fact testifies to his industry and the extent of his reading, even if at the same time we find the obvious fault of haphazard plan as the result. You cannot quote continually, and string your quotations together with a few undistinguished and non-committal phrases, and yet produce a book that shall be eminently readable.

Winchester Cathedral is, as is proper in a minster that was once the cathedral church of the Capital of England, the longest ecclesiastical building in the kingdom: measuring, as it does, from the west front to the eastern wall of the lady chapel, no less than 556ft. This great length is the more apparent to the exterior view than it would otherwise be, on account of the long, severe, almost unbroken skyline, resulting from Winchester lacking a central tower of any striking height. The existing tower at the crossing is an example of late Norman work, plain and massive, and with a flat skyline that cannot by any stretch of imagination be termed picturesque. Thus we find Mr. Sergeant echoing the disappointment of many writers who at Winchester expect to find the "picturesqueness" that the three grouped towers of Canterbury Cathedral, for instance, give. There is no need for this feeling. Indeed, the history of this sturdy severe tower, gives it a picturesqueness all its own, when the facts are known—how, fourteen years after its predecessor was built (in 1093) it fell suddenly in utter ruin, because, as some were found to believe, the body of the wicked Red King had been buried beneath it. The superstitious folk of those times knew nothing of foundations, or of piers insufficiently strong to stand the crushing weight of masonry. Rufus, "whom God abhorred," was buried at the crossing, and therefore, as a judgment upon this sacrilege, the tower fell upon his grave. The builders, however, knew better, for they kept the grave of the unshriven king there, and they rebuilt the tower with more substantial piers, putting, at the same time, less weight upon them than they had formerly to bear.

The writer of this review finds it a somewhat singular fact that, in these two handbooks on Winchester and Lichfield Cathedrals, one has, side by side, perhaps the most uncompromising sternness and the most delicate beauty of exterior to be found among the Cathedrals of England.

If Winchester presents certain masculine and rugged qualities above all others, Lichfield must certainly be regarded as almost feminine in its graceful beauty, with its gloriously tabernacled west front, and those three needle spires that form a lovely composition, from whatever quarter they are viewed. It is possible not to read, in the course of Mr. A. B. Clifton's account of this Cathedral Church of St. Chad, a certain enthusiasm he must possess for his subject; for the story moves as a well-ordered whole; comparable, it may be said, to a close-coupled express train, as against the loosely-bound-together "slow goods" of Mr. Sergeant's account of Winchester.

Lichfield Cathedral, as against the bulk of Winchester, is Early English versus Norman; for although Winchester is a compendium of the architectural periods from Norman to Perpendicular, and though Lichfield is in great part Decorated, we must needs take the heaviness of the former and the light and graceful style of the latter to stand for all that was solemn in Romanesque, and all that was gracious and aspiring in First Pointed. We have not the space here to follow the fortunes of Lichfield Cathedral from its foundation to the severe handling it underwent in the times of the struggle between King Charles and his Parliament, when the great central tower and spire were thrown down. Mr. Clifton tells the story very

ably, and we commend to architects what he has to say respecting the replacing of that feature. Also let it be said that he shows a healthy (though perhaps over-guarded) criticism of Sir James Wyatt and Sir Gilbert Scott. Wyatt has been dead very many years, and his work has long since been the laughing-stock or the despair of succeeding generations; and in this year of grace it is surely needless to hesitate before criticising Scott, for at this lapse of time no one could be pained, while his architectural enormities are no new-found things.

"Winches'er Cathedral," by Philip W. Sergeant;
"Lichfield Cathedral," by H. B. Clifton. London:
George Bell and Sons.

Correspondence.

THE SOANE MEDALLION AWARD.

To the Editor of THE BUILDERS' JOURNAL.

DEAR SIR,—May I be allowed to refer to your criticism in THE BUILDERS' JOURNAL of last week, on the R.I.B.A. award. You there call attention to the poverty of design exhibited by the competitors last year. This, you may not be aware, was not their fault entirely. The conditions for the competition were framed to require a concert hall for 3000 persons and a chamber concert hall, each with separate stairs, &c., &c., all on a site only 100ft. by 160ft., only two frontages of which were available for windows. The result was that when all the conditions were adhered to the building took a very simple utilitarian form with little or no chance for artistic feeling. In fact, the site was far too small, and no doubt the R.I.B.A. Council recognised their blunder and this year asked for a concert hall on a site 200ft. by 120ft., with four available frontages for 2500 persons. Your remark that the R.I.B.A. gave this year a similar subject to that of last year might, I would suggest, need amplification.—I am, Yours truly,

CHAS. A. DAUBNEY.

Peckham, S.E.

Enquiry Department.

BOOKS ON SURVEYING.

To the Editor of THE BUILDERS' JOURNAL.

DEAR SIR,—I am desirous of getting a recent work on levelling and surveying, and shall be glad to know what are the best on those subjects, together with the price and when published. I do not want anything too expensive, but something that will give the latest methods in use. You had some very interesting articles on the subject in your valuable paper some time ago.—Yours, &c.,

"UP-TO-DATE."

The author of the articles on surveying, which we have published, has written a book on the subject—"Surveying and Surveying Instruments," by G. A. T. Middleton, price 4s. 6d. Baker's "Surveying" is also a well-known and cheap book, a new edition of which has recently been reviewed by us; while Usill's "Land Surveying" deals more than either of these with trigonometry as applied to surveying work.

SOOT COMING THROUGH PLASTER.

To the Editor of THE BUILDERS' JOURNAL.

DEAR SIR,—I have just pulled two large chimneys down in an old house covering about 14ft. of each gable. As the new chimneys will cover the whole of the space, I must do something to prevent the soot coming through the plaster. Can you tell me of anything I can do to prevent this.—Yours truly,

J. W. N.

Baconsthorpe.

The only safe method of preventing the soot from striking through the plaster is to chip or cut away the entire surface of the old flues.

Under Discussion.

HINTS TO YOUNG ARCHITECTS.

The opening meeting and lecture under the auspices of the Dundee Institute of Architecture, Students' Section, was held last Saturday week, when Mr. T. Martin Cappon, F.R.I.B.A., delivered the opening address. In the course of his remarks, Mr. Cappon impressed upon the students the great importance of the architectural art, the magnitude and extent of its influence and bearing upon the history of humanity. Architecture, in the general sense of the word, was the art of erecting durable, commodious, beautiful, and handsome buildings of all kinds. Architecture could be divided into civil, military, and naval classes, any one of which gave scope for endless study and instruction. Architecture had become by degrees a fine art, differing from the other fine arts in the respect that it was based upon utility, and that it elevated mathematical laws to rules of beauty. Painting and sculpture were only the expression of the feeling of the beautiful, and any creation of Architecture must appear to have utility in view. Every feature should have a meaning, and every part of a building ought to show the purpose for which it was designed. Architecture was a development of constructive art, with nature as its ideal for proportion and beauty, and each nation had interpreted the art according to its climatic conditions, the materials found in it its natural characteristics, and such other influences as colonisation, commerce, or conquest brought to bear upon them. No one would deny that a very great improvement had taken place in the character of Architecture during the last century. They must place their whole heart in their Profession, work hard, and be determined to succeed.—Mr. Cappon devoted the remainder of his address to giving practical hints on different branches of the architect's work.

ELECTRIC LIGHTING AND MOTOR CARS.

Mr. W. H. Preece, the engineer, of the General Post Office, took the chair at the Automobile Club last week, when a paper on "Accumulators" was read by Mr. Northey. During the discussion various comparisons were made as to the charges by electric lighting companies for power, which, it appeared, was usually 3d. a unit, though the Shoreditch and St. Pancras Vestries charged one penny less. Mr. Preece, however, informed the members that Edinburgh was the ideal place for the electric motorcar, for in that city the Corporation would supply any quantity of electricity for 1½d. per unit. Mr. Preece added that the proprietors of the Scotsman intended to work the whole of their printing presses by electric motors. The progress made by the Post Office in dealing with the question of the supersession of horse traction by automotors was touched upon by some officials of the department, and one of the members of the committee appointed by the Postmaster-General to consider the question, stated that, as soon as anyone could offer to do the work at the present cost, the better they would be pleased. They were willing to give every encouragement to inventors, and they had an open mind as to whether the vehicles should be propelled by oil, gas, steam, or electricity. Already several types had been tested, and one at least worked very well.

THE CAUSES OF LEAD POISONING.

At the annual meeting of the Yorkshire Branch of the Sanitary Inspectors' Association, held at the Halifax Town Hall, on January 21st., Mr. W. Ackroyd, F.I.C., read a paper on "Lead Poisoning, its Causes and its Prevention." He said all the waters reported to have plumbo-solvent properties in the West Riding of Yorkshire were derived from moorland gathering grounds. For years he had regarded the acidity which was derived from peat as the cause of the action of the water on lead.

Samples collected from the various Halifax reservoirs showed that a very acid water acted quickly on lead, and that waters of slight acidity acted only slowly. The acidity was an extremely weak one even in the strongest cases. The sense of taste did not detect it. An analysis of the causes of the comparative immunity from plumbism in the Calder Valley and Halifax was of hygienic importance, especially as the water was not filtered. The water at its source was not much over one unit in acidity, the black sheep in the system, Fly Flats, being excluded. Numerous springs mixed with the water on its way to the centre of distribution, lessening its plumbo-solvent action, and lead piping was kept down to its minimum length. The length of lead piping from the iron main to the house was an important point. Mr. Ackroyd urged that the quality of all moorland waters should be examined often; indeed, the importance of the subject was sufficient to warrant daily observations being made by all great water-trading Corporations. He had recently proved that the configuration of a gathering ground might be conducive to the plumbo-solvent quality of water collected on it. The very acid water reached one of the Halifax reservoirs by an incline of 1 in 40, and in another of one-fifth the acidity by slopes of not more than 1 in 12. A common-sense inference in the former case would be that the lessening of the length of ground or peat through which the water passed would reduce the acidity to a proportionate degree, or, in other words, two or more parallel catchwater drains instead of one would lessen the plumbo-solvent quality of the water. Filtration on a large scale might lessen the acidity of water if the construction of the filter beds was based on the results of previous experiments in the chemist's laboratory. On the other hand, there were advocates of the less expensive course of simply adding precipitated calcium carbonate to the slight extent of about two grains per gallon, with a rough filtering afterwards. Sanitary authorities ought to prevent the use of lead pipes in wells of plumbo-solvent water, just as decisively as they prohibited the use of lead cisterns in some places for storage purposes.

HOW COAL GAS IS MADE.

Mr. William M. Thomson read a paper on January 19th to the members of the Dundee Institute of Engineers, in Lamb's Hotel, on "The Manufacture of Coal Gas." Mr. Thomson outlined the early history of gas manufacture, giving due prominence to what the world owed to William Murdoch, whom he described as the inventor of gas lighting, and, next to Burns, Ayrshire's greatest son. Not only did he take the initiative in employing gas as an illuminant, but to a certain extent he was the discoverer of the basis of the long series of aniline dyes which form so valuable a part of the bye-products of the distillation of coal. Mr. Thomson then proceeded to describe the plant employed in gas works, his remarks being elucidated by diagrams showing the various processes involved from the moment of carbonisation to the point when the gas passes from the gasometer to the consumer the bye-products and the uses to which they are applied being enumerated. At present 80 millions of capital was represented by the gas-producing plant of the country, and, notwithstanding the employment of electricity as an illuminant, a great future lay before the industry in its relation to motive power.

ARTISTIC HANDICRAFT.

The second of a series of lectures on "Some of the Arts and Crafts" was given at Manchester last week by Mr. C. R. Ashbee, of London. Mr. C. Rowley presided. Mr. Ashbee is the founder of the Guild and School of Handicraft at Essex House, and his lecture was on its work and methods. He said the work at Essex House was an experiment in the application of old-world methods in handicrafts to modern artistic and utilitarian requirements. There were two departments, the productive workshop and the department which concerned

itself with education in handicraft. Their aim was to turn out work that was not, so to speak, ear-marked with commercialism, and they were inspired very largely by the teaching of Ruskin. For the most part they produced things which might be described as subordinate to Architecture—objects of decorative art in the largest acceptance of the term, such as work in gold and silver and yellow metal, smith's work, the setting of precious stones, leather work, furniture and other internal fittings, and, in general, such things as could be done without the assistance of the machine. He did not decri machinery, but when it was introduced into a workshop it was apt to get out of control and destroy the possibilities of individual work. Machinery should be the slave and maid-of-all-work, but as a matter of fact it had made itself the master. The Guild had been carried on on the principle of an industrial partnership, but last year it had been made into a limited liability company, without, however, materially altering the old conditions. The three things they aimed at were—first, artistic quality in their work, then the quality of joy in production, which was dependent on the first condition; and, third, what he would call the human quality, which followed as a necessary consequence on number two.

A SINGLE RAIL EXPRESS ELECTRIC RAILWAY.

Under the auspices of the Liverpool Chamber of Commerce, Mr. F. B. Behr, A.I.C.E., described in detail his proposal to construct a single rail electric railway between Liverpool and Manchester, and pointed out the adaptability of the scheme for the rapid and safe transit of passengers. There were, he said,

comparatively few difficulties in connection with the construction of such a railway. The gradients between Liverpool and Manchester were specially suitable for attaining a very high speed with a moderate expenditure of electricity. He had made a very liberal estimate of the cost of constructing the line, which would be under £40,000, exclusive of the cost of the land and the entrance into Liverpool. If they put these two items down at, say, £1,000,000, which seemed to be ample, the total cost would be £1,400,000. If arrangements could be made with the Lancashire and North-Western, or the Lancashire and Yorkshire Railway, to enter Liverpool over their line, which could easily be done without interfering with the existing traffic, the cost would be materially reduced. He proposed that there should be 132 trains per day in both directions, and the journey would be performed in about eighteen minutes. This would be the cheapest railway which could be built as a practical test between two great towns. His idea was that one need only build this line to practically demonstrate the advantages resulting from the system, not only to the public, but also to the existing railway companies, for by freeing the existing railways from all express passenger trains the gain to these companies would be enormous, both financially and administratively. They would immensely increase the express passenger traffic by adding one of his lines to the present system, and at the same time they would be enabled to extend with perfect safety and economy their system of local trains, as well as their goods traffic. They would thereby also remove the principal cause of accident on their lines, the inter-mixture of high speed trains, with ordinary shunting and goods train operations.

BRITISH ARCHÆOLOGICAL ASSOCIATION.

The fourth meeting of the session was held at the rooms in Sackville Street on January 18th, Mr. C. H. Compton, (vice-president), in the chair. Mrs. Collier exhibited some interesting drawings of pre-historic animals scratched upon reindeer horns, found at Perigord, in France. The first paper was contributed by the Rev. Arthur Courtenay Roberts, vicar of Dunmow, upon "An Essex Church Tower," and was read in his absence by Dr. Winstone. This tower belongs to the church of Great Dunmow, not the Dunmow of fitch of bacon celebrity. The church is of fine proportions, and possesses a very large chancel, the author's theory being that the chancel was built for right of sanctuary—the nave and tower being added later. A partial restoration was commenced in August last, when the plaster was removed and the original flint work exposed. This restoration has brought to light many interesting features, including the exterior of the old turret staircase, similar to those at Hadleigh, Ingatstone, and other churches in the eastern counties. The second paper was by Dr. W. de Gray Birch, F.S.A., entitled "Historical Notes on Ramsey Abbey MSS." The Benedictine Abbey of Ramsey, in Huntingdonshire, is believed to have been founded in or about A.D. 969 by Alwinus, a duke or earl of the East Anglians, at the instigation of Oswald, one of the most active archbishops who ever occupied the provincial chair of York Cathedral. The abbey stood at the upper end of the town, toward the south, at a little distance from the present church. The only remains existing are the ruined gateway, a rich specimen of florid Gothic, and some much older work in the kitchen of Lord de Ramsey's house.

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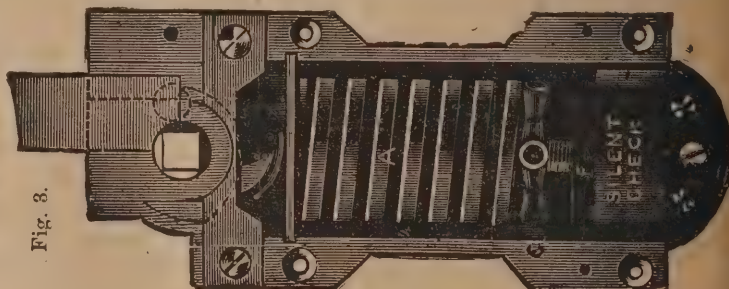
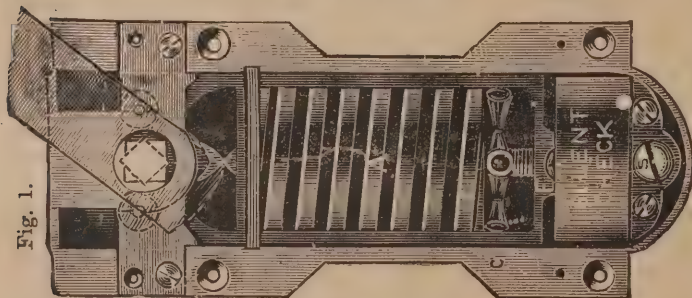
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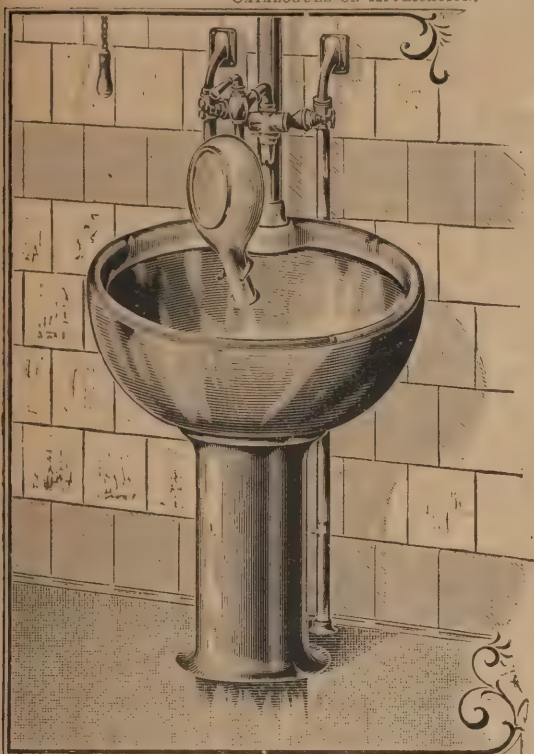
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TENDERS.

Information from accredited sources should be sent to "The Editor." No results of tenders can be accepted unless they contain the name of the Architect or Surveyor for the Work.

BROMSGROVE.—For the execution of street works, Stoke Prior, for the Rural District Council. Mr. H. W. Smith, surveyor, 4, Foregate-street, Worcester:—
J. Biggs ... £3,394 Currall, Lewis and Tilt Bros. ... 2,708 Martin ... £2,274
R. W. Fitzmaurice & Co. 2,477 G. Trentham ... 2,084
J. Mackay ... 2,349 T. Vale ... 2,076
W. T. Hall ... 2,290 G. Law, Kidderminster* 1,999
Jones ... 2,280 A. Cooper ... 1,911
*Accepted.

EDGBASTON.—For villa residence, Poplar-avenue, Edgbaston, for Mr. J. Wentworth. Messrs. Bailey & McConnal, architects, Bridge-street, Walsall:—

J. Rollason ... £1,565 E. J. Charles ... £1,897
W. Hopkins ... 1,480 J. Harley and Son ... 1,300
Whitehouse and Sons ... 1,449 Walton Bros. ... 1,848
J. W. Smith ... 1,420 J. Malen, West Brom- G. H. Marshall ... 1,397 which (accepted) 1,830

FORRES, N.B.—For the erection of two semi-detached villas in the Sanguhar Estate, for the Forres Building Company, Limited, Mr. John Forrest, architect, Forres:—

Masonry.—John Mackenzie, Market-street, Forres

Carpentry.—James Robertson, South-street, Forres

Slating.—Alex. Forbes, Tytler-street, Forres

Plastering and Tiling.—Angus and Ross, Orchard-street, Forres £2,138 18

Plumbing and Gasfitting.—Wm. Munro & Son, Urquhart-street, Forres

Painting and Glazing.—James Robertson, Urquhart-street, Forres

Railings, &c.—Wm. Smith & Son, High-street, Forres

HANWELL (Middlesex).—For the erection of an Infants' school, Hanwell, for the Managers of the Central London School District. Messrs. J. T. Newman and Jackson, architects, 2, Fen-court, E.C. Quantities by Messrs. R. L. Curtis and Sons:—

Hearle and Farrow ... £6,597 Stimpson and Co. ... £5,930

F. J. Shopland ... 6,229 F. Nye ... 5,793

Battley, Son, & Holmes ... 6,024 F. J. Coxhead* ... 5,489

G. H. Gibson ... 6,022 H. Flint ... 5,433
*Accepted.

HESTON (Middlesex).—For the erection of a villa residence, for Mr. P. A. Cragg. Messrs. W. S. Cross and Kekwick, architects, 13, Outer Temple, Strand. Quantities supplied:—

H. Wall and Co. ... £2,074 T. G. Sharpington ... £1,875

Hayworth and Sons ... 1,997 T. Hiscock ... 1,849

Wisdom and Son ... 1,896 A. and B. Hanson* ... 1,756
*Accepted.

LONDON.—For pulling down and rebuilding the "British Queen," East-street, Waltham, for the New London Brewery Company. Mr. J. Hamilton, architect:—

Jarvin and Son ... £2,235 Whitehead ... £1,985

W. Smith ... 2,003 Snewin Bros. ... 1,845

LONDON.—For the construction of the Greenwich foot-way tunnel, for the London County Council:—

Lethic Bros. ... £142,560 16 2 J. Cochrane and Sons ... £101,800 0 0

Mowlem & Co. 135,330 0 0

T. Taylor ... 131,030 0 0

LONDON.—For the erection of oak fencing at Southwark Park, for the London County Council:—

T. Turner, Limited ... £1,790 M. Marshall ... £1,460

B. Horton and Son ... 1,625 B. Batchelor ... 1,461

J. and S. Coats ... 1,479 Rowland Bros. ... 1,242

J. Stenning and Son ... 1,473

LONDON.—For alteration of Crossness main engines, for the London County Council:—

Fleming & Ferguson £45,000

J. Stewart and Sons, Limited ... 30,000

Phoenix Foundry Company ... 29,750

TEDDINGTON.—Accepted for alterations and additions to Rock Hall and new stabling, for Mr. James Willing, Junior. Messrs. W. S. Cross and Kekwick, architects, 13, Outer Temple, Strand:—

Love and Co., Exeter-street ... £1,560

WALSALL.—For extension to premises, George-street, Walsall, for Messrs. J. Shannon and Son, Limited. Messrs. Bailey and McConnal, architects, Bridge-street, Walsall:—

T. Tildesley ... £10,000 J. W. Smith ... £9,000

T. Rowbotham ... 9,997 C. Gray Hill ... 8,938

J. Harley and Son ... 9,975 Smith and Pitts ... 8,900

W. and J. Webb ... 9,936 J. Mallin ... 8,850

H. Willcox and Co. ... 8,856 J. L. Jones ... 8,832

W. Sapote and Co. ... 8,333 R. Morton Hughes ... 8,671

W. Wistance ... 9,157 J. Dallow ... 8,450

E. Giles and Son ... 9,150 W. Hopkins, Birming- W. Brown and Son ... 9,101 ham* 8,440
*Accepted.

WALSALL.—For extensions to Metropolitan Bank of England and Wales, Walsall. Messrs. Bailey and McConnal, architects, Bridge-street, Walsall:—

W. and J. Webb ... £6,550 J. Moffat and Sons ... £5,794

J. L. Jones ... 6,250 W. Sapote ... 5,678

Harley and Sons ... 6,150 J. Mallin ... 5,250

T. Rowbotham ... 6,075 W. Hopkins, Birming- H. Willcox and Co. ... 6,037 ham* 4,990
W. Wistance ... 5,997
*Accepted.

WELLINGTON (Somerset).—For erecting a chapel, &c., Wellington, Somerset. Mr. F. W. Roberts, architect, 2, Hammet-street, Taunton:—

Chapel. School. Total.

A. J. Spiller ... £ 780 0 516 0 2,296 0

H. J. Spiller ... 1,707 0 482 0 2,189 0

F. W. Rowsell ... 1,694 10 487 10 2,182 0

J. Morse ... 1,668 0 470 0 2,138 8

T. Manning ... 1,630 0 454 0 2,084 0

H. W. Pollard ... 1,600 0 440 0 2,040 0

T. W. Sweet ... 1,597 0 430 0 2,027 0

W. Follett, Wellington* 1,586 0 422 0 2,008 0
*Accepted.

WOLVERHAMPTON.—For additions to the "Prince Albert Inn," Railway-street. Mr. George Wormal, architect, Stafford:—

John Gethin ... £3,177 Thomas Skett, Castle- R. Speake and Sons ... 2,992 st., Wolverhampton* £2,728

John Stringer ... 2,940 F. Lindsay Jones ... 2,695

James Herbert ... 2,790
*Accepted.

YSTRAD (Wales).—For additions to laundry at Hospital, for the Rhondda Valley Urban District Council. Mr. W. D. Morgan, architect, 23, St. Mary-street, Cardiff. Quantities by the architect:—

Alban Richards ... £2,051 18 11 D. Thomas & Co. £1,655 0 0

W. E. Willis ... 1,920 9 10 Morgan Bros. ... 1,615 19 8

T. Maggs ... 1,708 3 0 Watkin Williams, Pontypidd* 1,475 0 0

C. Jenkins & Sons 1,668 6 6
*Accepted.

CONTRACTS OPEN.

WILLESDEN DISTRICT COUNCIL.
TO BUILDERS.

The Willesden District Council are prepared to receive TENDERS for the EXTENSION of PUBLIC OFFICES in Dyne-road, Kilburn.

Plans and specification may be seen, and all further particulars obtained upon application to Mr. O. CLAUDE ROBSON, M.Inst.C.E., Engineer to the Council, Public Offices, Dyne-road, Kilburn, N.W.

Quantities, to be obtained from the Offices of the Council, will be supplied to competing builders upon the payment of £10 per copy, which sum will be returned upon receipt of a bona-fide Tender.

Tenders, endorsed "Public Offices," to be delivered at the Offices of the Council not later than FOUR p.m. on TUESDAY, FEBRUARY 14th, 1899.

The Council do not bind themselves to accept the lowest or any Tender.

By order,

STANLEY W. BALL,

Clerk to the Council.

Public Offices,

Dyne-road, Kilburn, N.W.

January 25th, 1899.

RUGBY URBAN DISTRICT COUNCIL.
PROPOSED PUBLIC OFFICES.
TO BUILDERS AND CONTRACTORS.

The Urban District Council of Rugby invite persons desirous of TENDERING for the ERECTION and COMPLETION of PUBLIC OFFICES on a site in High-street, Rugby, to send their names and addresses to the undersigned, when a copy of the bill of quantities, conditions and form of Tender will be forwarded on or about the 31st inst.

A deposit of Two Guineas, in cash or money orders, to be made at the same time to the Clerk of the Council as a guarantee of the bona-fides of the application, which sum will be returned on the receipt of a bona-fide Tender.

Sealed Tenders, endorsed "Public Offices," to be sent to Mr. T. M. WRATISLAW, Clerk to the Council, Windmill-lane, Rugby, on or before FEBRUARY 15th next.

The Council do not bind themselves to accept the lowest or any Tender.

By order,

D. G. MACDONALD, Assoc. M.Inst.C.E.

Surveyor to the Council.

Rugby,

January 9th, 1899.

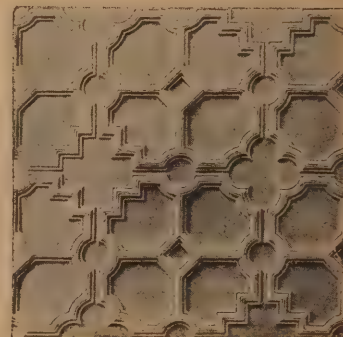
Binding Cases may be had on application to the Manager. Price 1s. 9d. each.



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The Embossed Decoration for

Walls,
Ceilings,
Friezes,
Dados,
Borders,



Design No. 302: 5½d. per sq. foot, or 1s. 9d. per Panel.

DESIGNS FOR WALLS in all styles, viz.: Reproduction of Old Leathers; Louis XIV., Louis XV., Louis XVI., Elizabethan, &c., &c.

DESIGNS FOR CEILINGS in Low and High Relief, comprising Elizabethan, Louis XIV., Rococo, Modelled Plaster Effects, &c., &c.

DESIGNS FOR FRIEZES from 6in. to 30in. deep, in High Relief—all the effect of the best modelled plaster at a fraction of the cost.

DESIGNS FOR DADOS, including Arabesque, Gothic, and other designs; also the Company's Speciality reproductions of Panelled Oak in great variety.

Write for Illustrated Catalogue and Price List of Designs to

THE CORDELOVA CO. LTD.,

74, PITT STREET, EDINBURGH.

SUPPLEMENT FOR



SURVEYORS · BUILDERS · SANITARY ENGINEERS ·

FEBRUARY 1ST, 1899.

BOYLE'S PATENT "AIR-PUMP" VENTILATOR.

THE LATEST PATENT HAS DOUBLE THE EXTRACTING POWER OF EARLIER FORMS AND IS ONE-HALF THE COST.

ROBT. BOYLE & SON, LTD., 64, Holborn Viaduct, LONDON; & 110, Bothwell St., GLASGOW
See Large Advertisement, Back Page, Monthly.

THE PROBLEM SOLVED!

ORDINARY WOOD RENDERED FIRE-RESISTING THROUGHOUT
WITHOUT AFFECTING ITS UTILITY AS A BUILDING MATERIAL.

The British Non-Flammable Wood Co. Ltd.

who have recently introduced into Europe the process now being so largely used in America, have erected large works in this country, and are now taking Orders for the supply of their

NON-FLAMMABLE WOOD.

The whole of the Carpentry and Joinery in the following notable buildings in New York, amongst others, consists of NON-FLAMMABLE WOOD:—

THE COMMERCIAL CABLE BUILDING,
THE QUEEN'S INSURANCE BUILDING,
... and ...
THE R. G. DUNN BUILDING.

NON-FLAMMABLE WOOD has been tested by H.M. Admiralty, and large Orders have been given by H.M. Government.

Quotations on receipt of Requirements, Address, &c.

THE BRITISH NON-FLAMMABLE WOOD COMPANY Limited,

2, Army and Navy Mansions, Victoria Street, London, S.W.

Trade and Craft.

GENERAL ELECTRIC COMPANY LIMITED.

We have received from the General Electric Company the ninth edition of their comprehensive catalogue of electrical fixtures and glassware. This catalogue, which runs to over eight hundred large quarto pages, exemplifies the enormous variety of the work turned out by this branch of the Company's business, and well illustrates the vast scope of its field of manufacture and the wide range of the markets which it supplies. Although, compared with other businesses, the Company has been started at a relatively recent date, it has won a great success due to the fact that while it employs only experienced artists in procuring its many designs, the practical needs of each particular piece are held always in view, and no pains are spared to procure that it shall not only serve its purpose, but stand the rough usage which it is likely to receive at the hands of careless or ignorant cleaners and house-servants.

of the Company. We notice some ingenious devices in the way of cord shorteners, and also some detachable ball fittings, which seem to be admirably contrived. The Company, besides an enormous variety of pendants, counterweight fittings, electroliers and standards, both simple and ornate, show also a large selection of shop window and picture reflectors and outside brackets, and standards for incandescent and arc lamps. They exhibit, among others, some pieces which combine the purposes of a bracket for a hanging-lamp, and a sign, very aptly, and the opportunity for really effective design in wrought iron has been availed of with great success. The list, indeed, contains a large selection of various designs enriched with leaf work of copper, brass, and iron, all English made and wrought by hand. Besides designs such as these, which belong distinctly to the nineteenth century revival of art metal work, there are also many examples in the traditional styles, and architects and decorators should be able to find patterns to match any style of ornamentation in the Company's showrooms.

1840-60 these quarries were largely worked, and during that time earned a great reputation for the excellence of their stone, its beauty and regularity of colour, and its great durability. A great number of important buildings throughout the country have been built with this stone, including the Albert Memorial in Hyde Park, King's College Hospital, the Royal Exchange of Manchester, the Municipal Buildings and Art Galleries of Birmingham, and many others. In 1854 Sir Joseph Whitworth purchased the estate on which these quarries were situate and converted them into enormous rock gardens. After the death of Sir J. Whitworth, the whole estate, comprising about 1000 acres, was purchased by two local gentlemen—Mr. J. H. Dawson and Mr. T. C. Drabble—who are again developing these once famous quarries. The stone from the quarries hitherto worked by Mr. T. C. Drabble which also are being taken over by the Company—has been most extensively used in the construction of important buildings in various parts of the country, and is specified by leading architects and engineers as being most suitable for trying

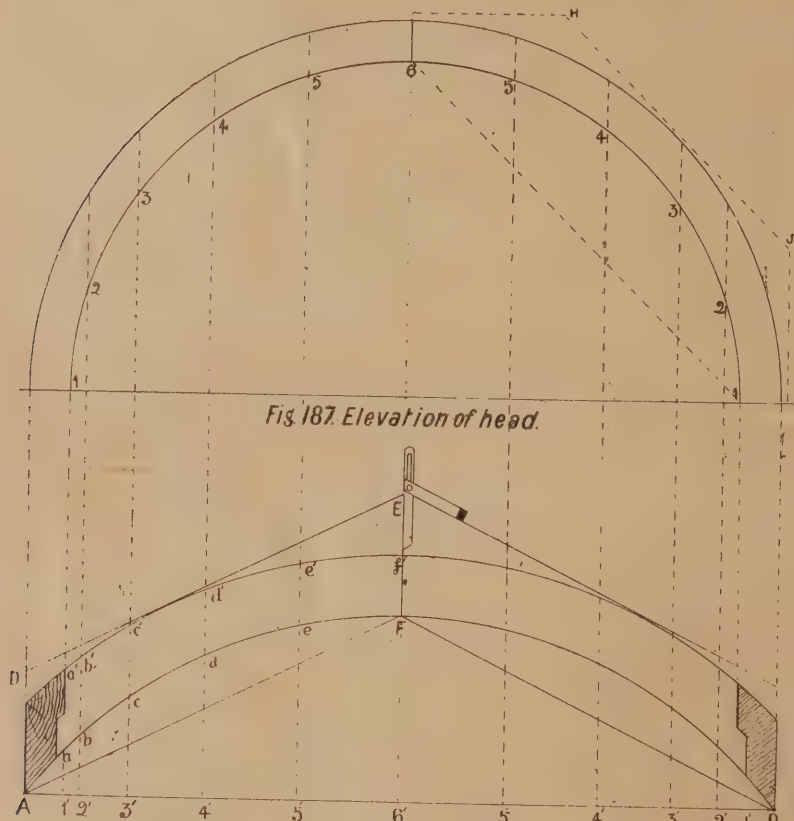


Fig. 187. Elevation of head.



Fig. 188. PLAN OF HEAD.

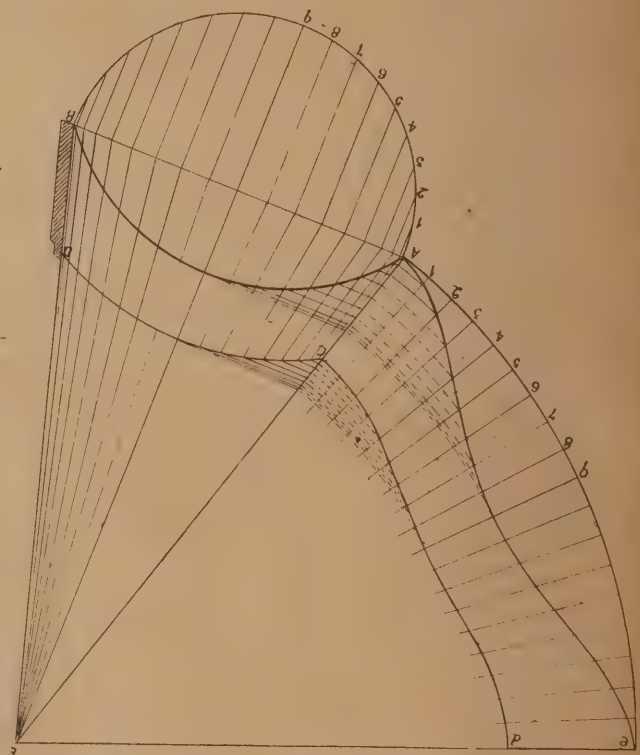


Fig. 191. METHOD OF OBTAINING TRUE SHAPE OF VENEER FOR SPLATED CIRCULAR LINING.

PRACTICAL CARPENTRY AND JOINERY.

Thus the Company's art metal works, which, though situated in Birmingham are operated from London, are already among the largest of their kind devoted exclusively to the manufacture of electrical fixtures, and their 1898-99 catalogue constitutes a useful guide and a reference-book for electrical engineers, contractors and architects, both in this country and abroad. The numerous illustrations appearing in the pages of the catalogue are either reproductions of photographs of the various patterns, or careful and exact drawings, which can be relied on to give a true idea of each subject. Here are described and illustrated electric fittings and fixtures, and accessories which each from the strong practical requirements of factory or workshop, to the rich and costly designs which are demanded by the luxurious taste of a modern London mansion or club. The needs of ships, yachts, shops, offices, factories, and even trams, besides the innumerable wants of every class of public building and private house, with numerous new and ingenious accessories and labour-saving appliances, are met by the manufactures

We cannot close this notice without referring to the handsome bronze standards of real and imitation bronze, composed with figure subjects. Many of these are very beautiful, and in designing some of them to serve as newel standards, the Company has been happily inspired. These bronzes seem particularly well adapted to this purpose. We noticed in particular a design "Nilus," in which the draped figure of a girl holds stems of bullrushes in her hand whose characteristic fruit is in each case an incandescent glow-lamp. There are others designed upon this same graceful idea. The catalogue closes with a large selection from the Company's silk, paper, china, and cut glass shades, globes and envelopes, which seem to include everything that utility or taste should suggest.

THE ORIGINAL DARLEY DALE STONE CO.

An important development, and one of great interest to the building trades, has recently taken place in the reopening of the famous Darley Dale stone quarries. In the period

atmospheres and where stone is required to bear great strain. Mr. Tanner, of H.M. Office of Works, has used the Farley-Darley Dale stone for post-offices in Nottingham, London, Sheffield, and elsewhere. This stone was also used in the building of the Claybury Asylum, the Blackwall Tunnel approach arches, Wellingborough Viaduct, and in many other important structures. The quarries now being worked by the Company are: Standcliffe (the original Darley Dale stone), Hall Dale, Darley Dale, Farley (Darley Dale), Bentley Brook (Mattock), Mattock Moor, Cronford and High Peak. The stone is supplied either in the rough or dressed ready for fixing.

BRITISH SAFETY WINDOW SASH AND CASEMENT CO.

The combined sash and casement of the British Safety Window Sash and Casement Company Limited, 39, Broad Street, Bristol, appears to possess considerable merit. It received the highest awards at the Royal Cornwall Polytechnic Exhibition, 1895, and the International Inventions Exhibition,

"ACME" HEATING AND VENTILATION.

A DISCUSSION which should prove specially interesting is announced for next Wednesday (February 8th), at the Sanitary Institute, Parkes Museum, Margaret Street, W. The subject is the "Supply of Water to London by the Welsh scheme," to be introduced by Mr. E. E. Middleton, M.I.C.E. The chair will be taken by Sir Douglas Galton at eight o'clock.

This image shows a blank, aged, cream-colored page, likely an endpaper or flyleaf of a book. The paper has a slightly textured appearance with some minor creases and discoloration, characteristic of old paper. The left edge of the page is bound, showing the stitching or glue of the book's binding. There is no text or other markings on the page.

PRACTICAL CARPENTRY AND JOINERY.

BY GEORGE ELLIS.

(Concluded from page cæcv.)

*All rights reserved by the Author.

Divide the soffit edge of the head (Fig. 187), into a number of equal parts, as in the points 1, 2, 3, 4, 5, 6, etc., and project them into the plan to intersect the great chord line, A-B, in points 1'-2'-3' etc. Draw at any convenient place the line M-N (Fig. 190), representing the stretch out of the soffit line 1-6-1; this is done by running the dividers around the curve in short steps and setting off the same number upon the straight line; next transfer the spaces 1, 2, 3, etc., to the line and erect indefinite perpendiculars therefrom, upon these set off the distances 1'-a, a', 2'-b, b', etc., as they occur in the plan; upon the corresponding lines, and through the points thus found, draw the curved lines a, b, c, d, e, f, which will give the shape of the mould. This mould must be made of thin stuff, so that it may be bent around the soffit, and its edges will then give the plan curves. If such a door frame as the above has to be fitted with a plain splayed lining, the head would have to be bent on a "cylinder," which would be the half of a truncated cone and staved at the back as shown in Fig. 186. To obtain the shape of the veneer to bend around the "cylinder," proceed as follows: let A-C, D-B (Fig. 191), be the plan of the lining; produce the faces of the jambs to meet in the point E; join A-B and describe the semicircle A, 9, B; the triangle A, E, B, represents the plan of the generating half-cone, and A, 9, B, its elevation

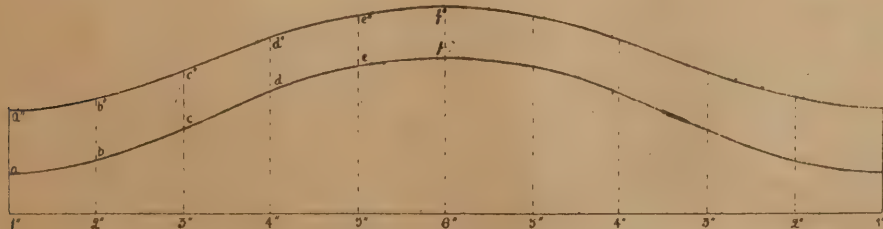


FIG. 190. SOFFIT MOULD FOR HEAD OF FRAME.

Next, to draw the stretch out of the semi-circle; from E as centre, with A-E as radius, describe the arc A, 9', E, divide the semicircle into a number of equal parts, and set off these upon the arc in the points 1', 2', 3', etc.; from these points draw lines to E, and from points 1-2-3, etc., in the elevation draw perpendiculars to A-B. From these intersections draw lines to E, and from where these lines cross the plan curves of the lining, draw lines parallel to A-B to meet the side A-E. From E as centre, with these intersections as radii, describe the series of arcs shown in dotted lines, and through the points formed by the intersections of the arcs with the corresponding radial lines from points 1', 2', 3', etc., draw the curved lines, A-e and C-d, which will be the true shape of the veneer developed.

Sprung Mouldings.—To obtain an upright mitre at the intersection of arch and other curved mouldings with straight portions, either in the same plane or at an angle with it in plan, requires that different sections should be worked in the two parts. To determine the section of the curved part when the straight is given, let A-B (Fig. 192) be the section of the level moulding, and B C the elevation of the curved part; divide the profile A-B into a number of parts, and describe arcs therefrom concentric with B C. From the same points in A-B draw perpendiculars to intersect the horizontal line D-E with E as centre, and the points 1, 2, 3, etc., as radii describe arcs cutting B-C in 1', 2-3, etc., from

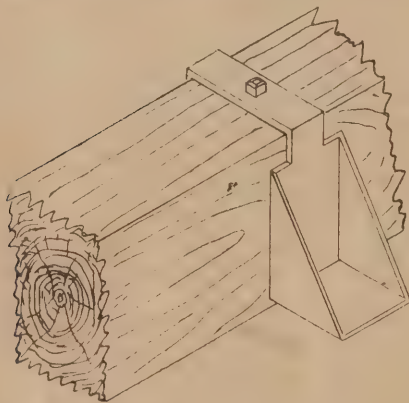


FIG. 195. FLOORS. A STIRRUP FOR BINDING JOIST.

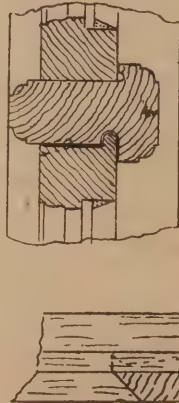


FIG. 196. WINDOWS. DETAILS OF CASEMENT JOINTS.



FIG. 197. WINDOWS. DETAILS OF SKYLIGHT BAR.

PRACTICAL CARPENTRY AND JOINERY.

E' draw a line to the centre of the curved part, and at the points where this line cuts the arcs in the elevation erect perpendiculars to E'-X; draw lines from the points 2'-3'-4' parallel to E'-X, and the intersections of these lines with the perpendiculars from the corresponding divisions will give points in the required curve. The intersection of straight and curved mouldings, when both are of the same section and lie in the same plane, results in a carved joint at the mitre as shown in Fig. 193. This may be found by laying down a section upon the seats of the mouldings, and drawing lines parallel with the edges of each through points in the section until they intersect; a line joining the intersections will give the shape of the mitre. If a straight mitre is desired, the two mouldings must be of differing sections, which can be found thus:—let C-D, (Fig. 194) be the sections of straight moulding, draw lines from all the members, parallel with the edge, at the points where these cut the mitre line; draw concentric arcs to the radial line M, and draw the perpendiculars 1, 2, 3, etc. Make these the same in height as the corresponding perpendiculars in C-D, and draw the section through the points so found. Figs. 195, 196, and 197 are illustrations accidentally omitted from earlier chapters. References to them will be found in Nos. 151 and 182.

This chapter concludes the present series of articles upon Practical Carpentry and Joinery. If further explanation is required on any point, a question, addressed to the Editor, will receive attention in our "Enquiry" columns.

Surveying and Sanitary Notes.

IN the ventilation of the Cunningham Memorial Free Church, Glasgow, now in course of erection (architects, Messrs. H. and D. Barclay), "Cousland's Improved Climax" Patent Direct-Acting Invisible Roof Ventilators are being used, supplied by the Climax Ventilating and Heating Company, 93, Hope Street, Glasgow.

THE New Schools, Sandwich, and the new Board Schools at Carrisborough, are being warmed and ventilated by means of Shorland's patent Manchester grates, patent exhaust roof ventilators and special inlet tubes, supplied by Messrs. E. H. Shorland and Brother, of Manchester.

THE Bradford Corporation has on hand a large scheme for new sewage works. The cost of the whole scheme, including the construction of the huge conduit from Bradford, is estimated at £345,000; it provides for the Shipley works being given up, and 12,000,000 gallons of sewage being received and treated at Esholt every day. The carrying out of the scheme involves the purchase of the Esholt estate, the owners of which, it is said, are

was expressed by several speakers. Lord Farrer thought it was clear that Surrey had a claim upon the Thames and upon the affluents of the Thames in the first instance, but they must remember what the condition of things was. There was a growing demand on the part of London for water, and there was a growing feeling that, as far as the present sources of supply were concerned, the supply must come from the Thames. That was to say, that all the counties around London were feeling that it was wrong for London or the London water companies to sink deep wells in those counties to pump them dry for the benefit of Londoners and for the benefit of the dividends of the water companies. The companies proposed to draw more and more water from the Thames. Would the Thames bear that? What would be the condition of the Thames in such a summer as the last if the companies were allowed to draw inexhaustible supplies from it? Either the companies must go to some enormous further expense of storing the winter water which was wasted, or they must bring in an additional supply of water to London from distant sources. The question was, how far the Thames can be relied upon to supply both the counties through which it runs and London with water without turning it into a stinking ditch?

THE ratepayers of Darnall are indignant at the bad state of their roads, and their defective tramway system, and sanitary arrangements. They have held an indignation meeting and addressed the following letter to the Mayor and Corporation:—"Gentlemen,—We, the ratepayers of Darnall, in public meeting assembled, respectfully draw your attention to the neglected and disgraceful state of the roads and streets in this district, and assure you that they are not only a menace to public health, but a positive danger to those compelled to live in them or travel over them. At the same time we earnestly request that you will use all the powers you possess to put an end to the vile stench which comes from the Nunnery Colliery tip; also that you will instruct the Tramways Committee to take immediate steps to complete the section of tramway to Darnall.—Signed on behalf of the meeting, etc." A committee was appointed to take steps to secure the objects named in the petition.

THE Town Council of Falmouth have applied for sanction to borrow £6500 for the improvement of the Market Strand and the construction of an intercepting sewer in connection therewith. The Local Government Board have declined the application, on the grounds thus set forth in the official letter:—"The Board learn that the proposed improvement of the Market Strand involves the carrying out of certain alterations to the sewage tank at that place, and that, in fact, the main object of the scheme is to abate the nuisance which is caused by the existence of the tank on the foreshore. The Board are advised that the scheme proposed would not remedy the nuisance arising from the sewage tank, and that no proposal which involves the retention of the tank for sewage purposes should receive their approval. Acting upon this advice, the Board must decline to comply with the application as regards the Market Strand improvement or to sanction any further loan for the works of sewerage until the arrangements for disposing of the sewage have been put on a satisfactory footing. The Board would strongly urge the Town Council to instruct a competent engineer, who has had practical experience in carrying out schemes of drainage, to enquire into the whole matter of the sewerage and disposal of the sewage of the borough, and to prepare a thoroughly comprehensive scheme suited to the actual requirements of the borough."

A COMPETITION for a new club-house centrally situated at Crewe has just been held, limited to architects invited from Crewe, Southport, Burslem, and Leek. The designs of Messrs. Wm. Sugden and Son, F.R.I.B.A., have been placed first, and will be carried out by them.

A CONFERENCE of local authorities was held at Guildford to consider the proposals of the Woking Water Company to obtain fresh supplies. The Company proposes to sink wells near Guildford and at Shere and Albury, in the valley of the Tillingbourne, as well as to take water from the Thames near Chertsey. Strong opposition to the Company's proposals

THE PLASTERERS' STRIKE.

THE plasterers' strike has not yet—up to the time of going to press—taken a decisive turn. It is still an open question whether the present dispute will be peacefully adjusted, or whether the building trades of the country are on the eve of a long and disastrous struggle. The master builders of London held a meeting on Jan. 24th, at which they passed a resolution to the effect that they should “adopt and carry into effect at the earliest possible moment the policy proposed by the National Association of Master Builders”—with which association the Central Association in London is affiliated. This is regarded as equivalent to an intimation that a general lock-out of plasterers may be instituted at any moment. The National Association had arranged to meet at Bradford on January 31st, and the whole question was to be dealt with then; the future course of the struggle depends largely on that meeting. Whatever settlement is now arrived at will deal not only with the question of non-union foremen—the original matter in dispute—but will cover a much wider ground. Had the issue been confined to the one question, it is likely that the members of the Plasterers' Union would have decided that the point was not worth fighting about; but there are other matters upon which disagreement has long existed, and on these neither side shows any disposition to give way.

The master builders have drawn up an ultimatum, which refers not only to the question of foremen, but to such matters as the limitation of apprentices, the boycotting of certain firms, refusal to work with non-union men, and disputes as to the kind of work to be done by plasterers. If this ultimatum is indorsed in its entirety by the National Association and presented to the Plasterers' Union, it is extremely improbable that it will be accepted. Its rejection would probably lead to very serious developments, for it is expected that other trades would support the plasterers, and the strike or lock-out might extend to the other building trades as well.

Meanwhile, the London plasterers are baling out on the question of foremen—a step they should have taken long ago. The papers are to be returned next Tuesday, and if—as is not unlikely—the decision of the majority is against compelling foremen to become members of the union, it ought still to be possible to avert a serious struggle.

Another hopeful sign is the moderate and reasonable attitude of the executive of the Plasterers' Union. Mr. Dan Hennessey, the organising secretary of the London district, spoke with both wisdom and courage when, in an address to the Edmonton branch of the union last Saturday evening, he condemned the apathy and indifference of the bulk of the members, which had allowed the affairs of the district to get into the hands of a clique of extremists.

He thought the time had arrived when these petty squabbles with employers should come to an end. The association had improved the position of its members enormously during the past few years, and it was a mistaken policy to pile on the last straw which would break the camel's back. Mr. Hennessey went on to express the opinion that the strike was a mistake. They were prepared, he said, to meet the employers on the one point at issue, but if they demanded anything else the members of the Plasterers' Association must decide. He asked his hearers to remember that trade unions were not formed to promote the private fads of a few of their members, but to secure justice as between employers and employed and a settlement of differences in a way which was honourable to both.

These remarks, it is gratifying to note, elicited “loud cheers” from an audience composed entirely of members of the Plasterers' Union.

Builders' Notes.

It is alleged that a builder, in erecting several houses on the Battery Estate, Sandylands, Morecambe, has not built them in accordance with the plans presented to the Lancaster Rural District Council, the building line having been overstepped to the distance of about 2ft. The matter has been in dispute some time, but the work of erection has proceeded. Accordingly the Rural Council instructed their surveyor to take a number of men and pull down part of the premises. The party proceeded to the place and commenced their work. This the builder resented, and ejected both the surveyor and men from the premises. A large crowd of persons assembled to watch the issue of the dispute. On the advice of the law clerk the surveyor eventually withdrew his men. The matter, therefore, remains in abeyance for the present.

SPEAKING at the Annual Dinner of the Bristol Master Builders' Association, Mr. A. Krauss, the President of that body, referred to the National Association and its work. Some years ago, he said, the builders felt the want of combination, hence the National Association was formed; there had been some good work done, and especially in the last three years, but there was plenty of room for improvement. For years the National Association had tried with the Institute of Architects to get fair and proper universal contract, but they had failed. From a builders' point of view there always should be an arbitration clause. The architect wanted an arbitration clause which would leave every dispute until the end of the contract, and that he thought was a misguided idea. The great thing was to settle disputes as soon as they arose. The framing of the Workmen's Compensation Act had been well watched by the association; it was an Act which threw on them a great responsibility, and the only safeguard for the builder was to insure himself, and include the charges on the contracts he was

carrying out. Trade unions had also brought unfair restrictions on them, which were very heavily felt in many towns, such as the limitation of apprentices, non-union labour, or who should be allowed to lay cement floors, &c. But he was glad to say that in Bristol they had gone on fairly well with their men. They would agree with him that unions were necessary and justified, and had done good for the working men, and they had no objection to unions; but let them be carried out so that they would give right and justice to all parties, and prevent strikes and lock-outs, as nothing was gained by these on either side. He trusted a Board of Conciliation would before long be formed, which might be able to settle any differences without going to the extreme, and he hoped the younger members in the building trade might see a better and more peaceful time than some of them had seen.

At the Surveyors' Institute, London, an arbitration was opened on Jan. 23, before Mr. Robert Vigers (the president of the Institute), between Messrs. Ford and Messrs. Bemrose (Limited), both of Derby. From the opening statement of counsel it appeared that in May, 1895, Messrs. Bemrose and Co. Limited, who are well-known printers, contracted with the claimants (builders at Derby), for the erection of certain buildings at Derby for the sum of £10,559. The architect was Mr. Ridgway, and the contract was drawn up without any detailed statement or specification, being based on eight plans and a bill of quantities, as is not unusual in the North of England. The builders, finding early in the contract that the quantities were insufficient, called in a surveyor, who, after January, 1896, measured up the work done, and rendered detailed statements to Messrs. Bemrose. In September, 1896, the works were completed, and the cost, according to the measurements of the surveyor, was £15,316 1s. 1d. The sum of £8750 had been paid on account, and the claimants now sought to recover £6566 1s. 1d. due on the contract. A great part of the question turned on the legal interpretation of the contract, which specially prescribed that no alteration or variation should invalidate the contract, and that at the conclusion the architect should certify the sums due for payment.—Counsel for Messrs. Bemrose and Co. contended that the claimants had, as a matter of law, proceeded altogether upon a wrong basis. They had measured up and charged for the whole building independent of the contract. At the very outside they were only entitled to the extras at the contract price.—Mr. Hudson, counsel for Messrs. Ford, said if there had been a proper specification that might be so; but the quantities given were not sufficient to erect the building.—Considerable legal discussion arose on this point.—Ultimately Mr. Hudson stated that, at the request of the arbitrator, Messrs. Ford would prepare an account showing the difference in the quantities in the contract and the work done, and all the alterations and variations, with any difference in the contract price; and for this purpose the proceedings were adjourned for one month.

COMPLETE LIST OF CONTRACTS OPEN.

DATE OF DELIVERY.	WORK TO BE EXECUTED.	FOR WHOM.	FROM WHOM FORMS OF TENDER MAY BE OBTAINED.
BUILDINGS—			
Feb. 3	Annfield Plain, Durham—Erection of House	T. Shreeve	J. Norman, 24, Bridge-terrace, Annfield Plain.
3	Great Yarmouth—Additions to Premises	Visitors' Committee	C. G. Baker, Architect, Town Hall-chambers, Yarmouth.
3	Lancaster—Asylum Wards	Darton School Board	Clerk of Works, County Lunatic Asylum, Lancaster.
3	Staincross, near Barnsley—Erection of School		Senior and Clegg, 15, Regent-street, Barnsley.
3	Thorhill, Dewsbury—Erection of Houses		Holtom and Fox, Architects, Westgate, Dewsbury.
3	Whitby—Erection of Ashpits	Rural District Council	J. Jackson, Inspector of Nuisances, East-row, near Whitby.
3	London, E.—Lavatory Accommodation	St. George's-in-the-East Guardians	G. A. Wilson, Vestry Hall, Cable-street, E.
3	Brackenthwaite—Erection of Two Bridges	Cockermouth Rural District Council	J. B. Wilson, Engineer, Court-buildings, Cockermouth.
3	Luddenden Foot, near Halifax—Stabling, &c.		J. F. Walsh, Architect, Lancs. Yorks Bank-chbrs., Halifax.
3	Mountain Ash, Wales—Rebuilding Public House	Mrs G. Kenshole	G. Kenshole, Duffryn House, Ystrad Mynach.
4	West Hampstead—School	Aske's Haberdashers' School Managers	Widnell and Trollope, 20, Tothill-street, S.W.
4	Carlton, Yorks.—Erection of Class-room	School Board	W. E. Richardson, 23, Bond-street, Leeds.
4	Kingston-upon-Thames—Dining Hall, &c.	Workhouse Guardians	W. H. Hope, Union Offices, Kingston-upon-Thames.
4	Lancaster—Alterations to Premises	F. Wolfenden	C. F. Thompson, Architect, The Arcade, Lancaster.
6	Leeds—Alterations, &c., to Public Baths	Baths Committee	W. Hanstock and Son, Architects, Branch-road, Batley.
6	Nelson—Chapel Alterations		H. Whitaker, 21, Market-square, Nelson.
6	Wilton, Wilts.—Alterations to Workhouse Wards	Union Guardians	J. Harding and Son, 53, High-street, Salisbury.

COMPLETE LIST OF CONTRACTS OPEN—continued.

DATE OF DELIVERY.	WORK TO BE EXECUTED.	FOR WHOM.	FROM WHOM FORMS OF TENDER MAY BE OBTAINED.
BUILDINGS—Continued.			
Feb. 6	Benlech, Anglesey—Chapel Extension	School Board	J. Owen, Architect and Surveyor, Menai Bridge.
" 6	Newcastle-on-Tyne—School Alterations, &c.	School Board	W. L. Newcombe, 89, Pilgrim-street, Newcastle-upon-Tyne
" 6	Normanton-by-Derby—School Alterations, &c.	Improvement Committee	Naylor and Sale, Architects, Iron-gate, Derby.
" 7	Halifax—Bridge Work	Corporation	E. R. S. Escott, Borough Engineer, Town Hall, Halifax.
" 7	Salford—Erection of Public Hall	Corporation	Borough Engineer, Town Hall, Salford.
" 7	Troutbeck, near Wiadernere—Erection of Bridge	Guardians of North Dublin Union	J. Bintlcy, 7, Lowther-street, Kendal.
" 8	Dublin—Erection of Labourers' Dwellings	Fulham Vestry	— Morris, 24, Cabra-parade, Dublin.
" 8	London—Refuse Destructor and Electricity Works	County Infirmary	C. Botterill, Town Hall, Waltham Green.
" 9	Pendleton, Salford—Canal Retaining Walls, &c.	Corporation	J. Holt, 6, St. Mary's-gate, Manchester.
" 9	Sligo—Surgery Alterations, &c.	Guardians	Secretary, Grand Jury Office, Court House, Sligo.
" 9	Tayvallich, Scotland—Erection of Church	T. and J. Askell	N. Gillies, Architect, Lochgilphead.
" 10	York—Erection of Fence Wall, Railing, &c.	Urban District Council	A. Creer, City Engineer, Guildhall, York.
" 11	Cardiff—Extension of Mortuary	Guardians	Edwin Seward, Queen's-chambers, Cardiff.
" 11	Swindon—Rebuilding Inn	Urban District Council	W. Drew, 22, Victoria-street, Swindon.
" 13	Wimbledon—Isolation Hospital	Willesden District Council	C. H. Cooper, Council Offices, Broadway, Wimbledon.
" 14	Leeds—Church Works	Urban District Council	H. Walker, 8, Upper Fontaine-street, Leeds.
" 14	London, N.W.—Extension of Public Offices	Guardians	O. C. Robson, Offices, Dyne-road, Kilburn, N.W.
" 15	Letterkenny—Plastering	Glasgow International Exhibition	W. Hague, 50, Dawson-street, Dublin.
" 15	Rugby—Public Offices	Gen. Accident Assurance Corporation, Ltd.	D. G. Macdonald, Council's Surveyor, Windmill-lane, Rugby.
" 16	Hastings—Erection of Workhouse Buildings		Jeffery and Skiller, 5, Havelock-road, Hastings.
March 15	Glasgow—Exhibition Buildings		F. A. Healey, 141, Buchanan-street, Glasgow.
No date.	Abergavenny—Erection of Hospital		E. A. Johnson, Architect, Abergavenny.
"	Perth—Erection of Offices		G. P. K. Young, 42, Tay-street, Perth.
"	Wrexham—Erection of Hotel		W. Slater, 8a, High-street, Wrexham.
ENGINEERING—			
Feb. 3	Brigham, Cumberland—Laying Water Main	Cockermouth Rural District Council	J. B. Wilson, Engineer, Court-buildings, Cockermouth.
" 3	Edinburgh—Iron and Steel Works at Electric Station	Magistrates and Council	J. Cooper, 1, Parliament-square, Edinburgh.
" 4	Wexford—Deep Well Force Pumps, &c.	Guardians	D. E. McCarthy, Engineer, Board Room, Wexford.
" 6	Buxton—Electric Lighting Works	Urban District Council	J. Taylor, Clerk, Town Hall, Buxton.
" 6	Newton, Scotland—Widening Railway	Caledonian Railway Company	G. Graham, C.E., Buchanan-street, Glasgow.
" 6	Belfast—Steel Barges	Harbour Commissioners	G. F. L. Giles, Harbour Engineer, Belfast.
" 6	Lowestoft—Electric Lighting Plant	Corporation	W. C. C. Hawtayne, 9, Queen-street-place, E.C.
" 7	London, E.—Electric Light Plant	Whitechapel Board of Works	A. Wright, 26 and 27, Bush-lane, Cannon-street, E.C.
" 7	India Office, S.W.—Dredges and Barges	Fulham Vestry	Director-General of Stores, India Office, Whitehall, S.W.
" 8	London, S.W.—Sinking Artesian Wells	Argyleshire County Council	F. H. Medhurst, 13, Victoria-street, Westminster.
" 8	Kames, Scotland—Reservoir, Filters, &c.	Corporation	J. A. Leslie and Reid, 72a, George-street, Edinburgh.
" 10	Birmingham—5½ miles of Aqueduct	Urban District Council	J. Mansergh, 5, Victoria-street, S.W.
" 11	Ashford, Kent—Purifiers, Gasholder, &c.	Guardians	Stevenson and Burstall, 38, Parliament-st., Westminster.
" 14	Kingston-upon-Thames—Telephonic Communication	Inspector of Irrigation	W. H. Hope, Architect, Union Offices, Kingston.
" 16	Alexandria, Egypt—Two Swing Bridges	Norwegian State Telegraph Administration	Inspector of Irrigation, Third Circle, Alexandria.
" 26	Christiana—Porcelain Telegraph, &c., Insulators	Public Works Department	Commercial Department, Foreign Office, S.W.
March 2	Cairo—Iron Canal Bridge		The Inspector, Second Circle of Irrigation, Cairo.
No date.	Southampton—Electrical Installation		H. Cleaver, 52, Bridge-road, Southampton.
IRON AND STEEL—			
Feb. 3	Leeds—Wrought-iron Fencing	Magistrates and Council	City Engineer, Municipal-buildings, Leeds.
" 3	Edinburgh—Steelwork of Roofs	Waterworks Committee	J. Cooper, 1, Parliament-square, Edinburgh.
" 6	Cork—Supply of Cast-iron Pipes, &c.	Corporation	H. A. Cutler, City Engineer, Municipal-buildings, Cork.
" 6	Glasgow—Reconstruction of Tramways	District Council	J. Young, 88, Renfield-street, Glasgow.
" 7	Branksome, Dorset—Tank Van	Admiralty	S. J. Newman, 3, Tennyson-buildings, Ashley in Branksome.
" 8	London, S.W.—Navy Stores	Belfast and County Down Railway Co.	Director of Naval Contracts, Admiralty, London, S.W.
" 13	Belfast—Supply of Railway Stores	Waterworks Joint Committee	T. J. Brittain, Secretary, Queen's Quay Terminus, Belfast.
" 14	Ashton-under-Lyne—Cast Iron Pipes		G. H. Hill and Sons, 3, Victoria-street, Westminster, S.W.
PAINTING AND PLUMBING—			
Feb. 3	Dublin—Supply of Paints, &c.	Commissioners of Irish Lights	O. Armstrong, Secretary, Irish Lights Office, Dublin.
" 4	Wakefield—Painting Workhouse	Guardians	Workhouse Master, Wakefield.
" 6	Doncaster—Painting Waterworks	Corporation	Borough Surveyor, Mansion House, Doncaster.
" 6	Manchester—Painting—(12 Contracts)	Lancashire and Yorkshire Railway Co.	Engineer, Hunt's Bank, Manchester.
ROADS AND CARTAGE—			
Feb. 4	Norwich—Broken Granite	Norfolk County Council	T. H. B. Heslop, County Surveyor, Norwich.
" 4	London, W.—Works and Materials	Marylebone Vestry	The Clerk, Court House, St. Marylebone, W.
" 4	Whitley, Northumberland—Road Works	Urban District Council	Council Offices, Whitley.
" 4	Eserick, York—Supply of Whinstone	Rural District Council	F. A. Camidge, 3, Stonegate, York.
" 6	Aberfeldy—Cartage, &c.	Rural District Council	W. Bell, Road Surveyor, Aberfeldy.
" 6	Midhurst, Essex—Materials	Newington Vestry	A. G. Gibbs, Surveyor, Council Offices, Midhurst.
" 6	London, S.E.—Materials	Rural District Council	L. J. Denham, Vestry Hall, Walworth, S.E.
" 7	Bicester, Oxon—Cartage	Rural District Council	C. W. Erabant, Surveyor, South View, Bicester.
" 8	Bicester, Oxon—Hartshill Chippings	Urban District Council	C. W. Erabant, Surveyor, South View, Bicester.
" 8	Swindon—Road Works	Lambeth Vestry	E. T. Jones, 42, Cricklade-street, Swindon.
" 9	London, S.E.—Services and Materials	Urban District Council	H. Edwards, Vestry Hall, Kennington, S.E.
" 10	Broadstairs—Making-up Roads	Corporation	H. Hurd, Town Surveyor, Council Offices, Broadstairs.
" 10	Hull—Supply of Granite Setts	Commissioners	A. E. White, City Engineer, Town Hall, Hull.
" 13	Kirkcaldy—Road, Bridges, &c.	District Council	W. D. Lang, Engineer, Kirkcaldy.
" 14	London, N.W.—Road Works	Corporation	O. C. Robson, Offices, Dyne-road, Kilburn, N.W.
" 15	South Shields—Supply of Materials	Urban District Council	S. E. Burgess, Borough Engineer, Chapter-row, S. Shields.
" 22	Clayton-le-Moors—Granite Setts	National Schools Managers	A. Dodgson, Council Offices, Clayton-le-Moors.
" 28	Selby—Asphalte or Tar Macadam	Urban District Council	Rev. A. G. Tweedale, The Vicarage, Selby.
No date.	Atherton, Lancs.—Supply of Kerbs, &c.		D. Schofield, Clerk, Atherton.
SANITARY—			
Feb. 1	Pentrol, Glamorgan—Construction of Sewers, &c.	Rhondda Urban District Council	W. J. Jones, Surveyor, Council Offices, Pentre.
" 3	Wellingborough—Sewage Works	Rural District Council	J. B. Everard, 6, Millstone-lane, Leicester.
" 6	Willaston, Cheshire—Sewers, &c.	Commissioners	A. Hughes, 5, Birch-road, Bebbington.
" 8	Ayr—Four and a Half Miles of Sewers	Urban District Council	J. Eaglesham, Engineer, Ayr.
" 14	Felixstowe—Drainage Works	Town Council	Surveyor's Office, Town Hall, Felixstowe.
" 14	Mansfield—Construction of Sewers	Urban District Council	R. F. Vallance, Borough Surveyor, Mansfield.
" 14	Cirencester—Drainage Works	Urban District Council	T. Hibbert, Surveyor, Cirencester.
" 18	Coalville, near Leicester—Sewers, &c.	Urban District Council	J. B. Everard, 6, Millstone-lane, Leicester.

COMPETITIONS.

DATE DESIGNS TO BE SENT IN.	DESIGNS REQUIRED.	AMOUNT OF PREMIUM.	BY WHOM ADVERTISED.
Feb. 1	Bradford—Central Fire Brigade Station	£100, £50, £30...	City Surveyor.
" 7	Tottenham—Refuse Destructor	£25, £15, £10...	Urban District Council, Tottenham.
" 24	Northwich—Two Storey Dwelling House	£20, £10, £5...	Northwich Salt Compensation Board, Wimmington-street.
" 28	Knutsford—Laying-out Cemetery, &c.	£20, £10...	W. J. Downes, Surveyor, Urban District Council, Knutsford.
" 28	London, S.W.—Covered Sanitary Dust-cart	£25...	Clerk, London County Council, Spring Gardens, S.W.
March 1	Northwich—Dwelling-house on Land Liable to Subsidence	£20, £10, £5...	Salt Compensation Board, Northwich.
" 4	School Buildings	£25, £10...	Beverley Grammar School.
" 22	London, E.C.—Additions to Town Hall	£50, £25...	Shoreditch Vestry.
" 31	Forfar—Isolation Hospital	£31 10s., £21, £15 15s.	Dundee and Forfar District Committees.
April 1	Bradford—Cartwright Memorial Hall and Art Gallery	£150, £100, £50...	City Surveyor, Bradford.
June 1	Leeds—Market Hall and Shops	£150, £100, £50...	Corporation.
No date.	London, W.—Semi-detached Villas		F. Moggridge, 18, King's-place, Portman-square, W.

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February 2nd	June 1st	September 21st
February 16th	June 15th	October 5th
March 2nd	July 6th	October 19th
March 16th	July 20th	November 2nd
April 6th	August 3rd	November 16th
April 20th	August 17th	December 7th
May 4th	September 7th	December 21st
May 18th		

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Plans and full particulars of the owner's agents, Messrs. GREEN and SIMES, Auctioneers and Estate Agents, Blenheim Mansions, Queen Anne's-gate, London, S.W.; or Mr. W. M. LEACH, Auctioneer and Estate Agent, Crawley, Sussex.

FAIRMILE PARK, near Cobham, Surrey.—A FREEHOLD BUILDING ESTATE of about 40 acres, with possession.

MESSRS. DRIVER and CO. have received instructions to offer to AUCTION at the MART, Tokenhouse-yard, Lothbury, NEXT SPRING (unless previously sold by private contract), the above property, situate in a favourite residential district, about a quarter of an hour's walk from the Oxshott and Fairmile Station, and about a mile and a half from Cobham Station. The estate comprises Building Land, ripe for development, the higher portion (sloping to the south) possessing charming views over the intervening country to Epsom Downs; and a Residence known as "South Lodge," with stabling and garden; Eight small Villas, some Cottages, and the "Griffin" Beerhouse. On a portion of the estate brickearth is being worked, and will be included in the sale as a "going concern."

Particulars and plans, when ready, can be obtained of CHARLES JUPP, Esq., Solicitor, 48, Lime-street, E.C.; and of Messrs. DRIVER and Co., 23, Pall Mall, S.W.

By order of Trustees.—Preliminary Advertisement.—Freehold Building Estate, Streatham, near West Norwood Railway Station.

MESSRS. FIELD and SONS, and Messrs. WALFORD and WILSHIN, who are jointly concerned, will SELL by AUCTION, at the MART, at an early date, a valuable FREEHOLD BUILDING ESTATE, known as High View Park, comprising 16a. 1r. 10p., lying immediately at the rear of and with approach from Leigham Court-road; also a contiguous Freehold Building Site of 2a. and 5p. in a new road intended to connect Canterbury-grove with Thurlby-road.

Particulars and plan, in due course, of Messrs. KINGSFORD, DORMAN, and Co., Solicitors, 23, Essex-street, Strand; of Messrs. WALFORD and WILSHIN, Auctioneers, Anerley, S.E.; and of Messrs. FIELD and SONS, as above.

LEA VALLEY, PONDER'S END, and BROXBOURNE.—Freehold Wharf and Building Land, the latter with possession, some of which has been included in the schedule of the land required by the East London Waterworks Company.

MESSRS. NORTON, TRIST, and GILBERT will SELL by AUCTION, at the MART, Tokenhouse-yard, London, E.C., on TUESDAY, FEBRUARY 28th, 1899.

LOT 1.—8 acres 0 roods 11 perches of Land, with a frontage of 500ft. to the Lea and Stort Navigation Canal, also bounded on the north and east sides by the stream. This land is situate immediately opposite the Corticine Floor Covering Works, Ponders End, and is a fine site for the erection of a factory requiring waterside accommodation. It is in the occupation of Mr. Ives. This land has been scheduled to be acquired for the New Reservoir for which the East London Waterworks Company are applying for Parliamentary powers.

LOT 2.—14½ Acres of Freehold Building Land, with a frontage of 1080ft. to the road, close to Dobbs Weir, and within one and a half miles of Broxbourne Town and Station, now ripe for building purposes, possession of which can be given on completion of the purchase.

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